

Presentation

**MANAGEMENT SUPPORT FOR
PORTFOLIO COMPANIES OF
VENTURE CAPITAL FIRMS**

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INTRODUCTION

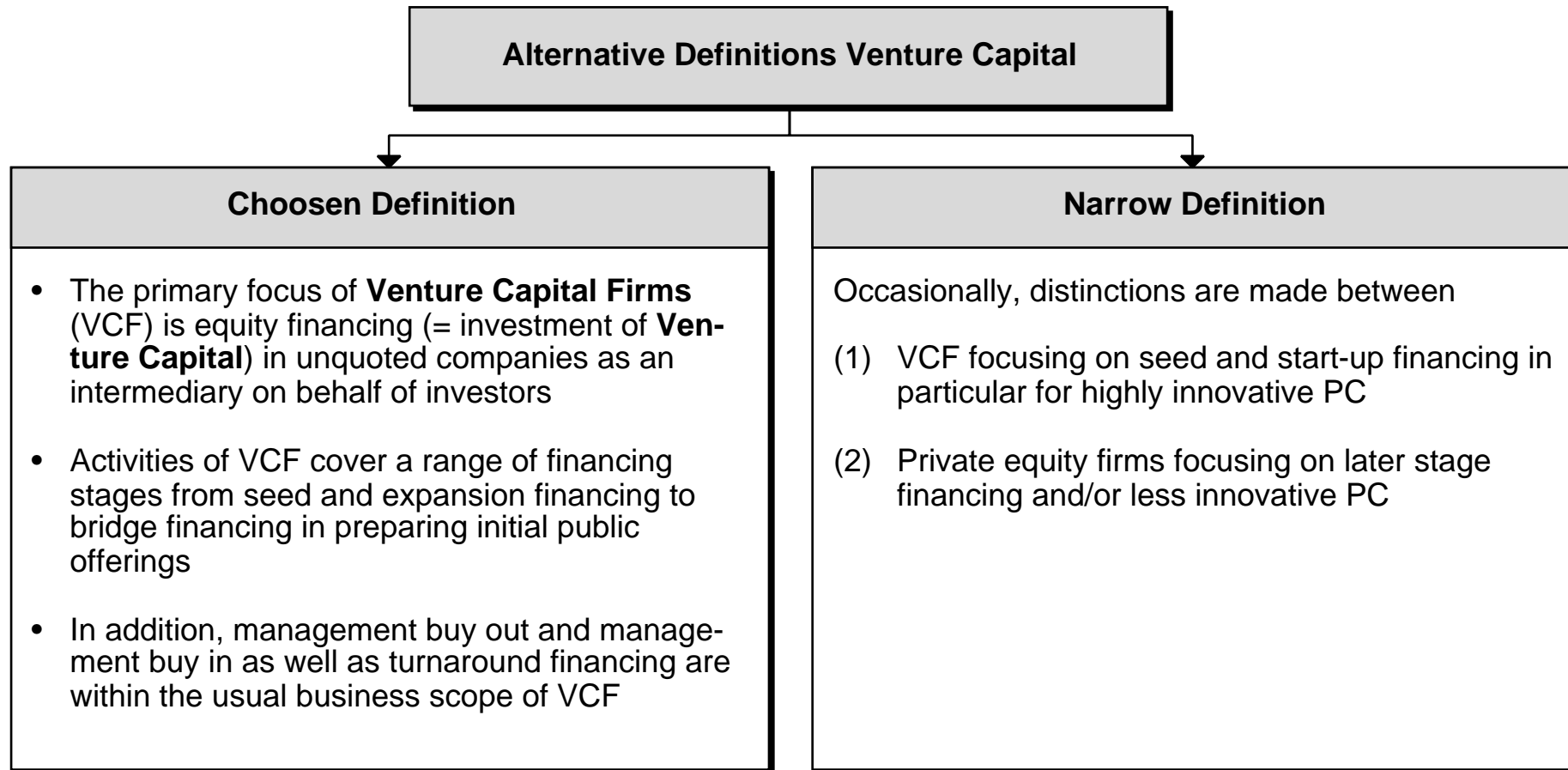
Purpose / Scope of this Presentation

- Description of key aspects of management support, in particular
 - frequency of use of various types of management support
 - intensity of support of venture capital firms (VCF) for portfolio companies (PC) to prepare and make key decisions in various management areas
 - frequency of support contacts between PC and VCF in Germany
- Analysis of the effects of VCF and PC characteristics on such aspects of management support
- Exploration of cause-effect-relationships between variables measuring management support of PC by VCF and PC performance criteria
- Implications for management practice and future research

DEFINITIONS

Definitions ...

