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Working Paper

Learning in and of corporate venture capital organizations in Germany: industry structure, companies' strategies, organizational learning capabilities

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LEARNING IN AND OF CORPORATE VENTURE CAPITAL ORGANIZATIONS IN GERMANY

INDUSTRY STRUCTURE,
COMPANIES' STRATEGIES,
ORGANIZATIONAL LEARNING CAPABILITIES

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ABSTRACT

Based on responses from 20 corporate venture capital organizations (CVCs) in Germany, we examine the goals, degree of autonomy, fund structure, and main investment criteria underlying the venture strategies of CVCs in Germany today as well as how the CVCs have performed strategically and financially. Further we focus on what CVCs did learn based on their experience and which strategic approach to corporate venture capital is most likely to lead to high performance.

The main findings are that an organization's deal experience tends to influence the selection of strategic as opposed to financial goals and affects CVC performance. Individual experience has partly an additional effect on CVC performance. CVCs pursuing an approach that emphasized financial more than strategic goals have more experience at transacting deals and are financially – and sometimes strategically – more successful than CVCs that focus mainly on strategic goals. These results support conclusions drawn by Siegel, Siegel, and MacMillan (1988) and thereby challenge the findings that Gompers and Lerner (1998) reported for the German market in question. We discuss the limitations and contributions of our findings and provide directions for future research.

ZUSAMMENFASSUNG

Anhand von 20 Corporate Venture Capitalist Organisationen (CVCs) in Deutschland untersuchen wir die Ziele, das Ausmaß an Entscheidungsautonomie, die Fondsstruktur sowie die wichtigsten Investitionskriterien, die den Strategien der CVCs in Deutschland zugrunde liegen; und wir gehen der Frage nach, wie erfolgreich die CVCs in strategischer und finanzieller Hinsicht waren bzw., ob sie ihre Ziele erreicht haben. Darüber hinaus richten wir unser Augenmerk darauf, was CVCs basierend auf ihren Erfahrungen gelernt haben und welcher strategische Ansatz für das Corporate VC-Geschäft allgemein der erfolgversprechendste ist.

Die Hauptergebnisse machen deutlich, dass die Transaktionserfahrung der CVCs, die Wahl der grundsätzlichen Zielrichtung – strategische vs. finanzielle – ebenso beeinflusst, wie den CVC-Erfolg. Die individuelle Erfahrung hat nur teilweise einen zusätzlichen Einfluß auf den CVC-Erfolg. CVCs, die überwiegend finanzielle gegenüber strategischen Zielen verfolgen, verfügen über mehr Transaktionserfahrung und sind finanziell – teilweise auch strategisch – erfolgreicher als CVCs, die vorwiegend strategische Ziele verfolgen. Diese Ergebnisse stützen Erkenntnisse von Siegel, Siegel und MacMillan (1988) und stellen damit anderslautende Ergebnisse von Gompers und Lerner (1998), zumindest für den deutschen CVC-Markt, in Frage. Wir diskutieren den Beitrag unserer Ergebnisse und liefern Ansätze für zukünftige Forschung.

INTRODUCTION

There is little empirical research on corporate venture capital organizations (CVCs) (Maula and Murray 2001*a*, 2001*b*; Kann 2000; Gompers and Lerner 1998), 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; Schween 1996; Witt and Brachtendorf 2002; Rauser 2002) is that CVCs are comparatively rare and young 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). The difference between the nature of CVCs and that of classical, or independent, venture capital organizations (VCs) in terms of such aspects as goals, organizational form, fund structure, and investment criteria poses interesting research questions, especially when one links them to their later strategic and financial success.

This study inquired into three aspects:

1. Current data on goals, fund structure, decision-making, and the attainment of strategic and financial goals of German CVCs.

2. The effect that experience, which means learning within the CVC, has on goals and their attainment, that is, on the performance of the CVCs. The distinction that Siegel, Siegel, and MacMillan (1988) make between CVCs experienced and less experienced at transacting deals is applied to the German market in order to see the extent to which their conclusions are transferable. Also, a look is taken at the individual experience, or previous background, of the investment managers in relation to financial and strategic success.

3. The effect that the CVC program's basic goals has on the strategic and financial success of CVCs. The intention is to find out which approach is the most promising for the German CVC programs – a prioritization of financial goals, as argued by Siegel, Siegel, and MacMillan (1988), or a distinctly strategic focus, as professed by Gompers and Lerner (1998). Data from Schween (1996) are compared with our own in order to see the extent to which CVCs, or rather the parent companies, within Germany have changed in their overall goal over the past six years. We especially ask whether they are operating more successfully today than they were in 1996 as a result of their learning experiences.

