6

CORPORATE VENTURE CAPITAL ORGANIZATIONS IN GERMANY: A COMPARISON

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INTRODUCTION

There is little recent empirical research on corporate venture capital organizations (CVCs) and most of the relevant literature focuses on the Anglo-American market. One reason for the dearth of empirical data on the German CVC market (Opitz 1990; Rauser, 2002; Schween, 1996; Witt and Brachtendorf, 2002; Mackewicz and Partner, 2003) is that CVCs are comparatively rare and new in Germany. Consequently, studies on German CVCs are based on an extremely small number of cases. The studies that do exist tend to portray the German market as less successful than more mature markets, such as those in the United States (Schween, 1996). Another body of literature compares CVCs with independent venture capital organizations (VCs) (Gompers and Lerner, 1998; Maula, Autio and Murray, 2005 in this volume; Siegel, Siegel and MacMillan, 1988; Weber and Dierkes, 2002). The differences between CVCs and classic VCs raise interesting research questions, especially when one investigates their strategic and financial success.

This study looks at two aspects:

1. We compare newly gathered data on goals, decision-making processes, fund structure, and attainment of strategic and financial goals of 20 German CVCs with information on 52 German independent VCs as well as other German, European and American CVCs (to the extent that comparable data are available).
2. We analyze fundamental goals and their effect on the strategic and financial success of CVCs. The intention is to find out whether a prioritization of financial goals, a mixed approach pursuing both financial and strategic goals, or a distinctly strategic focus is the most promising approach for CVC programs.

The patterns that emerge from our data in conjunction with data on German VCs as well as European and American CVCs contribute to a better understanding of what strategies offer CVC organizations the greatest chance of success.

PAST RESEARCH ON CORPORATE VENTURE CAPITAL

Interest in CVCs has fluctuated markedly in the past decades. Gompers and Lerner (1998) identified three major parts, the most recent of which began in the late 1990s. The abundance or lack of research on CVCs is a reflection of the economic importance of this sector over time.

A flurry of new studies has appeared over the last three years (Birkinshaw, van Basten, Batenburg and Murray, 2002; Chesbrough, 2002, 2000; Gompers and Lerner, 1998; Kann, 2000; Keil, 2000; Maula and Murray, 2001*a*, 2001*b*; Maula, Autio and Murray, 2005, in this volume; Poser, 2002; Rauser, 2002; Thornhill and Amit, 2001; Weber and Dierkes, 2002; Weber and Weber, 2002). The recent publications on which we focus allow us to take a closer look at the performance of CVCs and the potential success factors, including the relationship between goals and organizational structures and processes.

Gompers and Lerner (1998), who analyzed over thirty thousand transactions by corporate and other venture organizations in the American market, found that corporate venture investments in entrepreneurial firms appear to be at least as successful as those backed by independent venture capital organizations. They suggest that, "the presence of a strong strategic focus is critical to the success of CVCs. . . . Corporate programs without a strong strategic focus appear to be much less stable, frequently ceasing operations after only a few investments, but strategically focused programs

appear to be as stable as independent organizations." (Gompers and Lerner, 1998, p. 34). Siegel, Siegel and MacMillan (1988) investigated the decision-making autonomy and fund structure, and the performance of CVCs. They showed that CVCs that act like classic VCs achieve higher ROI than CVCs that are more closely linked to the strategies of the parent company, and they are just as strategically successful for the parent company. The authors therefore concluded that an excessively strong emphasis on the parent company's strategic criteria could lead to serious problems with the pursuit of CVC activities (Siegel et al., 1988, p. 246).

The findings of these two major studies suggest that CVCs are caught in a contradiction, or are at least walking a tightrope. While one study recommends that CVCs take a strong strategic focus because it is critical to success (Gompers and Lerner, 1998), the other warns that too strong a focus on strategic elements harms both the strategic and the economic success of the CVC program (Siegel et al.,1988). The two studies were conducted ten years apart, and it is possible that the market changed substantially during this period. Furthermore, the studies took different approaches – the former interviewed ´managers in VCs, the latter analyzed data on portfolio companies. Nevertheless, their results are sufficiently comparable and provide a good basis for further research. The goal of our contribution is to see which of these seemingly contradictory assessments applies to the German market.

To a certain extent, Chesbrough (2002) manages to reconcile the two approaches by arguing in favour of an investment strategy based on the objective – strategic or financial - and the degree to which the operations of the investing company and the start-up are linked –loosely or tightly. He distinguishes four investment approaches, which have to be aligned with the long-term business strategy of the corporation and its operational capabilities: (1) Driving Investments, which are characterized by a strategic rationale and tight links between start-up and the operations of the investing company, (2) Enabling Investments, which are primarily made for strategic reasons but do not establish a close connection between the venture and the mother company's own operations, (3) Emergent Investments, which are primarily inance-driven, but which in the future may have a strategic potential for the parent company, (4) Passive Investments, which provide financial returns only (Chesbrough, 2002, p. 6).

Turning to the German literature, the three known studies on corporate venture capital and their success in Germany, apart from our own (Weber and Dierkes, 2002; Weber and Weber, 2002), were conducted by Schween (1996), and more recently by Witt and Brachtendorf (2002) and Mackewicz and Partner (2003). A limitation that all empirical studies in this field are faced with is the small number of CVCs in Germany. Schween

(1996) investigated the goals, investment criteria, and organizational form of German CVCs in a sample of only 12 cases. His main findings were that 10 of the 12 companies (83%) stressed strategic goals, with two companies (17%) stating that they pursued strategic and financial goals simultaneously. The dominance of the strategic goals was also reflected in the priority given to the investment criteria that were mentioned. Financial criteria ranked fourth after three strategic ones. The strategic and financial success of these CVC programs was modest. Only two of the 12 CVCs (17%) were satisfied with their strategic goals, a figure corresponding to an arithmetic mean of 2.0. The financial goals showed virtually the same result – an arithmetic mean of 1.9 (Schween, 1996, p.247).

Witt and Brachtendorf (2002) tried to examine why so few companies have so far succeeded in driving their growth agenda through corporate venturing (Stringer, 2000). On the basis of 21 personal interviews, they showed that a high number of German CVCs do not follow the recommendations for organizational structures and processes that have been generated by the international research on successful CVC programs. Witt and Brachtendorf (2002) find that the CVCs in their sample are "much too dependent on the parent company" (p.11), their fund structure as well as in terms of their decision making processes. Another key finding of the study is that the top managers of the CVCs have insufficient entrepreneurial experience and that their remuneration packages are inappropriate in light of the risks involved and the market conditions. The authors conclude that there is a relatively low consistency between international recommendations and their implementation.