In this Presentation, the Term Venture Capital is defined in the broader Sense



E.g., Schmidtke 1985, p. 32-34; Albach et al. 1986, p. 166; Christen 1991, p. 30-31; Frommann 1992, p. 29-32; Leopold 1993, p. 348 and Wöhe/ Bilstein 1994, p. 121.

E.g., Perridon/Steiner 1995, p. 330-331.

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CONCEPTUAL BACKGROUND

We will investigate relative Frequencies of PC Management Support in Teams of Board Membership, Consulting, or Line Management provided by the VCF

Aspects of Management Support

Conceptual Background on Aspects of Management Support	Hypotheses
<ul style="list-style-type: none"> • From an institutional perspective, there are two basic types of PC management support provided by VCF: <ul style="list-style-type: none"> – representation of VCF on the <i>board of directors</i> or similar advisory boards (= <i>management support in the broader sense</i>) – interactive <i>consulting-type management support</i> processes to solve key PC management issues and to influence decisions and behavior of PC managers provided on an as needed project basis in a professional manner for limited periods of time (= <i>management support in the narrower sense</i>) • In general, session frequencies of boards or committees are so low that these institutions can only focus on preventing insolvencies and can hardly add value via ongoing consultative management support • Interactive consulting-type management support in the narrower sense is almost exclusively provided outside formal boards and committees • Direct involvement in line management responsibilities can be seen as an additional special type of management support of VCF for their PC. In practice, however, this third type of management support is almost always limited to financing issues and crisis situations • Management support of PC by their VCF can also be distinguished more gradually according to <ul style="list-style-type: none"> – the <i>intensity of support interactions</i> in terms of the involvement of VCF in key functional PC decisions – the <i>frequency of support interactions</i> between VCF and PC managers per period of time 	<p>H₁: VCF more frequently support their PC via membership on their boards rather than via continuous consulting-type management support. Consulting-type support still occurs more frequently than direct VCF involvement in line management responsibilities</p> <p>H₂: Over time, VCF tend to provide more consulting-type PC management support in the narrower sense</p> <p>H₃: The intensity of support provided by VCF is relatively low for functional decisions in fields related to technology and sales/marketing</p>

We will consider Financing Stage Focus, Choice of Quasi-Equity Financing, and PC Market Growth as Determinants of Management Support

Determinants of Management Support

Conceptual Background on Determinants of Management Support	Hypotheses
<ul style="list-style-type: none">• The plethora of determinants of type, intensity, and frequency of management support for PC by their VCF discussed in literature can be grouped into (1) characteristics of the VCF and (2) characteristics of the PC or of the particular investment of a VCF in the PC• An important characteristic of the VCF is its focus on investments in young firms which are in a particular <i>stage of the venture life cycle</i><ul style="list-style-type: none">– for early stages, management support would have to concentrate on business plan and strategy development, on general management methods transfer and on specialized knowledge– for later stages, strategic decisions such as creating alliances, entering into corporate acquisitions, or preparing an initial public offering would gain in importance• A typical form of quasi-equity used in German VC-financing is a <i>silent partnership</i> investment. Investors can compensate for the lack of voting rights and board membership typically associated with silent partnerships by increasing consulting-type management support and via a close involvement in key functional decisions• Regarding <i>market growth</i>, one can argue that PC in fast growing markets require more VCF management support than PC in strategic decisions since in dynamic markets it is impossible to foresee these decisions prior to engaging in a PC investment	<p>H₄: The financing stage focus of a VCF significantly determines type, intensity, and frequency of management support which a VCF provides to its PC</p> <p>H₅: VCF entering into silent partnerships with their PC support their PC more intensely and outside formal boards than mere minority shareholders</p> <p>H₆: The intensity of management support, in particular the involvement of VCF in research and development, manufacturing, and sales decisions of PC, increases with market growth rates of PCs</p>

Consulting-type Management Support is assumed to enhance PC Performance while mere Board Membership is not