PAST RESEARCH ON CORPORATE VENTURE CAPITAL

The interest and activities of corporations in CVCs have fluctuated markedly in the past decades. Gompers and Lerner (1998) mentioned three major waves, 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, and relatively little research has been conducted on the subject since 1998. Gompers and Lerner (1998) found for the American market that corporate venture investments

in entrepreneurial firms appear to be at least as successful as those backed by independent venture organizations. As they suggest in their paper:

> *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. (p. 34)*

No statement is made about the role of financial goals and success, making it impossible to compare their findings fully with either Siegel, Siegel, and MacMillan (1988) or with this study.

Investigating the autonomy and performance of CVCs, Siegel, Siegel, and MacMillan (1988) distinguished between "pilots" and "copilots" within the CVCs sample. Pilots are marked by substantial organizational independence and are keenly attuned to return on investment (ROI) and entrepreneurialism in their investment criteria. Copilots are highly dependent on corporate management with respect to venture funding and decision-making authority. They attach greater weight to strategic benefits with the corporation, which are more important than criteria relating to the entrepreneurial team and to financial performance, such as ROI. The study showed that CVCs tending to act like classical VCs (pilots) achieve higher ROI than copilots do and are just as strategically successful for the parent company. The authors of the study therefore concluded that an excessively strong insistence on the strategy criteria of the parent company could lead to serious problems with the pursuit of CVC activities.

Hence, CVCs are caught in a contradiction, or are at least walking a tightrope. On one hand, Siegel, Siegel, and MacMillan (1988) demonstrated that an excessively strong strategic orientation harms both the strategic and economic success of the CVC program. On the other, Gompers and Lerner (1998) declared that a strong strategic focus is critical to success. In the present study, we ask which of these two assessments applies to the German market.

The only known study on corporate venture capital in Germany is by Schween (1996). With a relatively small sample of only 12 CVCs, he investigated their goals, investment criteria, and organizational form. His main results were that 10 of the 12 companies (83%) – a figure clearly greater than that reported by Siegel, Siegel, and MacMillan (1988) – stressed strategic goals, with two companies (17%) stating that they pursued strategic and financial goals simultaneously. The dominance of these strategic goals was also reflected in the priority given to the dimensions of the goals named. The most important goal by far was to identify new markets and technologies with the assistance of the CVC unit. Second priority went to criteria relating to the market at which portfolio companies take aim. Growth markets and markets highly relevant to the parent company were preferred. Product characteristics were important, with strategic affinity to the parent company having special merit. Financial criteria ranked thereafter. The success of these CVC programs – strategic and financial – was modest. Only 2 of the 12 CVCs (17%) that Schween studied were satisfied with their strategic goals, a figure corresponding to an arithmetic mean of 2.0. The financial goals scored virtually the same result – an arithmetic mean of 1.9.

HYPOTHESES

Based on Schween's (1996) results, our assumption for the German CVC market is that a marked strategic focus as proposed by Gompers and Lerner (1998) is not as successful as a system of goals that balances clearly stated financial and strategic goals and puts priority on the former without losing sight of the latter. We assume that an investment can be strategically successful only if it is also financially tenable or successful.

Hypothesis 1a:
The more balanced the pursuit of financial and strategic goals in the sense defined above, the more financially successful the CVC program is.

Hypothesis 1b:
The more balanced the pursuit of financial and strategic goals in the sense defined above, the more strategically successful the CVC program is.

A study by MacMillan, Block, and SubbaNarasimha (1986) suggested that there are significant experience effects in venturing activities. Siegel, Siegel, and MacMillan (1988) tested whether similar effects applied to CVCs. They found that experienced American CVCs began behaving more like independent VCs. That is, they developed a fairly strong orientation to financial goals. The authority and financial commitment they received from the corporation increased, and their ROI improved. We test whether these results from Siegel, Siegel, and MacMillan (1988) can be adapted to the German CVC market. We expect the more experienced CVCs to be comparable to the American CVCs.

Hypothesis 2a:
The greater a CVC's experience with deal transaction, the stronger that organization's orientation is to financial goals and the weaker its orientation to strategic goals.

Hypothesis 2b:
The greater a CVC's experience with deal transaction, the greater that organization's decision-making authority is.

Hypothesis 2c:
The greater a CVC's experience with deal transaction, the clearer the financial commitment of the parent company is.

Hypothesis 2d:
The greater a CVC's experience with deal transaction, the greater the financial success of that organization is.

We also expect both the financial and strategic success to increase with the number of deals transacted.

Hypothesis 2e:

The greater a CVC's experience with deal transaction, the greater that organization's strategic success.