Mackewicz and Partner (2003) studied 31 CVCs and found that 15% of them pursue strategic goals exclusively and 33% have primarily strategic goals, which means that 48% have a strong strategic focus. The authors found that 30% emphasize financial goals (of which 3% report that they pursue financial goals exclusively; and 27% indicate "primarily"). A fifth of the sample (21%) pursues both goals in equal measure. The authors point out – in line with Siegel et al. (1988) - that the ambition to pursue different, often conflicting goals with one and the same CVC unit bears substantial potential for conflict, inefficiencies and ultimately, failure to reach either strategic or financial goals. Mackewicz and Partner (2003) therefore recommend a focused strategy and structure for CVC organizations. They distinguish between six groups, based on the core goals that are listed as most important by the CVCs' ("Innovators", "Salespeople", "Observer", "Renewer", Entrepreneurs", and "Investors"). These core goals vary especially with regard to (i) interaction with the parent company, (ii) maturity of the venture, (iii) investment horizon, and (iv) partnerships with external investors. Mackewicz and Partner (2003) assign these typologies to

what they consider are appropriate organizational forms (e.g. business unit, joint fund, external VC unit, fund of fund), based on the necessary degree of dependence on the parent company and the core goals of the CVC program. The authors emphasize the importance of maintaining consistency between goals and organizational structures and processes: "the goals and organization form must be aligned" (Mackewicz and Partner, 2003, p.39). However, they do not specify which approach is likely to be the most successful one.

Birkinshaw et al. (2002) undertook an extensive international CVC survey.[1] They clustered the CVCs in four groups of venture units according to their overriding strategic investment objectives (p. 25): (1) The External Financials, who invest in external business opportunities primarily to deliver financial returns to the parent company, (2) The External Strategics, who invest in external business opportunities for strategic reasons, (3) The Internal Growths, who invest in internal investment opportunities for growth, and for other internal reasons, and (4) The Internal Spin Outs, who invest in internal investment opportunities as a means of leveraging intellectual property and spinning out businesses that do not fit. Among their main findings were that venture units have to be both independent and attached, but for very "young" venture units, "independence is more important than integration" (Birkinshaw et al., 2002, p. 34). Furthermore, they concluded that, "there is a clear (and significant) trend that equates greater independence in funding with superior performance" (Birkinshaw et al., 2002, p.33). The authors do not establish a consistent connection between goals, structures and processes, although they do point in that direction. They note, for example, that "if the venture unit is attempting to develop strategic options for its parent company, it should – all else being equal – not create strong linkages to its business units" (Birkinshaw et al., 2002, p.33).

The three types of categorizations presented in the literature are brought together and related to the categorization used in our paper as a basis for our study on German CVC practices (see Figure 1). The horizontal axis in Figure 1 represents the overall corporate investment objectives (strategic vs. financial). This axis is identical with the dimension of Chesbrough (2002) and corresponds in kind with the dimension presented by Mackewicz and Partner (2003) ("kind of goal"). Birkinshaw et. al. (2002) use a variety of dimensions to differentiate their four investment groups. One of their dimensions, "reason for establishing a venture unit" to a degree corresponds with our classification.

The vertical axis represents the degree to which the organizational structures and processes of the CVCs operate independently. This axis corresponds with the "link to operational capability"-dimension (loosely vs. tightly) of Chesbrough (2002), with the "closeness to the parent company"-

dimension (high vs. low) introduced by Mackewicz and Partner (2003) as well as with the "autonomy level of venture unit" suggested by Birkinshaw et. al. (2002).

Birkinshaw's division into external and internal investment objectives is somewhat different. Of the four groups presented, only the External Financial's seem to be comparable to our (as well as to Chesbrough's) fourth category (Passive Investments). Birkinshaw's second, third and fourth group of venture units are all mainly strategically driven, and therefore form a kind of subgroup of mainly strategically oriented investments. Of the six typologies presented by Mackewicz, the "Investors" correspond to our fourth category; the "Renewer", "Entrepreneurs" and "Observer" can be broadly placed in our third category. Chesbrough's (2002) four groups corresponds most closely to our four categories.

PROPOSITIONS

Based on the findings of both Gompers and Lerner (1998), that CVC programs with a strong strategic focus - unlike those that lack such a focus - appear to be stable and the findings of Siegel et al. (1988), that CVCs focusing on financial goals achieve higher ROIs and are strategically just as successful as strategically oriented ones, our proposition is that a clear investment focus – either mainly financial or mainly strategic - will be more successful than an indifferent mixed investment approach. (The terminology, "primarily" financial or "primarily" strategic as opposed to "strictly" is used to point out that CVCs – unlike VCs - always need to keep their natural "second" objective – strategic or financial respectively - in mind).

> *Proposition 1*: The clearer the focus of the CVCs, the more financially and strategically successful the CVC program is likely to be.

Additionally, one observes the following: (i) the success rates of classic, experienced VCs, which only focus on financial goals, tend to be higher than those of CVCs, (ii) in the long run any investment can only be considered a strategic success if it is also financially tenable or successful; (iii) any unit within a corporate structure has to contribute financially to the profit of an organization to justify its existence in the long run. At the same time, CVC units are – one way or the other – connected to the parent organization and as a result have take the interests of that parent organization into consideration. We therefore conclude that on the whole a primarily