Management Support and PC Performance

Conceptual Background on Management Support and PC Performance	Hypotheses
<ul style="list-style-type: none">• Previous conceptual research generally concludes that a PC's board can primarily serve as a forum to exercise information and control rights but can rarely facilitate consulting-type management support. Furthermore, empirical work of Rosenstein et al. (1993) demonstrates that the value added of VCF representatives on a PC's board of directors tends to be limited• On this basis, one can assume that consultative management support is suitable to systematically increase the performance of a PC. At the same time, less creative information and control activities primarily correspond to failure prevention• Some empirical studies (Sapienza/Timmons 1989, Sapienza 1992) detected positive correlations between VCF management support intensities and PC performance. However, these studies did not distinguish various foci of management support activities• Finally, direct involvement of VCF representatives in PC line management responsibilities can be classified as an extreme type of management support. In practice, except for some financing issues, direct involvement in PC line management responsibilities are commonplace in crisis situations only	<p>H₇: PC which are supported via VCF consulting activities (alternatively: VCF board membership) achieve a significantly higher (alternatively: the same) performance than PC not receiving this type of management support</p> <p>H₈: PC performance increases with (1) the intensity of consultative management support provided by the VCF in preparing various type of key functional PC decisions and (2) with the frequency of management support interactions</p> <p>H₉: The probability of direct involvement of VCF representatives in PC line management responsibilities correlates negatively with PC performance</p>

SAMPLE / PERFORMANCE MEASURES

Sample ...

Our Sample includes approximately 10% of Portfolio Companies and 20% of Venture Capital Firms in the private Sector in Germany

Sample		
	Portfolio Companies	Venture Capital Firms
Sample	103 (= 10.0%)	12 (= 20.0%)
Overall Population	ca. 1031 ¹⁾	ca. 60 ²⁾

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- 1) Estimated number of portfolio companies held by private sector VCF. Intertemporal change is not accounted for due to a lack of data.
- 2) Venture capital firms except for entities belonging to public savings banks and other public sector owners.

Source: Membership directory of BVK, own adjustments

Performance measures ...

Portfolio Companies – excluding Liquidations – on Average yield an Internal Rate of Return of 18% p.a. for all and 23% p.a. for disinvested Cases ...

Descriptive Statistics for Performance Measures

PC Performance Measures	Ma	S	Median	Min	Max	N
1. Internal Rate of Return	18.3%	21.1%	15.0%	-22.5%	+111.0%	88
2. Internal Rate of Return (disinvested)	22.6%	28.3%	17.4%	-22.5%	+111.0%	28
3. Return as compared to business plan ^b	1.7	0.9	2.0	0.0	3.0	100
4. Return as compared to industry ^b	2.1	1.0	2.0	0.0	3.0	98
5. Full write down/liquidation ^c	0.09	0.28	0.0	0.0	1.0	103