We are additionally interested not only in the deal-transacting experience of a CVC as an organization but also in the experience and backgrounds of the individual investment managers and in the potential effects that those experiences and backgrounds have on the success of the CVC as a whole. The CVCs that have a relatively high percentage of investment managers with relevant professional experience (such as new-venture activities, senior management, or corporate consulting) are expected to be financially and strategically more successful than CVCs with a lower percentage of such investment managers. This expectation is based on the assumption that knowledge about handling uncertainty, risk, and conflicts and that experience with organizational structures, strategic orientation, and process control are brought to bear in a person's work.

Hypothesis 3a:

The higher a CVC's percentage of investment managers with New Venture experience, the more financially and strategically successful that organization is.

Hypothesis 3b:

The higher a CVC's percentage of investment managers with a senior management background, the more financially and strategically successful that organization is.

Hypothesis 3c:

The higher a CVC's percentage of investment managers with a corporate consulting background, the more financially and strategically successful that organization is.

On the basis of Siegel, Siegel, and MacMillan's (1988) distinction between pilots and copilots and the result that pilots were financially more successful than copilots in the end, we focus on two main characteristics of the differentiation that we expect to affect the success of German CVCs – decision-making authority and capital structure.

Hypothesis 4a:

The greater a CVC's decision-making authority, the more successful that organization is.

Hypothesis 4b:

The greater parent company's financial commitment to its CVC unit, the more successful the CVC unit is.

METHODS

Sample and Design

We tested the hypotheses against data from both a questionnaire administered to 34 CVCs in 2001 and a follow-up telephone interview conducted in February 2002 with the 20 CVCs that had completed the questionnaire. To ensure at least the possibility that the CVCs in our sample had experience with deal transaction, we included only those that had been founded in 2000 or earlier.

The 20 CVCs responded that constituted a high return rate (62.5%) for a mailed questionnaire type of survey. These organizations included all the major players on the German CVC market, so they can be assumed to represent approximately 80% of the total investment volume there, a figure that permits reasoned generalizations. One of the CVCs in this sample had already left the market by the time the follow-up telephone interviews were conducted in February 2002. The subsequent part of the survey therefore proceeded with the remaining 19 organizations.

The validity and reliability of the data were verified in a number of ways. First, we pretested the five-page questionnaire with several investment managers. We did the same with the questionnaire for the telephone interviews. The data from the two survey waves were combined. In order to identify and verify the most important results despite the small number of cases, we analyzed the data by using cross-tabulations, including Chi-square tests, Tau B (Kendall's rank correlation coefficient (τ)), Cramér's statistic for contingency tables (V), regression analyses, and factor analyses. In addition to dummy variables, we used factor analyses of discrete variables in order to regress selected variables in different ways and to test the consistency of the results.

Variables and Measures

Although one purpose of our analyses was to compare our data with those reported by Schween (1996), we did not adopt all the questions and response categories of that study verbatim. It seemed to us more purposeful at certain points to expand or reduce some of Schween's response categories or replace them with ones we believed to be more appropriate. Such changes did complicate comparability in some cases but did not unduly compromise the adequacy and currency of the research design. The following variables and measures are a mix of those we constructed ourselves and those we adopted from Siegel, Siegel, and MacMillan (1988) and Schween (1996).

1. Significance of financial goals
   Scored on a 5-point scale ranging from 1 (*exclusively financial goals*) to 5 (*exclusively strategic goals*)

2. Value of investment criteria
   A total of 29 criteria, scored on a 6-point scale ranging from 1 (*no importance*) to 6 (*very important*)

3. Decision-making authority
   Scored in four categories: 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
   (a) A clearly defined fund or freely accessible financial means providing for a relatively long period; (b) no clearly defined fund or no financial means providing for a relatively long period; instead, ad hoc decisions recorded as an outflow on the balance sheet

5. Experience with deals (for measuring potential learning effects)
   As in Siegel, Siegel, and MacMillan (1988), measured as the number of deals transacted 0–10 = inexperienced with deals; 11 or more deals = experienced with deals). We did not take "years in business" as a characteristic in this study, "since a CVC who had been in existence for several years but had made few deals would still be relatively inexperienced" (p. 243). In other words, what triggers a learning experience may or may not lie well within the given period (Weber and Berthoin Antal 2001, p. 363).

6. Background of the investment managers
   Scored as the percentage of a CVC's employees represented by investment managers with experience in senior management, new ventures, or corporate consulting.

7. Strategic success or attainment of strategic goals
   Scored on a 5-point scale ranging from 1 (*completely attained*) to 5 (*completely unattained*). An arithmetic mean was calculated as an additional measure of this variable.