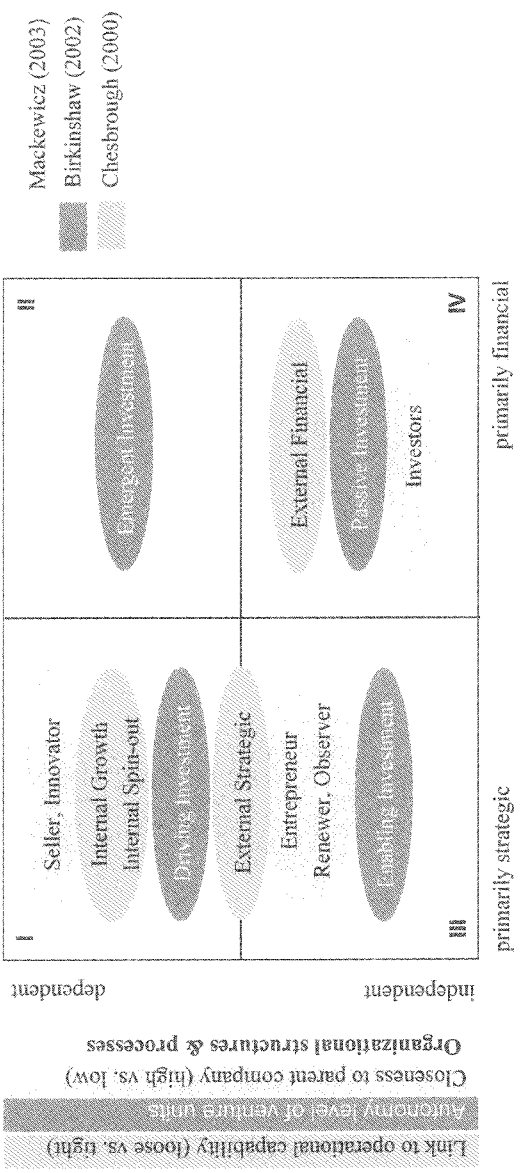

Figure 1. Comparison of CVC investment categories

financial approach is even more successful and promising than the primarily strategic approach – both in financial and strategic terms.

Both Siegel et al. (1988) and Birkinshaw et al. (2002) found that independent CVCs were financially more successful than dependent ones. Birkinshaw et al. (2002) explained that "young" venture units need to "create distance between themselves and their parent companies, through a separate fund, a high level of decision-making autonomy, strong links to the VC community, and incentives based on carried interest and bonuses" (p. 4). Mackewicz and Partner (2003) also report that experts considered organizational independence the most important factor in the success of CVCs, although their study neither tests nor proves this claim. It is possible to examine the claim's validity on the basis of our data by focusing on two characteristics used by Siegel at al. (1988) and Birkinshaw et al. (2002) to represent organizational (in)dependence: decision-making autonomy and fund structure.

> *Proposition 2a*: The greater a CVC's decision-making autonomy, the more successful the CVC unit will be.

> *Proposition 2b*: The greater the parent company's financial commitment to its CVC unit, the more successful the CVC unit is likely to be.

Figure 2 presents an overview of the kinds of CVCs that are considered to have the highest potential and hence, are most likely to be successful in the long term. It demonstrates that CVCs with a relatively independent organizational structures and a mainly financial approach are expected to have the highest potential, for the reasons mentioned above. The least successful CVCs are those that aim for financial goals while remaining dependent on their parent company. The reason for this is that it consider impossible to adopt a finance-driven approach while continuing to depend on the mother company at the same time.

METHODS

Sample and Design

The propositions are examined by using data from two parts of a comprehensive study we have conducted in Germany. In the first part a standardized questionnaire was sent to all the CVCs operating in Germany in 2001 that had existed long enough to be able to report on their strategic and

financial goal attainment. The sample of 34 CVCs included only those that had been founded in 2000 or earlier (the average founding year was 1997).

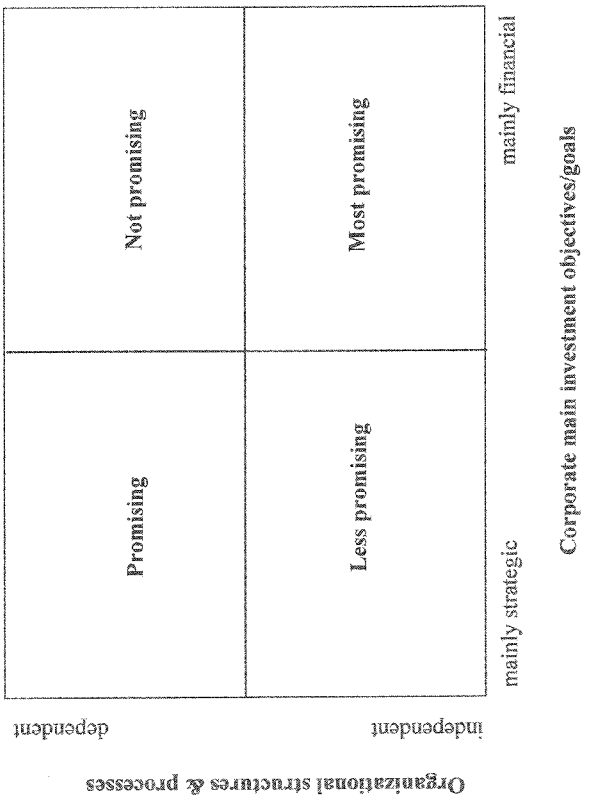

Figure 2. Potential of the four CVC investment categories

Twenty of the companies responded, which represents a high return rate of 62.5% for a mailed questionnaire survey. The second part of the study was a standardized follow-up telephone interview conducted in February 2002 with the CVCs that had participated in the first part. One of the CVCs in the sample had left the market by the time the follow-up telephone interviews were conducted, so the data for the second part of the study is based on the remaining 19 organizations. Such a standardized approach essentially eliminates the interview bias and increases the quality of the data.

The validity and reliability of the data were verified in a number of ways. First, the five-page questionnaire was pre-tested with several investment managers in the first part, and the same pre-testing was

conducted in the second part with regard to the telephone interviews. The data from the two surveys were combined. Because of the small number of cases, a highly quantitative statistical analysis of the dataset was inappropriate. Instead, other national and international studies were drawn upon and incorporated into the mainly descriptive statistical analysis. This comparative data put our results into perspective.

To compare CVCs with the traditional independent VCs in Germany, the same questionnaire was sent in 2001 to all the German VCs focusing on early stage financing. Out of the 216 such companies in Germany at the time, 68 returned a complete questionnaire (response rate of 31.5%). Some key characteristics of this sample were compared with the Statistics of the German Private Equity Association (BVK), which contain almost all German VCs. This was done to understand how this sample differs from or represents the overall German market. It turned out that the 68 VCs of our sample have larger funds, bigger portfolios and higher sums invested than the BVK average. This suggests that the respondents represent the bigger and probably more important VCs in the market, which de facto was the case.[2] The average founding year was 1995, two years earlier than the CVCs we investigated.

Measures

The following measures build on those we found in existing comparable research, including some we adopted from Siegel et al. (1988) and Schween (1996). Where necessary new measures were added to cover items not yet appropriately dealt with in existing literature.