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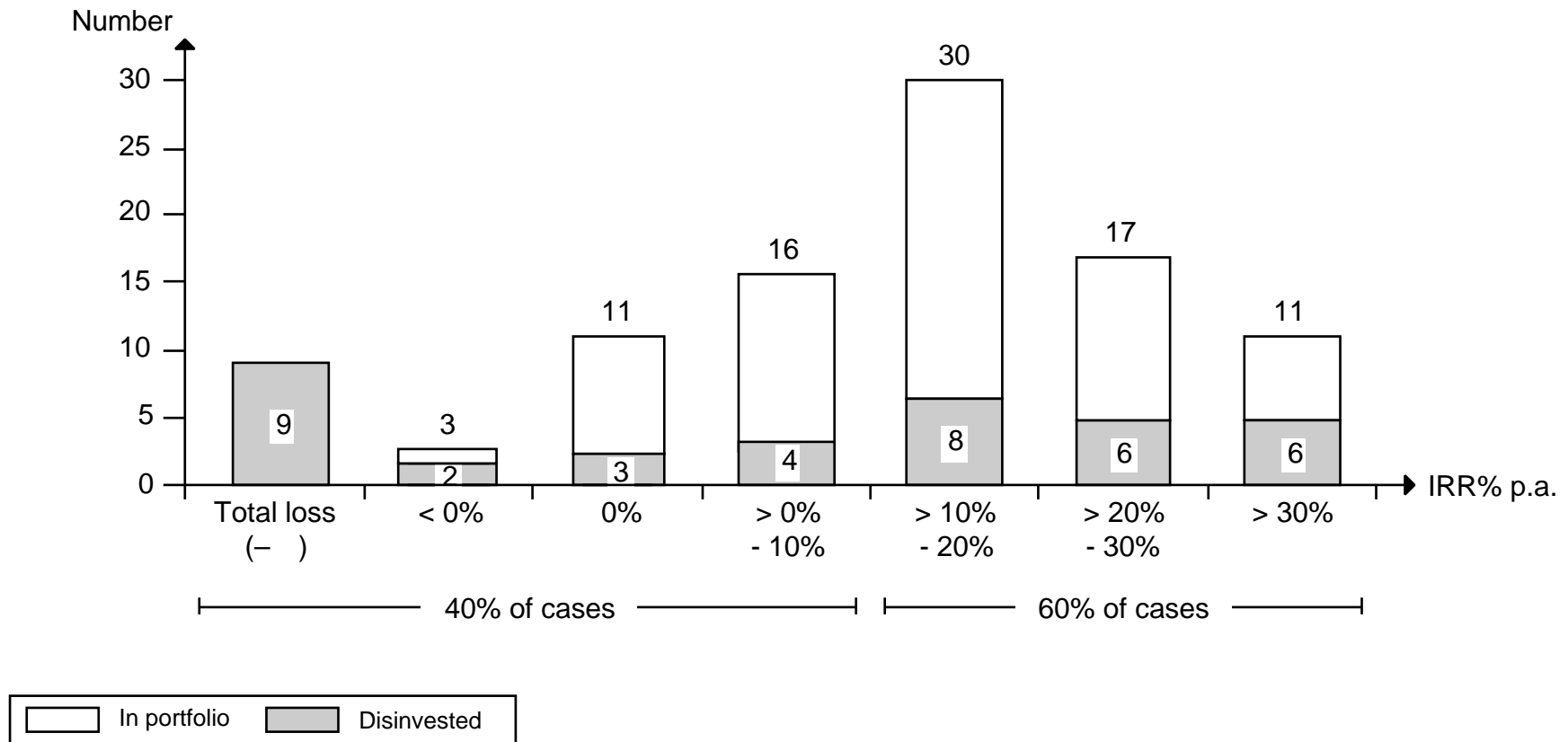
- a) Abbreviations: M = (arithmetic) Mean; S = Standard deviation; N = Number of cases.
- b) Scale: 0 = Full write down; 1 = Worse than expected; 2 = As expected; 3 = Better than expected.
- c) Scale: 1 = Full write down; 0 = Other.

... however, this is before write downs/liquidations and VCF operating expenditures

Performance measures ...

Usually, Returns range between 10% and 20% p.a., however, a significant Portion of PC (40%) only yields lower or even negative Returns

Frequency Distribution of Internal Rate of Return (IRR)



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EMPIRICAL RESULTS

Empirical results ...

Data confirm that VCF Board Membership is Commonplace while there is a Trend towards more consultative Management Support

Descriptive Statistics and Correlations for Management Support Measures

Measures	M ^a	S	Median	Observations
1. Type of Support^b				<ul style="list-style-type: none"> • H₁ – Regarding the <i>type of support</i> in 87% of cases, VCF representatives served on the board of directors or advisory committee of their PC. Consultative management support, however, is provided to only 42% of the young firms represented in our sample. Even less frequently, in 10% of cases, a direct VCF involvement in PC line management responsibilities was observed • H₂ – The variables on <i>intensity of support</i> describe in which functional fields VCF are involved in preparing and making key PC decisions. To test for hypothesis H₂, correlation coefficients between the disinvestment year of a PC and various aspects of management support were calculated. Among the three variables on type of support, only consultative management support correlates significantly ($r = +0.49$; $p < 0.01$) with the disinvestment year. Indicators of intensity of support correlate with year of disinvestment at least on a 5% level of significance, except for the involvement in research and development decisions • H₃ – Data for variables 2a-c confirm that VCF representatives are rarely involved in PC technology or marketing decisions
1a. Board membership	0.87			
1b. Consultative management support	0.42			
1c. Direct VCF involvement in PC line management	0.10			
2. Intensity of Support^c				
2a. Research and development decisions	- 1.76	0.68	- 2.0	
2b. Manufacturing decisions	- 1.62	0.78	- 2.0	
2c. Sales decisions	- 1.12	1.14	- 2.0	
2d. Finance decisions	+ 0.48	1.37	+ 1.0	
3. Frequency of Support Interactions p.a.				
3a. Personal	8.4	12.5	4.0	
3b. Written/by telephone	24.2	37.0	12.0	

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a) Abbreviations: M = (arithmetic) Mean; S = Standard Deviation. Number of Cases: 90 N 102.

b) 0/1-dummy-variables with 1 = type of management support provided.

c) Five-point scale reflecting degree of involvement of VCF in four fields of PC decisions with - 2 = Low involvement; 0 = Average involvement; + 2 = High involvement.