8. Financial success or attainment of financial goals
   Scored on the basis of the internal rate of return (IRR), not on Schween's 5-point scale of satisfaction. In order to compare our figures with Schween's and to calculate an arithmetic mean, the subdivision of the individual percentages were converted into satisfaction scores based on very conservative assumptions. An IRR smaller than 0% was equated with "unsatisfied." Higher IRRs were interpreted as follows: 0% to 10%: "rather unsatisfied" to "rather satisfied"; 11% to 20%: "satisfied"; above 20%: "very satisfied."

Methodological Information

The analyzed CVCs represent the majority of all active CVCs in Germany. It can therefore be assumed that they represent the entire German market. It is not possible to specify whether the sample has a systematic bias, for no appropriate comparative data exists for Germany thus far. Not every analytical method, especially some of the regression analyses, revealed statistical relationships between substantively important characteristics. Arguably, though, results of the regression analyses that did yield interpretable, significant relationships can be

generalized to all 37 CVC operating on the German market. Other substantive limitations arise from two facts. First, the CVC market in Germany is still comparatively young. Second, the slump on the new market has by and large considerably reduced the existing perspectives of the VCs. These two circumstances meant that some of the interviewees could not yet answer questions about their strategic and their financial success. These participants in the study had not been on the market long enough and/or market conditions had not allowed them to leave it. To provide a clear picture of these relationship tendencies, we report the results of this study in percentages despite the small sample.

RESULTS

First, the structure and conditions of the German CVC market is described in terms of characteristics selected for this study: strategic goals, investment criteria, fund structure, degree of autonomy, and attainment of strategic and financial goals (performance).

1. Strategic and financial goals
   Of the 19 CVCs surveyed, 42% stated that they mainly or exclusively pursued strategic goals; 21%, mainly financial goals. Strategic and financial goals were pursued equally by 37% of the CVCs (see Table 1).

Table 1
Goals of Corporate Venture Capital Organizations

Goals	Schween (1996)	Weber and Weber (2002)
Solely strategic	25	5
Primarily strategic	58	37
Strategic and financial	17	37
Primarily financial	0	21
Solely financial	0	0
Total	100	100

2. Investment criteria
   The CVCs ranked "uniqueness and degree of innovation represented by the product" as the most important investment criterion (mean: 5.4 on a scale of 1 to 6). "The ability of the management team to attract highly qualified employees" was ranked second (5.3), and "the expected return at the point of exit" was ranked a close third along with "experience in the line of business" and the management team's "quality of leadership" (5.2) (see Table 2).

Table 2
Investment Criteria of Corporate Venture Capital Organizations (CVCs) and Independent Venture Capital Organizations (VCs)

Investment criteria (by average level of significance)	Weber and Dierkes (in press)*		Schween (1996)**
	CVCs (*n* = 20)	Indep. VCs (*n* = 52)	CVCs (*n* = 5)
Product's uniqueness or innovativeness	1 (5.4)	1 (5.4)	3 (4.0)
Management's ability to attract and retain highly qualified employees	2 (5.3)	3 (5.0)	-
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)
Industry experience; management team's knowledge of the market	3 (5.2)	1 (5.4)	2 (4.2)
Quality of management team's leadership	3 (5.2)	2 (5.1)	3 (4.0)
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)
Ability to assess risk correctly and respond accordingly	-	-	1 (4.6)
Members of management team with whom the "chemistry is right"	6 (4.9)	3 (5.0)	-
Management's ability to communicate	6 (4.9)	4 (4.9)	4 (3.8)
Demonstrable acceptance of the product on the market	6 (4.9)	5 (4.8)	2 (4.2)
Management team's complementarity	6 (4.9)	5 (4.8)	3 (4.0)
Entrepreneur's high performance and perseverance	-	-	3 (4.0)
Ability to take criticism	-		3 (4.0)
Extensive knowledge of the product	-	-	4 (3.8)
Ability to build, convey, or retain an image of the corporation as an innovator***	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)	-
Potential strategic business partners or alliances for the corporate mother	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)
Patent protection of the products	11 (4.0)	8 (4.4)	5 (3.6)
No expectation of relevant competition within first 3 years	12 (2.9)	11 (3.2)	5 (3.6)
Important market for the corporate mother***	-	-	4 (3.8)
Same market as that of the corporate mother***	-	-	6 (3.0)

Note: The numbers in this table indicate the ranking of the criteria.
* Average values on a scale ranging from 1 (*unimportant*) to 6 (*very important*).
** Average values on a scale ranging from 1 (*unimportant*) to 5 (*very important*).
***Refers only to CVCs.

3. Capital structure
Fully 68% of the CVCs surveyed had their own fund; 32% stated that they did not invest from a defined fund.

4. Decision-making autonomy
In 16% of all the surveyed organizations, investment decisions (at least up to a certain limit) were made within the CVC unit independently of the parent

company; 16% decided jointly in close consultation with the parent company. The remaining 68% of the surveyed CVCs made suggestions to the parent company, which then took the decisions alone.