1. *Significance of financial versus strategic goals*: used as a measure of profit versus the strategic orientation and ambitions of CVCs. We measured the significance of these two types of goals on a 5-point scale ranging from 1 (*exclusively financial goals*) to 5 (*exclusively strategic goals*), adopted from Schween (1996).
2. *Value of investment criteria*: used as a measure of profit versus the strategically driven investment decisions of CVCs. The answers indicate which aspects are important when deciding to invest in potential portfolio companies. At the same time, they are used to control the previous question. A total of 29 criteria, scored on a 6-point scale ranging from 1 (*no importance*) to 6 (*very important*). Some of them are adopted from MacMillan et al. (1985), others from Schween (1996). The eight additional criteria that focus specifically

on corporate venture capitalists are mostly self-constructed and have therefore not been tested before.

3. *Decision-making autonomy*: used as an indicator for of the degree to which the corporate venture capital unit operates independently. Independence is interpreted as delivering fact-based decisions based on objective criteria rather than internal politics. To measure it we used four categories adopted from Schween (1996) as well as other categories we developed ourselves. Important decisions such as those concerning investments are made (a) within the CVC unit and without the parent company, (b) in close consultation and in concert with the parent company, (c) within a committee in the parent company as proposed by the CVC unit, or (d) in accordance first with (a), thereafter (c), depending on the sum to be invested.
4. *Financial commitment by the parent company*: used as an indicator for long-term commitment to the asset class. A long-term commitment that cannot easily be revoked by the parent company (in an separate fund) in turn provides independence for the venture capital unit. This is important in order to establish the unit as an independent, respected player in the market. We measured the financial commitment in two categories: (a) a clearly defined fund or freely accessible financial resources providing for a relatively long period; (b) no clearly defined fund or no financial resources providing for a relatively long period; instead, ad hoc decisions recorded as an outflow on the balance sheet.
5. *Strategic success or attainment of strategic goals*: used as a measure of strategic performance/success. Strategic success is very individual and hence difficult to measure with objective criteria (Mackewicz and Partner 2003). The measurement is based on Schween's 5-point scale of satisfaction (1996). This 5-point scale ranges from 1 (*not at all attained*) to 5 (*completely attained*). To this scale we added a a sixth category "too early to tell", to account for the short time the CVC units had existed and the lack of exits in the portfolio. Two arithmetic means were calculated as an additional measure of this variable to make them comparable to two other datasets (Schween 1996 and Siegel et al. 1988).
6. *Financial success or attainment of financial goals*: used as a measure of financial performance/success. It is measured quantitatively to make it as objective and comparable as possible. The CVC's internal rate of return (IRR) was examined with a 5-point scale ranging from an IRR smaller than 0% to an IRR of above 30%. To this scale we added a sixth category "too early to tell", to account for the short time the CVC units had existed and the lack of exits in the portfolio. Unfortunately, there no data that allow us to draw a comparison with

the German VCs or the American CVCs. An arithmetic mean was calculated to approximately compare the findings to those of Schween (1996) as well as Siegel et al. (1988).

Methodology

The 20 CVCs analyzed in the first part of the study included all the major players in the German market. We compared our dataset with the data of a recent survey by Mackewicz and Partner (2003) who surveyed almost all German CVCs (31). The comparison demonstrates that our dataset sufficiently represents the German CVC market. With € 80 million per CVC, the average amount invested by CVCs in our dataset is similar to the data presented by Mackewicz and Partner (2003) with € 77 million.[3] Mackewicz and Partner (2003) report an average of 24 portfolio companies per CVC, while our data suggests 19 portfolio companies per CVC. These figures are skewed by the very large numbers of investments made by a few companies. The median score, which is perhaps a better indication of the norm, suggests that our typical CVC has invested € 13 million and has 9 companies in its portfolio. This is due to the fact that the German CVC market includes several CVCs that have fewer than four companies in their portfolio. Unfortunately, no comparative data on medians was available.

Our study is limited by two factors. First, the CVC market in Germany is still comparatively young. Secondly, the slump that hit the so-called "Neuer Markt" (German stock exchange for young technology companies) in 2001 has considerably reduced the existing perspectives of VCs. These two circumstances meant that some of the interviewees could not yet answer questions about their strategic and their financial success, due to the fact that they had not been around long enough and/or market conditions had prevented them from capitalizing on their investments.

RESULTS

The results of the two surveys as well as the new data generated in this study are presented in such a way as to allow them to be compared with the findings of other studies on German and American CVCs. The first part of the comparison concerns the investments themselves (volume, stage, industry, geography) to get an understanding of the German venture market as such, by juxtaposing our data on German CVCs and VCs. The second part looks at organizational, structural and strategic aspects of the CVC market to help answer our questions regarding the CVCs' goals, structures

and performance. Where possible, the new results are again compared with the findings of one international as well as other German and American studies.

Investment Facts

Fund volume

Only 25% of the CVCs that were surveyed have a clearly defined, limited fund at their disposal, half of what's available to the classic VCs (52%). Having said that, it is difficult to provide exact figures regarding the funds CVCs' have at their disposal, as in most cases there is no clearly defined fund. The five CVCs that do have a clearly defined fund size, on average state a volume of € 143 million. Due to the small sample, this figure is not representative. The average fund volume of classic VCs is twice as high (€ 255 million).

Number of portfolio companies

The CVCs we surveyed have an average of 19 companies in their portfolio and a median score of 9 companies. This is more or less comparable to the classic VCs, with an average of 22 portfolio companies and a median of 10.5.

Investment focus – by sector

The results indicate that 50% of all CVC investments are undertaken in three investment sectors (see Table 1). The IT-Software sector comes first at 23% of the investments, followed by communication technology (17%) and in third place biotechnology/chemistry (10%). Compared to the VCs, similarities and differences become apparent. CVCs are about three times more involved in Multimedia/Internet than VCs. They invest significantly less in sectors such as medical equipment/diagnostics as well as engineering/materials.

Investments focus – by company stage

Our study included only VCs that focus on early stage investments. These VCs invest about 90% of their current fund in one of the first three investment stages: seed, start-up, early and expansion stage (see Table 1). Only 6% of the VCs indicate that they also invest in other stages like second

round, later stage or bridge financing, while CVC's do not invest in other stages at all.

CVCs put priority on seed investments with an average of 35% invested capital. Classic VCs invest only 25% in seed stages. For them, start-up investments seem to be most important with 38% of their capital allocated there (only 30% for CVCs). Both put similar emphasis on expansion/early stage (CVCs: 28%, classic VCs 30%).

Investments focus – by region

Both VC groups have a clear national focus. CVCs invested 69% and classic VCs 76% of their capital in Germany (see Table 1). The remainder was invested within Europe (9% and 12% respectively) and outside Europe (21% and 11% respectively).