Empirical results ...

Data also confirm VCF Financing Stage Focus, Financing Structure, and PC Market Growth as significant Determinants of Management Support

Pearson Correlations of VCF and PC Characteristics with Management Support

Variables ^b	Type of Support ^a		Intensity of Support			
	Board Mem- bership	Consultative Support	Involvement in Functional Decisions			
			R&D	Manufacturing	Sales	Finance
1. Proportion of Financing Stages in VCF-Portfolio ^b						
1a. Start-up	+ 0.34 ^{***}	- 0.35 ^{***}	- 0.10	- 0.15	- 0.25 [*]	- 0.45 ^{***}
1b. Expansion	- 0.52 ^{***}	+ 0.31 ^{**}	+ 0.37 ^{***}	+ 0.28 ^{**}	+ 0.26 [*]	+ 0.31 ^{**}
1c. MBO / MBI	+ 0.40 ^{***}	- 0.05	- 0.34 ^{**}	+ 0.17	- 0.12	+ 0.06
2. PC Characteristics ^b						
2a. Silent partnership	- 0.51 ^{***}	+ 0.15	+ 0.37 ^{***}	+ 0.30 ^{**}	+ 0.28 ^{**}	+ 0.22 [*]
2b. Market growth	0.00	+ 0.25 ⁺	+ 0.50 ^{***}	+ 0.29 ⁺	+ 0.24	- 0.13

a) The variable capturing direct VCF involvement in PC management responsibilities as a type of support is not shown here due to a lack of significant ($p < 0.10$) associations.

b) Number of Cases for Variables 1a, b, c + 2a: 83 N 102 and for Variable 2b: 34 N 38.

+ $p < 0.10$ * $p < 0.05$ ** $p < 0.01$ *** $p < 0.001$ (two-tailed tests).

Observations

- H₄ – Most of the variables 1a-c are significantly associated with type as well as intensity of management support of a PC by VCF. According to our data, the *business focus of a VCF* does indeed to a large extent shape the type and intensity of management support offered
- H₅ – For investments structured at least partially as *silent partnerships*, board memberships are less common. In contrast, VCF tend to support their silent partnership investments outside formal boards and committees through a higher involvement in key functional decision
- H₆ – Aspects of the markets in which PC compete have impacts on the type and intensity of management support provided by VCF. Consultative support and involvement in key functional PC decisions, primarily research and development, increase with observed market growth

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Empirical results ...

The overall Pattern of Correlations indicates that consultative Management Support tends to increase PC Performance while Board Membership does not

Correlations of Management Support with PC Performance

Management Support Measures	Pearson's r		Kendall's Tau	
	IRR ^a	RPLAN	RINDU	LOSS
1. Type of Support				
1a. Board membership	+ 0.12	+ 0.09	+ 0.15	+ 0.11
1b. Consultative support	+ 0.08	+ 0.21*	+ 0.26**	- 0.25*
1c. Direct VCF involvement in PC line management	- 0.19 ⁺	- 0.02	- 0.01	- 0.10
2. Intensity of Support				
2a. Research and development	+ 0.04	+ 0.16 ⁺	+ 0.08	- 0.11
2b. Manufacturing	+ 0.02	+ 0.07	+ 0.12	- 0.09
2c. Sales	- 0.09	- 0.07	+ 0.09	- 0.13
2d. Finance	- 0.09	- 0.12	+ 0.09	- 0.21*
3. Frequency of Support Interactions p.a.				
3a. Personal	- 0.09	- 0.13	+ 0.02	- 0.07
3b. Written/by telephone	+ 0.03	- 0.02	+ 0.08	- 0.07
a) Abbreviations: IRR = Internal Rate of Return; RPLAN = Return as compared to business plan; RINDU = Return as compared to industry average; LOSS = Full write down/liquidation. Number of Cases: 76 N 102.				
+ p < 0.10 * p < 0.05 ** p < 0.01 *** p < 0.001 (two-tailed tests).				