5. Attainment of strategic goals

A total of 53% of the CVCs stated that they had "completely" or "largely" attained their strategic goals; 37%, that their goals had been only "partly" or "largely" unattained. A total of 10% of the CVCs explained that their CVC unit was not yet long enough in business in order to draw such conclusions (see Table 3). Converting these values into an arithmetic mean (scored on a scale from 1 [*low*] to 5 [*high*]), one arrives at an average of 3.7 (see Table 4). For 21% of the 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% of the surveyed CVCs, their activities had strengthened existing areas of the parent company's business.

Table 3
Attainment of Strategic Goals

Reported level of attainment	Companies in the sample (%)
Complete	16
Most	37
Roughly even	32
Mostly not	5
Still to early to tell	10
Total	100

Table 4
Arithmetic Means of Finan. and Strat. Goal Attainm.

	Goal Achievement	
Goals	Schween (1996)	Weber and Weber (2002)
Strategic	2	3.7
Financial	1.9	3.0

6. Attainment of financial goals

Just under half (47%) of the CVCs in the study claimed to have attained their financial goals; 21% were not successful. About one third (32%) reported that it was still too early for them to respond to this item and that no exits had occurred yet. The arithmetic mean of these results is 3.0 (see Table 5).

Table 5
Attainment of Financial Goals

IRR* (in percentages)		Companies in the sample (%)
< 0	(not achieved, unsatisfied)	21
0–10	(achieved, rather unsatisfied to rather satisfied)	16
11–20	(largely achieved/satisfied)	10
> 20	(Completely attained or satisfied)	21
< 0	(because either it is still too early to tell or there have been no exits from the market ye)t	32
Total		100

*Internal rate of return, an expression of the level of attainment or satisfaction.

TEST OF THE HYPOTHESES

Having presented the findings on the structure of the corporate venture population in Germany, we can now turn to testing our hypotheses.

Hypothesis 1a:
The more balanced the pursuit of financial and strategic goals in the sense defined above, the more financially successful the CVC program is.

Only 25% of the CVCs that pursued mainly or exclusively strategic goals reported that they had attained their financial goals. All CVCs (100%) that had pursued mainly financial goals stated that they had attained their financial goals. Regression analysis confirmed the statistical significance of the latter results (see Table 6). Hypothesis 1a was therefore confirmed.

Table 6
Financial Success 2 (Adjusted R^2: .237)

Criteria	Coefficient	*t* test
Pursuing primarily financial goals	.467	2.034
Pursuing primarily strategic goals	–.177	–.770

Hypothesis 1b:
The more balanced the pursuit of financial and strategic goals in the sense defined above, the more strategically successful the CVC program is.

Of the CVCs with mainly or exclusively strategic goals, 63% largely or completely attained them. Among the CVCs that pursued mainly financial goals, 75% attained their strategic goals. This nearly comparable result was borne out by regression analysis as well (see Table 7) Hence, hypothesis 1b was not confirmed.

Table 7
Strategic Success (Adjusted R^2: .305)

Criteria	Coefficient	*t* test
Senior management exp.	.395	1.557
Primarily strategic goals	.590	2.335
Committee in corporate	–.492	–2.115
Primarily financial goals	.448	1.869
Experience with deals	.365	1.558
New venture experience	.278	1.161

Hypothesis 2a:
The greater a CVC's experience with deal transaction, the stronger that organization's orientation is to financial goals and the weaker its orientation to strategic goals.

Of the CVCs inexperienced at transacting deals, 11% pursued mostly financial goals; 56%, exclusively or largely strategic goals. Among the CVCs that did have experience with deals, only 25% pursued exclusively or largely strategic goals; 25% pursued financial ones. Hypothesis 2a was thereby confirmed. Regression analysis bore out this result (see Table 8).

Table 8
Primarily Financial Goals (Adjusted R^2: .472)

Criteria	Coefficient	*t* test
Consulting experience	–.396	–2.119
Chemistry fit	.532	2.948
Senior Management experience	.516	2.517
Experience with deals	.431	2.241
Expected rate on investment	.313	1.745

Hypothesis 2b:
The greater a CVC's experience with deal transaction, the greater that organization's decision-making authority is.

The very unbalanced distribution and tiny number of CVCs with independent decision-making authority render it very difficult to make statements about relationships between deal-transacting experience and decision-making authority. Of the CVCs inexperienced with deals, 89% did not make their investment decisions alone; 11% did. Among those that did have experience with deals, 25% made their investment decisions alone; 75% of these CVCs made the decisions jointly with the parent company, or the parent company made them alone. Although the cross-tabulation seemed to confirm hypothesis 2b, the regression analysis suggested that it should be rejected (see Table 9).