Organizational, structural and strategic aspects

The second part of this study looks at the organizational, structural and strategic aspects of the German CVC market. We collected information on the following elements: strategic goals, investment criteria, fund structure, decision-making autonomy, and attainment of strategic and financial goals (performance).

Strategic and financial goals

Of the 19 CVCs we surveyed, 42% stated that they primarily pursued strategic goals, while 21% pursued primarily financial goals. Strategic and financial goals were pursued equally by 37% of the CVCs (see Table 2). The results of our study differ quite markedly from those presented by Schween (1996), who found that 10 of the 12 companies (83%) stressed strategic goals, with two companies (17%) stating that they pursued strategic and financial goals simultaneously. Mackewicz and Partner (2003) reported that 48% pursued strategic goals "primarily or exclusively", and 30% focused on financial goals "primarily or exclusively". Unfortunately, neither Siegel et al. (1988) nor Birkinshaw et al. (2002) posed the question this way. Therefore, the new data can only be compared directly to other German CVC studies.

Table 1. Investment by sector – comparison by VC-types

	Corporate VCs *in % (n = 20)*	***Classical VCs*** *in %(n = 52)*
1. Sector		
IT-Hardware	5	7
Communication technology	17	18
IT-Hardware	5	7
IT-Software	23	24
Medical Equipment/Diagnostics	1	7
Biotechnology/Chemistry	10	13
Engineering/Materials	1	7
Consumer goods	0	2
Trade/E-Commerce	6	5
Financial Services/Other Services	4	3
Multimedia/Internet	14	4
Energy/Environment	2	1
Other Sectors	2	2
2. Company Stages		
Seed-Stage	35	25
Start-up-Stage	30	38
Expansion/Early Stage	28	30
Other stages	0	6
n.a.	7	1
3. Regions		
Germany	69	76
Other Europe	9	12
Outside Europe	21	11

Table 2. Goals of Corporate Venture Capital organizations

Goals	Schween (1996) (in %)	Weber/Weber (2002) in (%)	Mackewicz and Partner (2003) in (%)
Exclusively strategic	25	-	15
Primarily strategic	58	42	33
Strategic and financial	17	37	21
Primarily financial	0	21	27
Exclusively financial	0	0	3
Total	100	100	99

Nevertheless, indirect comparisons with the international data are possible. Siegel et al. (1988) asked a somewhat similar question, which led them to conclude that the objective considered most important by CVCs is return on investment (mean 3.38).[4] Of the objectives related to strategic benefits, the most important was exposure to new technologies and markets (mean 3.12). Birkinshaw et al. (2002) explored seven distinct reasons for establishing a venture unit. On a scale from 1 to 5, the most important reason was "to learn from and develop strategic relationships with portfolio companies" (3.6), and the second most important was "to increase demand for our products and services" (2.7). Both are clearly strategic goals. Investing in external start-ups for financial returns occurred less frequently(2.3)[5].

Investment criteria

The CVCs in our survey ranked "product's uniqueness and degree of innovation" as the most important investment criterion (mean: 5.4 on a scale from 1 to 6). The German VCs we studied indicated that they considered this criterion equally equally important as "expected return" and "industry experience". "Management's ability to attract highly qualified employees" was ranked second (5.3) by the CVCs. The "expected return" was ranked a close third along with "industry experience" and the management team's "quality of leadership" (5.2) (see Table 3).

The top three priorities listed by the VCs were very similar, with "quality of management team" listed second and "management's ability to attract highly qualified employees" listed third. Overall, the six most important investment criteria were all ranked in a very similar way by the German CVCs and VCs. This suggests that no major differences exist among these groups when it comes to selecting investment opportunities (Weber and Dierkes, 2002).

Table 3. Investment criteria of CVCs and independent VCs

Investment criteria (by average level of significance)	Weber/Weber (2002) [a] CVCs (n = 20)	Weber/Weber (2002) [a] VCs (n = 52)	Schween (1996) [b] VCs (n = 12)	Siegel (1988) [c] – CVCs (n = 52)
Product's uniqueness or innovativeness	1 (5.4)	1 (5.4)	3 (4.0)	7
Management's ability to attract and retain highly qualified employees	2 (5.3)	3 (5.0)	-	13
Expected return at point of exit; 10-fold increase in investment in 5 to 10 years	3 (5.2)	1 (5.4)	7 (2.6)	9
Industry experience; management team's knowledge of the market	3 (5.2)	1 (5.4)	2 (4.2)	2
Quality of management team's leadership	3 (5.2)	2 (5.1)	3 (4.0)	6
Completeness of the management team	4 (5.1)	6 (4.7)	-	-
Potential, size, and growth of the market	5 (5.0)	5 (4.8)	1 (4.6)	5
Ability to evaluate and react well to risk	-		1 (4.6)	3
Management team with whom the "chemistry is right"/Personality compatible with mine	6 (4.9)	3 (5.0)	-	22
Management's ability to communicate	6 (4.9)	4 (4.9)	4 (3.8)	8
Demonstrable acceptance of the product in the market	6 (4.9)	5 (4.8)	2 (4.2)	19
Management team's complementarities	6 (4.9)	5 (4.8)	3 (4.0)	-
Entrepreneur's capability of sustained effort	-	-	3 (4.0)	1
Ability to take criticism	-	-	3 (4.0)	15
Thoroughly familiar with the product	-	-	4 (3.8)	4
Ability to build, convey, or retain an image of the corporation as an innovator [d]	7 (4.5)	-	-	-
Reputation of the portfolio company's partners or customers	8 (4.4)	10 (4.0)	-	-
Management's experience with new ventures	9 (4.3)	10 (4.0)	-	-
Track record relevant to the venture	-	-	-	10
Potential strategic business partners or alliances for the corporate mother [d]	9 (4.3)	-	2 (4.2)	-
Expected time until product is ready for the market; prototype exists	10 (4.2)	7 (4.5)	7 (2.4)	14
Patent protection of the products	11 (4.0)	8 (4.4)	5 (3.6)	-
Potential pool of ideas for the parent company [d]	11 (4,0)	-	-	-
Current valuation	12 (3.9)	8 (4.4)	-	-
Important market for the parent company [d]	-		4 (3.8)	11
Same market as that of the parent company [d]	-		6 (3.0)	
No expectation of relevant competition in first 3 yrs	17 (2.9)	13 (3.2)	5 (3.6)	18

Note: The numbers in this table indicate the ranking of the criteria.

a) Average values on a scale ranging from 1 (*unimportant*) to 6 (*very important*).

b) Average values on a scale ranging from 1 (unimportant to 5 (very important)

c) Average values on a scale ranging from 1 (*irrelevant*) to 4 (*essential*).

d) Refers only to CVCs.