Observations – H₇

- Out of the three support variables, only consultative management support was significantly correlated with three performance measures: the correlations for subjective return as compared to business plan and industry equal r = 0.21 (p < 0.05) and 0.26 (p < 0.01), respectively
- Accordingly, 4-7% of the variance of these performance measures was explained by differences in management support alone
- It appears rather surprising that no correlation with internal rate of return was detected
- Counter to a common method variance explanation, however, we also found a significant negative correlation between the objective performance criterion “full write down/loss” and consultative management support

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Empirical results ...

Multivariate Analyses detect a favorable Relationship between an Involvement of the VCF in Key PC Functional Decisions and PC Performance

Multivariate Simultaneous Regressions of PC Performance Criteria on Management Support Variables

Management Support Variables	Beta ^a				Observations
	IRR ^b	RPLAN	RINDU	Loss	
1. Type of Support					
1a. Board membership	- 0.01	- 0.13	- 0.21 *	+ 0.11	<ul style="list-style-type: none"> H₈ – Regarding intensity of support in terms of the VCF’s involvement in various functional PC decision areas, multivariate analyses show that returns as compared to industry and risk of liquidation were influenced favorably by a close cooperation in preparing key finance, manufacturing and sales decisions. No significant relationships were detected for the mere frequency of management support interactions and performance criteria H₉ – The association of lagging success and direct VCF involvement in PC line management was not clearly supported by either multivariate or bivariate correlations
1b. Consultative support	+ 0.12	+ 0.26**	+ 0.29**	- 0.24*	
1c. Direct VCF involvement in PC line management	- 0.06	+ 0.04	+ 0.05	- 0.09	
2. Intensity of Support					
2a. Research and development	+ 0.10	+ 0.15+	+ 0.12	- 0.13	
2b. Manufacturing	+ 0.15	+ 0.22*	+ 0.30***	- 0.19+	
2c. Sales	+ 0.03	+ 0.04	+ 0.22*	- 0.19+	
2d. Finance	+ 0.05	- 0.02	+ 0.20*	- 0.26**	
3. Frequency of Support Interactions p.a.					
3a. Personal	- 0.11	- 0.09	- 0.02	- 0.05	
3b. Written/by telephone	- 0.07	+ 0.05	+ 0.05	- 0.04	
<p>a) Standardized partial regression coefficient after partialling the manager characteristics “Experience Marketing/Sales”, “Experience Planning/Strategy”, and “Industry Experience” as well as additional control variables “Volume of Investment VCF”, “Volume of Investment PC”, and “Proportion of Loans”.</p> <p>b) Abbreviations: IRR = Internal Rate of Return; RPLAN = Return as compared to business plan; RINDU = Return as compared to industry average; LOSS = Full write down/liquidation.</p> <p>+ p < 0.10 * p < 0.05 ** p < 0.01 *** p < 0.001 (two-tailed tests).</p>					

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IMPLICATIONS FOR FUTURE RESEARCH

Implications ...

Further Research should aim for larger Samples and a longitudinal Design

Findings vs. Research Needs

Empirical Findings

- VCF representatives are more frequently serving their PC in the role of a board member rather than by providing more intense, continuous, and content-oriented consultative management support
- VCF representatives were hardly involved in preparing key functional PC decisions, in particular on technology and marketing issues
- Based on empirical associations with PC performance, VCF should focus on continuous, content-oriented consultative support. Management support should go beyond participation in formal boards and committees where infrequent and agenda-driven meetings are commonplace. Support should rather focus on adding shareholder value working on-site with the PC to prepare key decisions, including business and technological decisions beyond finance

Implications for Future Research

- It would be critical to obtain data for larger samples of PCs from various countries to more effectively satisfy concerns regarding this research's generalizability. In addition, larger samples would enable researchers to simultaneously include more potential success factors in multivariate analyses
- One should conduct longitudinal studies of private-sector VC investments where data collection takes place in several phases in parallel to actual developments. This would help to avoid problems of common method variance and enable researchers to better interpret correlations (in terms of cause-effect-relationship)

LITERATURE

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