Table 9
Clearly Defined Fund (Adjusted R^2: .047)

Criteria	Coefficient	*t* test
Experience with deals	–.317	–1.377

Hypothesis 2c:
The greater a CVC's experience with deal transaction, the clearer the financial commitment of the parent company is.

Of the CVCs inexperienced with deals, 67% had a clearly defined fund; 33% did not finance the investments from a fund. Among the CVCs that did have experience with deals, 75% stated that they invest from a clearly defined fund, and 25% did not have a fund. The differences were so minor that hypothesis 2c was not confirmed.

Hypothesis 2d:
The greater a CVC's experience with deal transaction, the greater the financial success of that organization is.
We also expect both the financial and strategic success to increase with the number of deals transacted.

Just under half (47%) of the CVCs in the study stated that they had attained their financial goals. Among the organizations experienced with deals, the figure was 75%. Only 22% of the organizations inexperienced with deals reported having achieved their financial goals. Regression analysis bore out these results and thereby confirmed this hypothesis (see Table 10).

Table 10
Financial Success 1 (Adjusted R^2: .802)

Criteria	Coefficient	*t* test
Consulting experience	–.677	–4.029
Clearly defined fund	–.282	–2.291
No new venture experience	.305	2.249
Primarily financial goals	.367	2.673
Senior management exp.	.228	1.650
Experience with deals	.183	1.315
Committee in corporate	–.124	–.937
Decision within VC unit	.076	.436

Hypothesis 2e:
The greater a CVC's experience with deal transaction, the greater that organization's strategic success.

Strategic goals were reported to have been largely or completely attained by 63% of the CVCs experienced with deals, as opposed to 44% of the CVCs inexperienced with deals. This result, too, was borne out by regression analysis (see Table 7). Hypothesis 2e was thereby confirmed.

Hypothesis 3a:
The higher a CVC's percentage of investment managers with New Venture experience, the more financially and strategically successful that organization is.

Of the CVCs in which fewer than half of the investment managers had experience with new ventures, 58% declared that they had largely or completely attained their strategic goals. Of the CVCs in which half or more of the investment managers had experience with new ventures, 43% declared that they had largely or completely attained their strategic goals. The figures were similar for financial success, which was reported by 58% of the CVCs that were less experienced with new ventures and by only 29% of the CVCs in the control group. Hypothesis 3a was therefore not confirmed. The regression results were mixed for the strategic and financial success of CVCs with "no new venture experience" having a positive effect on financial success (see Table 10).

Hypothesis 3b:
The higher a CVC's percentage of investment managers with a senior management background, the more financially and strategically successful that organization is.

A different picture emerges when it comes to senior management experience. Of the CVCs in which 30% or fewer of the investment managers had senior management functions, 38% of the organizations reported having largely or completely attained their strategic goals. Among the CVCs in which 31% to more than 80% of the investment managers had senior management experience, 83% of the organizations declared they had attained their strategic goals. The latter result was borne out by regression analysis. Financial success was reported by 31% of the first group and by 83% of the experienced group. The latter figure was likewise borne out by regression analysis (see Tables 7 and 10). All these results confirm hypothesis 3b.

Hypothesis 3c:
The higher a CVC's percentage of investment managers with a corporate consulting background, the more financially and strategically successful that organization is.

In the group of CVCs in which no more than 40% of the investment managers had a background in corporate consulting, 43% stated that they had largely or completely attained their strategic goals. In the group of CVCs in which anywhere from 41% to more than 80% of the organization's investment managers had a background in corporate consulting, 80% of the organizations claimed to have attained their strategic goals. The picture was the opposite for financial success, with financial success being claimed by 64% of the first group and none (0%) of the second group. The latter figure was borne out by regression analysis (see Table 10). Hypothesis 3c was thereby confirmed for the attainment of strategic goals but not for financial ones.

Hypothesis 4a:
The greater a CVC's decision-making authority, the more successful that organization is.

As previously mentioned, the extremely small number of cases in one of the two samples renders it especially difficult to make a statement on the decision-making authority of the CVCs. Of the CVCs that made their investment decisions independently of the parent company, 67% stated that they were financially successful and that they had largely or completely attained their strategic goals. Among the CVCs that did not make their investment decisions on their own and instead submitted proposals to the parent company, this figure stood at 46%. Both results were additionally borne out by regression analysis (see Tables 7 and 10). Hypothesis 4a was thereby confirmed.

Hypothesis 4b:
The greater parent company's financial commitment to its CVC unit, the more successful the CVC unit is.