By contrast, the results presented by Siegel et al. differs substantially from ours. This may be due in part to different criteria being questioned, which makes it difficult to compare the results. It is interesting to note that in Siegel et al. (1988), a management-related criterion "entrepreneur's capability of sustained effort" ranked first, while it is listed as a product-related criterion in Weber and Dierkes (2002). Siegel et al. (1988) rank "industry experience" second and "ability to evaluate and react well to risk" third. Financial criteria ranked ninth. Schween's study (1996) also showed that the CVCs put less emphasis on financial criteria, ranking them seventh. The most important criteria, according to Schween, were "potential size and growth of the market" (4.6) along with "ability to evaluate and react well to risk" (4.6).

Fund structure

As much as 63% of the CVCs we surveyed had their own fund or freely accessible financial resources providing for a relatively long period; 37% stated that they did not invest from a clearly defined fund.
Siegel et al. (1988) divided their answers into three categories. 48% of the CVCs in their study explained that a separate pool of funds is specifically earmarked for venture capital investment on a onetime basis, another 27% invested out of a separate pool of funds, specifically earmarked for VC investments on a periodic basis. Of the CVCs surveyed 19% fund their deals on an ad hoc basis. The first two categories correspond more or less to our first category and are hence partially comparable. If one considers this to be a valid comparison, a higher percentage (75%) of American CVCs have a relatively independent money source at their disposal than their German counterparts.

In Birkinshaw et al. (2002), 58% CVC units either have a closed fund established solely by the parent company or a separate pot of money set aside for corporate venturing. In 35% of the cases, the money is provided on the basis of internal review – meaning that investments have to pass a review committee (Birkinshaw et al., 2002, p. 14). These figures are relatively similar to ours.

Decision-making autonomy

In only 16% of the organizations in our German sample were investment decisions made within the CVC unit independently of the parent company, or independently but only up to a certain deal size; in 16% of all cases, decisions were taken together with the parent company. The

remaining 68% made suggestions to the parent company, which then took the decisions alone.

Again, the precise formulations of the questions differed between the studies, but nevertheless a comparison seems meaningful. Similar to the German results, Siegel et al.'s study (1988) found that the majority of the CVCs surveyed were given little autonomy to select which ventures should be funded. Fewer of the American venture professionals (51%) than Germans (68%) indicated that formal approval from corporate management was required for all deals. Fifteen percent of the CVCs in the American sample required approval for deals over a designated size. Only 11% did not need any approval. In Germany, only one of the CVCs had that level of independence.

Birkinshaw et al. (2002) also found that large investment decisions had a strong parent-company influence. Even on small investments "the norm is for the corporate venture unit's decisions to be ratified by or made in consultation with the parent company" (p. 16). This suggests that in the countries they investigated the situation of decision-making autonomy is similar to the one found in Germany.

Attainment of strategic goals

Responses related to performance must be reviewed with care, given the self-report nature of this study and the subjectivity involved in rating one's own performance. A total of 58% of the German CVCs stated that they had "completely" or "largely" attained their strategic goals; 37% reported that their goals had been only "partially attained" or "largely unattained". None responded that strategic goals were "not at all attained". A total of 5% of the CVCs explained that their CVC unit was not in business long enough in order to draw such conclusions (see Table 4).

Converting these values into an arithmetic mean (scored on a scale from 1 [not at all attained] to 5 [completely attained])[6] to make them comparable to the data presented by Schween (1996) results in an arithmetic mean of 2.78. Schween (1996) found an arithmetic mean of 2.0 for "overall satisfaction with the attainment of strategic goals" (p.189).

For 21% of the German CVCs, attainment of strategic goals consisted in their CVC activities having helped them develop new strategic fields of business. The remaining 79% of the CVCs did not report such success. According to 84%, their activities had strengthened existing areas of the parent company's business, especially via the transfer of know-how (88%) as well as via partnerships and/or cooperative arrangements between business units of the parent company and the corporate venture (56%) (Weber and Weber 2002).

Table 4. Attainment of strategic goals

Reported level of attainment	Companies in the sample (%)
Completely attained	21
Largely attained	37
Partially attained	32
Largely unattained	5
Not at all attained	0
Still too early to tell	5
Total	100

It is difficult to compare the new findings with those published by Siegel et al. (1988) for three reasons: (i) they surveyed different goals (called objectives) which can be categorized into strategic and financial goals; (ii) they did not examine the degree to which goals had been attained, but rather the general level of satisfaction relative to the CVCs' objectives, which is even more subjective; and (iii) they used a different scale, which is not comparable to the one presented above, because it ranges from 1 (unsatisfactory) to 4 (outstanding). We therefore calculated a second mean from our dataset, which happened to be the same mean of 2.78, to obtain an approximate value, making it to a degree comparable to Siegel et al. as well. The objective with which the American CVCs were most satisfied was "exposure to new technologies and markets" with a mean of 2.8, followed by "return on investment" (mean of 2.47). Also, the objectives "opportunities to manufacture and market new products" and "acquisition candidates" were more than satisfactory (mean of 2.41 and 2.30). The only objective that was assessed to be less than satisfactory was "opportunity to improve manufacturing processes" (mean of 1.75). A comparison of these results with our data suggests that the level of attainment/satisfaction in the American companies tends to be slightly lower than our German second mean of 2.78.

Attainment of financial goals

Just under half (47%) of the CVCs in the study claimed to have an IRR above 0 and hence at least somewhat attained their financial goals, 21% were not successful (see Table 5). Again, due to the youth of the German CVC market, about one third (32%) reported that it was still too early for them to tell and that no exits had occurred yet. Converting these values into an arithmetic mean comparable to Schween (1996) and Siegel et al. (1988)

(scored on a scale from 1 (not at all attained) to 5 (completely attained))[7], one arrives at 2.45. This result is very close to the mean financial goal attainment of 2.47 reported by Siegel et al. (1988). The arithmetic mean reported by Schween (1996) was 1.9, which is significantly lower.

Table 5. Attainment of financial goals

IRR [a] (in percentages)		Companies in the sample (%)
> 30	Completely attained	0
21–30	Largely attained	21
11–20	Attained	10
0–10	Largely not attained	16
< 0	Not at all attained	21
< 0	"Too early to tell" or "no exits yet"	32
Total		100

a) Internal rate of return, an expression of the level of attainment

PROPOSITION EXAMINATION

Having presented and compared the investment statistics as well as the results in terms of organizational, structural and strategic aspects with other national and international datasets, we can now examin our propositions.

> *Proposition 1*: The clearer the focus of the CVC is, the more financially and strategically successful the CVC program is likely to be.

Only 25% of the CVCs that pursued strategic goals "primarily or exclusively" reported that they had attained their financial goals. 43% percent of the CVCs with a mixed approach pursuing financial and strategic goals equally. All the CVCs that had pursued primarily financial goals stated that they had attained their financial goals. Of the CVCs with primarily or exclusively strategic goals, 63% largely or completely attained them. Among the CVCs that pursued primarily financial goals, 75% attained their strategic goals. Only 29% of the CVCs with a mixed approach reported that they had attained their strategic goals. These results support our proposition that those CVCs with a largely financial approach are by far the most successful. The mixed approach is financially more successful than the primarily or exclusively strategic approach. Our proposition is supported as far as the strategic goal attainment is concerned.

> *Proposition 2a*: The greater a CVC's decision-making autonomy, the more successful the CVC unit will be.

Of the three CVCs that made their investment decisions - at least up to a certain deal size - independently of the parent company, two stated that they were financially successful and that they had largely or completely attained their strategic goals (see Table 6). Among the CVCs that did not make their investment decisions on their own and instead submitted proposals to the parent company, only 44% reported that they were financially successful and 50% were strategically successful. These findings seem to support our proposition.

> *Proposition 2b*: The greater the parent company's financial commitment to its CVC unit the more successful the CVC unit will be.

Of the CVCs that had their own funds or freely accessible money, 62% responded that they had largely or completely attained their strategic goals. The CVCs that had no fund or freely accessible money of their own reported nearly as frequently that they had attained their strategic goals (50%) (see Table 6). As for the attainment of financial goals, this second group did much better than the first, with 83% stating that they were financially successful as opposed to 31% of the CVCs that had a fund of their own. Surprisingly, these observations do not support our proposition but suggest the opposite to be true.

DISCUSSION

The new survey of German CVCs produced comprehensive data on goals, investment criteria, decision-making autonomy, fund structure, and goal attainment for the first time in six years. This update was urgently needed because the CVC market in the period under study has nearly tripled in size, though the number of such organizations is still miniscule compared to that in the United States (approximately 300). Comparing our CVC results to our own German VC data (see also Weber and Dierkes, 2002), to other German CVC studies, conducted by Schween (1996) and Mackewicz and Partner

Table 6. Goals, organizational structures/process, and goal attainment

	GOALS	STRUCTURES AND PROCESSES		PERFORMANCE	
		Own fund?	**Who decides?**	**IRR**	**Attainment of strategic goals?**
1	Financial	no	gremium in corp. mother	21-30%	Completely
2	Financial	yes	gremium in corp. mother	21-30%	Largely
3	Financial	yes	CVC unit - up to a certain amount	11-20%	Largely
4	Financial	no	gremium in corp. mother	11-20%	Partially
5	Financial	no	in agreement with corp. mother	0-10%	Partially
6	strat=fin	no	gremium in corp. mother	21-30%	Completely
7	strat=fin	yes	VC without corp. mother	0-10%	Largely
8	strat=fin	yes	gremium in corp. mother	<0%	Partially
9	strat=fin	yes	gremium in corp. mother	no exits	Partially
10	strat=fin	yes	CVC unit - up to a certain amount	no exits	too young/tendency positive
11	strat=fin	yes	gremium in corp. mother	no exits	too young/tendency positive
12	strategic	yes	gremium in corp. mother	21-30%	Partially
13	strategic	yes	gremium in corp. mother	<0%	Largely
14	strategic	no	gremium in corp. mother	0-10%	Partially
15	strategic	yes	in agreement with corp. mother	<0%	Completely
16	strategic	yes	gremium in corp. mother	<0%	largely NOT
17	strategic	yes	in agreement with corp. mother	no exits	Largely
18	strategic	yes	gremium in corp. mother	no exits	Largely
19	strategic	no	gremium in corp. mother	no exits	Largely

(2003), to the information reported by Siegel et al. (1988) concerning the American CVC market, as well as to international data presented by Birkinshaw et al. (2002) gives us a better understanding of the German CVC market.

A comparison of our data with those generated in Germany several years earlier by Schween (1996) allowed us to understand whether the German CVCs have changed the priorities of their goals and investment criteria over time and, above all, whether they are operating more successfully today than they were six years ago[8]. To examine the CVCs' success and the factors influencing their success, we compare our data with the international study by Mackewicz and Partner (2003) to see where

significant similarities or differences emerge between the CVCs in Germany and abroad.

1. Strategic and financial goals
   Since 1996, the priority has clearly shifted from strategic to financial goals. In 1996, 83% of the surveyed CVCs still stated that they were pursuing exclusively or primarily strategic goals, whereas today that figure stands at 42% in our dataset and at 48% in Mackewicz and Partner's (2003) dataset (see Table 2). The remaining 17% of the CVCs in the 1996 survey stated that they pursued a mixed approach of strategic and financial goals. Our dataset puts this figure at 37%, while Mackewicz and Partner (2003) suggest a figure of 21%. It seems especially noteworthy that 21% of the CVCs surveyed in our study and even 27% of the CVCs in Mackewicz' study stated that they were pursuing primarily financial goals (+ 3% of those CVCs who exclusively pursue financial goals). There were no such responses in 1996. These results suggest that the investment priorities of CVCs are converging with those of the classic independent German VCs (Weber and Dierkes, 2002).
2. Investment criteria
   A look at the most important investment criteria highlights the shift towards financial goals over strategic ones. Financial criteria were still more or less neglected in 1988 (US) and 1996 (Germany), whereas they have become one of the three most important criteria today (see Table 3) – about on a par with the priority they receive among the classic independent VCs in Germany (Weber and Dierkes, 2002). This means that in the last six years German CVCs have undergone a change, both in terms of their goals (see above) and oftheir investment criteria.
3. Attainment of strategic goals
   The attainment of strategic goals has definitely improved over the past six years. Whereas 17% of the CVCs surveyed in 1996 stated that they had largely or completely attained their strategic goals, this figure stands at 58% in 2002. The arithmetic mean for the attainment of strategic goals has risen within the past six years from 2.0 (Schween 1996) to 2.78 in our study, which may be explained by the shift in goals and investment criteria from a more strategic orientation towards a primarily financial approach. This in turn could be interpreted as a learning process, which seems a plausible enough explanation, since in 1996 the German CVC market was still in its infancy and one would expect some kind of learning curve. This seems particularly likely given the high percentage of investment

managers in the CVC units who came from the corporation with little or no VC investment experience (Weber and Dierkes 2002). The high percentage of CVCs pursuing a mixed strategy (37%) might be explained as being not yet that far advanced, in other words: they are on their way on the learning curve from a strategic to a financial approach.