Of the CVCs with their own fund, 54% responded that they had largely or completely attained their strategic goals. The CVCs in the control group, which had no fund of their own, reported nearly the same attainment of strategic goals (50%). 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. This result was borne out by regression analysis (see Table 10). Hence, hypothesis 4b was not confirmed.

Table 11 summarizes our findings. It shows which of the above hypotheses were confirmed or rejected.

Table 11
Confirmation and Rejection of Our Hypotheses

Hypothesis	Cross-tabulation	Regression analysis
1a	Confirmed	Confirmed
1b	Rejected	Rejected
2a	Confirmed	Partly confirmed
2b	Weakly confirmed	Rejected
2c	Rejected	Rejected
2d	Confirmed	Confirmed
2e	Confirmed	Confirmed
3a	Rejected	Rejected
3b	Confirmed	Confirmed
3c	Confirmed	Partly confirmed
4a	Confirmed	Confirmed
4b	Rejected	Rejected

DISCUSSION

This investigation has gathered current, generalizable data on goals, investment criteria, decision-making authority, capital structure, and goal attainment pertaining to the German CVC market for the first time in six years. This update was urgently necessary 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). Our survey is the first to explore how the success of CVCs is affected by the experience they have as organizations and by the experience of their individual employees, an issue that has only recently seemed relevant. The new data can serve as a basis for a wide variety of analyses, including comparison between CVCs and the classical, or independent, German VCs (see Weber and Dierkes in press) and comparison with data provided by other research on the CVC market. The purpose of this paper is to analyze the available data and to compare it to the information reported by Siegel, Siegel, and MacMillan (1988) for the U.S. CVC market and to that from Schween (1996) on the German CVC market.

Our second research question – whether the German CVCs learned and whether experience had an impact on performance – can be answered affirmatively as far as experience with deal transaction is concerned (see Tables 7 and 10). The answers in terms of the experience of the individual investment managers depend on what each manager had done previously. The results show that CVCs differ not only in terms of whether they are experienced at transacting deals (47%) or inexperienced at transacting deals (53%) but also – and sometimes considerably – in terms of the other selected variables. Experience with deals (understood to be proof of a learning process) has an effect on both the selection and attainment of strategic and financial goals. This finding confirms the results reported by Siegel, Siegel, and MacMillan (1988). Such experience however seems to have minor effect on decision-making authority (see Table 12) and definitely no effect on the form of capital structure (see

Table 9). These facts may indicate that the learning process of experienced CVCs and a narrowing of the difference between CVCs and independent VCs has not yet progressed as far in the transaction of deals as it has in, say, the selection of goals. Nonetheless, this result does not necessarily indicate nonlearning on the part of the CVCs. They might have opted – after an examination of these structures and processes – to retain or consciously continue the proven, established practices, also a decision that would result from the learning process. These different possible explanations call for detailed study.

Table 12
Decision-Making (Adjusted R^2: .165)

Criteria	Coefficient	*t* test
No new venture exp.	–.489	–2.237
Experience with deals	.242	1.106

As for the experience of the individual investment managers and its potential influence on success, it is clear that the most successful CVCs are those that have a high percentage of investment managers with a senior management background in their organizations (see Tables 7 and 10). Surprisingly, the experience that investment managers have with new ventures had little effect on the success of the CVCs (see Table 7). A background in corporate consulting seemingly tended to have partly a negative effect, for the CVCs with a high percentage of such consultants were precisely the ones with financially unsuccessful operations (see Table 10). An explanation for these differences in effect might be that the investment managers with senior management backgrounds not only have experience in convincing, handling operational matters, overcoming conflicts, and other matters but also enjoy enhanced standing and credibility in the eyes of the portfolio company and especially the parent company. After all, the portfolio company can truly benefit from the economies of this strategic investor only if the network represented by the investment manager as a facilitator between those two organizations extends into the business units that are relevant to the portfolio company. Also in such instances, an investment manager with senior management experience – especially if having worked in the corporate – is more likely to deliver value added.

Which approach is more promising for German CVC activities – putting priority on financial goals or rather on strategic goals? A comparison between the Schween's (1996) data and ours may help steer us to an answer to this, our third, research question.[1] We checked whether the CVCs had changed the priorities of their goals and investment criteria over time and, above all, whether they were operating more successfully today than they were six years ago.

1. Goals

   Since 1996 priority has clearly shifted from strategic to financial goals. In 1996, 83% of the surveyed CVCs still stated that that were pursuing purely or mainly strategic goals, whereas today that figure stands at 42% (see Table 1). The remaining 17% of the CVCs in the 1996 survey stated that they practiced a

[1] This comparison is not based on a panel. It is a comparison between aggregate data based on different samples.

balanced pursuit of strategic and financial goals. The figure today is 36%. It seems especially noteworthy that 21% of the surveyed CVCs stated that they were pursuing largely financial goals. There were no such responses in 1996. These results mean that the behavior of CVCs is converging with that of the classical German VCs (Weber and Dierkes in press).