4. Attainment of financial goals
   The CVCs have also greatly improved in terms of attaining their financial goals in the past years. In 1996 only 17% of the surveyed CVCs stated that they had attained their financial goals, whereas in 2002 just under half (47%) claimed to have done so (see Table 5). The arithmetic mean reported by Schween (1996) was 1.9; today's mean is 2.45. It is striking that only 25% of the strategy-oriented CVCs have achieved their financial goals, compared to 100% of the financially oriented CVCs do so. The increased attainment of financial goals can partially be attributed to the changes in the CVCs' goal structure towards financial goals. This development can equally be interpreted as part of a learning process. The CVCs are likely to have learned from the more established and experienced independent VCs and to have been able to transfer their knowledge and adopt their learning to the specific needs of the respective corporate environment.

We can thus answer the second question raised in the introduction by saying that CVCs emphasizing primarily financial or primarily strategic goals seem to be more successful than those following a mixed approach. Maybe this result indicates that it is extremely difficult to sensibly structure and manage a program with two, sometimes conflicting, goals. Intuitively, it makes sense that a financially driven CVC that follows market incentives cannot at the same time fully pursue the strategic preferences of the corporate. A portfolio company that does not generate a return on investment in the medium term but represents a high strategic value in the long run would be an example of such a conflict.

The results further indicate that the primarily financial approach seems to be financially and strategically more successful than the primarily strategic approach (see Table 6). Our results therefore confirm the conclusions drawn by Siegel et al. (1988), that an approach that primarily takes financial goals into consideration tends to be the most successful, both strategically and financially. The observations by Gompers and Lerner (1998) are partially challenged, at least as far as the German CVCs are concerned.

Birkinshaw et al. (2002), Witt and Brachtendorf (2002), and Mackewicz and Partner (2003) found that a CVC's organizational

independence is particularly important for its financial and strategic success. The empirical evidence that more independent CVCs are more successful is partially supported by our data. However, the sample is not only small but in this dimension also very unbalanced. The 16 CVCs (84%) with relatively little decision-making autonomy are financially as well as strategically less successful compared to the 3 CVCs with that have a higher degree of decision-making autonomy (see Table 6 and proposition 2a). The 13 CVCs (68%) that reported having their own fund or freely accessible money are comparably successful in strategic terms but – contrary to our expectations – significantly less successful in financial terms. Hence, only the finding that a high level of decision-making autonomy – as an indicator for independence - is a critical success factor for the corporate venture unit can be supported.

German CVCs tend to be more dependent on their corporate mother than their American counterparts, even 14 years later (the time difference of the two studies). This is reflected in the fact that they have fewer dedicated funds at their disposal (63% vs 75% US) and in a lower degree of investment decision-making autonomy. The question arises as to why this is the case, given that the recommendations generated over the years by theoretical and empirical research point in the direction of giving greater autonomy in order to maximize success. One might conclude that either the German CVCs believe that this is a potentially more successful approach or there is a need for change, but the corporations are still too deeply entrenched in the system and what we might call the German way of doing business. Another reason may be that the corporate structures and internal politics make it difficult to introduce a market-oriented incentive scheme for venture units that would allow for an appropriate alignment of goals and structures. It is not possible to provide a comprehensive and satisfactory answer at this stage. Further empirical research on this point is necessary to validate this proposition for Germany on the basis of a larger dataset

This study offers two contributions to the literature on CVC and has several implications for future research. It provides an extensive picture of CVC programs and the way they are currently being managed. It is the first empirically grounded analysis of CVCs since 1996, the point at which the CVC market in Germany began to gain any significance at all. We were therefore able to describe the recent developments practice in depth and to provide a comparison of German practice with the one in the United States in terms of a number of key characteristics and developments.

Secondly, by questioning the priority CVCs have thus far placed on strategic goals, or a mix of both strategic and financial goals, this investigation suggests that (i) mixed strategies are not as successful as strategies that either focus on financial or on strategic aspects; (ii) an

emphasis on financial goals appears to be more successful than an emphasis on strategic goals.

For future research, it would be interesting to expand this study with a longitudinal study. It would then be possible to follow the goals, structures, processes, and success of the CVC market in general and of individual organizations in particular. Such a longitudinal study should also continue to compare CVCs and classic VCs, to gain further insight about which strategies work best and why.

Research on the interface between the parent company and the CVC unit as a facilitator between the parent company and the portfolio company could provide further insight into additional success factors. For instance, structuring all inter- and intra-organizational processes of the units involved – such as communication and compensation practices – strictly in line with the primary goals of the parties involved, could enhance the competitive advantage of the parent company through innovative ideas of portfolio companies. It could increase the success of the portfolio company by allowing it to benefit from the vast resources and knowledge of the parent company. This would ultimately lead to the CVC's success and support its acceptance in the organization.

NOTES

[1] Most of the CVCs surveyed are located in North America (including Canada) and Europe.
[2] For a detailed comparison of this sample with the BVK statistic, see Weber and Dierkes (2002).
[3] Reliable information on fund volume in both cases was difficult to attain as most CVCs do not operate out of a clearly determined funds.
[4] However, Siegel et al (1988) note: "the high standard deviation for this objective indicates that there is not high consensus as to the importance of this objective. In fact, nearly 42% of the respondents listed return on investment as less than essential" (p. 235).
[5] The low rating of this answer could be surprising. We believe it is due to the fact that Birkinshaw et al. (2002) formulated their question in such a narrow way: „investment in independent start-ups / external business ideas *purely* (italic emphasis by the authors) as financial investments" (p. 15), and hence, consider it comprehensible.
[6] The category "still too early to tell" was not included in the arithmetic mean.
[7] The category "still too early to tell" was not included in the arithmetic mean.
[8] This comparison is not based on a panel. It is a comparison between aggregate data based on different samples.

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