2. Investment Criteria
   A look at the most important investment criteria highlights the shift to emphasizing financial goals over strategic ones. Financial criteria were completely neglected in 1996, whereas they have become one of the three most important criteria today (see Table 2) – about on par with the priority they receive among the classical VCs in Germany (Weber Dierkes in press). In 1996 the surveyed CVCs regarded market size and market growth as the most important investment criterion. It now ranks fifth (see Table 2).

3. Attainment of strategic goals
   Attainment of strategic goals has definitely improved over the past six years. Whereas 17% of the surveyed CVCs in 1996 stated that they had largely or completely attained their strategic goals, this figure stands at 53% in 2002. The arithmetic mean for the attainment of strategic goals has nearly doubled within the past six years, rising from 2 to 3.7 (see Tables 3 and 4).

4. Attainment of financial goals
   The CVCs have also greatly improved in the attainment of their financial goals in 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 of 3.0 means a 58% increase (see Table 4). It seems striking that only 25% of the strategy-oriented CVCs have achieved their financial goals, whereas the financially oriented CVCs have achieved 100% of their financial goals. The results on the relation between capital structure and goal attainment are surprising (see Table 10), for we found that having one's own investment fund tended to have a negative effect on financial success. The observations by Siegel, Siegel, and MacMillan (1988) are not confirmed for the German CVC market.

We can thus answer our third research question by saying that CVCs emphasizing financial rather than strategic goals are not only more experienced with deals (see Tables 8 and 13) but also more financially and strategically successful (see Tables 6 and 7). It has been shown that an unambiguously strategic orientation has no positive effect on a CVC's success and tends instead to detract. Our results therefore confirm the conclusions drawn by Siegel, Siegel, and MacMillan (1988). The observations by Gompers and Lerner (1998) are challenged, at least for the German CVCs. Apart from this specific issue of theory-testing, today's higher performance of CVCs leads us to summarize by stating that the CVCs in Germany have undergone a clearly positive learning process in their reorientation toward classical VCs and in the ensuing increased emphasis on financial goals. However, this shift should not belie the message that a balanced, "proper mix of goals" seems to be the CVC's road to financial and strategic success, to the ability to acquire and use the potential competitive advantages of CVCs. This lesson seems particularly cogent when the learning process within the parent company – possibly at the

interface between the CVC unit and the business units – does not end but is rather consciously guided.

Table 13
Primarily Strategic Goals (Adjusted R^2: .015)

Criteria	Coefficient	*t* test
Experience with deals	–.203	–.853

There are two aspects to this guidance. One is to give the business units incentives, a binding commitment to provide support services for the portfolio companies. The CVC unit and its portfolio company can be only as good as the teams of the parent company behind them. This interface with the parent company must not be left to chance or to the network of individual investment managers (Witt and Brachtendorf 2002), which may or may not be well informed. The second aspect is that the business units must be assured that their involvement will pay off in the long run, that is, that newly acquired know-how will be fed back into the appropriate units of the parent company. A process for systematically transferring knowledge, technology, and other resources in both directions should be institutionalized. Such processes should assure access for the portfolio companies to the required resources in the parent company. They should also enable the business units of the parent company to have access to promising innovations, which will provide competitive advantages in the future as well as strengthen existing business areas and develop new ones.

This study makes four contributions to the literature on CVC and organizational learning and has a number of implications for research. From the theoretical perspective, it was 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. Second, our research provides further empirical validation of the effect that organizational experience and learning have on performance. Third, it extends the existing literature on learning in that it calls attention to the impact that the experience of individuals in CVCs has on performance. Fourth, by questioning the priority that CVCs have thus far placed on the pursuit of strategic goals (Gompers and Lerner 1998), this investigation supports the shift toward emphasis on financial goals instead (Siegel, Siegel, and MacMillan 1988).

Further research on CVCs is definitely necessary in Germany. It would be intriguing to have the present work become 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 compare CVCs and classical VCs directly. There should be continued research on the previously noted interface between the parent company and the CVC unit as a facilitator between the parent company and the portfolio company – a topic that has been treated rather randomly thus far. For instance, structuring and improving the inter- and intraorganizational learning processes of the involved units could enhance the competitive advantage of the parent company through innovative ideas of portfolio companies and could increase the success of the portfolio company by benefiting from the vast resources and knowledge of the parent. We also urge that an effort be made to deepen the understanding of the importance that the

relationship between the portfolio company, the CVC, and the parent company has for the individual employee and for organizational culture, for these three actors, too, could affect the success of CVC programs.

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