



Value Adding Activities in the Venture Capital Literature: A Review on Data, Variables and Methods

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Abstract. Established literature has shown that venture capital funds' high returns can be partly attributed to value adding activities performed by the venture capital firms in their portfolio firms. Despite of the topic's importance, to date there is no structured literature review providing possibilities for improvements concerning data and methods. This paper provides a literature analysis on value adding activity measures in venture capital investments, synthesizes the variables measuring the main levers of value adding and identifies directions for improvement in terms of data, variables and methods. Hence, I studied 37 articles regarding the type of data collection method, methodology, sample region and variables. The analyses showed that data are primarily gathered through databases or surveys which are subject to several limitations. To measure value adding activities great inconsistencies exist regarding the variables used. Therefore, to assure a better comparability of studies in this research stream, this paper calls for other data collection methods and the development of established variables and scales.

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1. Introduction

During the last three decades there is a growing interest in academia in the topic of value adding activities applied by VC (venture capital) firms to their portfolio companies to increase the chance of successfully exiting the investment. A number of studies showed that VC-backed firms achieve higher returns than non VC-backed firms (Barry and Mihov, 2013; Bessler & Seim, 2012; Chiampou & Kallett, 1989; Dagogo & Ollor, 2009; Guo & Jiang, 2013; Robinson, 1987). Empirical work has been done to investigate how VC firms add value to their portfolio companies in the last thirty years (see Figure 1). Considering prior studies it can be observed that venture capital firms add value to their portfolio firms through financial, strategic, governance, operational, human capital and network improvements (Achleitner et al., 2013; Agarwal and Chatterjee, 2007;

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Cumming et al., 2005; Macmillan et al., 1989). For example, governance improvements can be achieved due to milestones, reporting mechanisms and employee involvement (Barnes, 2004; Schertler, 2003).

This previous work offers valuable insights into the critical role of venture capital firms for their portfolio companies. However, these studies also highlight the need for further thorough and comprehensive analyses of value adding activities. In spite of the rising attention for this research topic, there remains a lack of systematic approaches measuring and analyzing value adding activities to assure a comparability of studies. Hence, the aim of this paper is to provide an overview of the literature regarding various types of value adding activities. To this end 37 studies were reviewed. Information on data collection method, research method, sample size and region as well as variables measuring value adding activities were synthesized. Based on this, gaps, deficiencies and ideas for improvements in terms of data, variables and methods were identified for this research field.

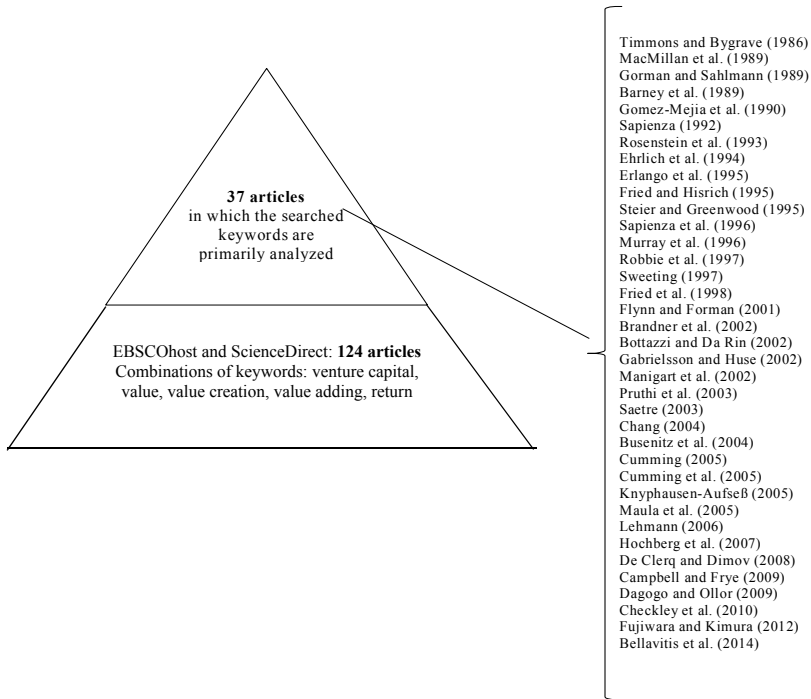
In venture capital literature, terms such as “value adding measures”, “value adding activities” and “value creation measures” are often used interchangeably. Equally, “value adding” and “value creation” are used synonymously. To assure clarity in terms of terminology this study uses the following synonyms: value adding and value adding activities. The paper follows the following structure. The next section introduces the methodology used to pursue the literature review. This is followed by an analysis of various studies related to value adding activities based on data, variables and methods. Afterwards, gaps, deficiencies and ideas for improvements in the reviewed literature are highlighted. Finally, the paper closes with a conclusion.

2. Method

To receive the relevant literature on value adding activities in the venture capital industry I used the following strategy. First, I searched in the EBSCOhost (Business Source Complete) and ScienceDirect for combinations of keywords such as “venture capital”, “value”, “value creation” or “value adding” and “return” in the title and abstract of articles. In this course in total 124 articles were identified. Thereby, I only included publications like academic journal articles and conference papers based on any type of empirical analysis. Some of the studies were existent in more than one database. Hence, this amount of studies should not be taken as mutually exclusive. I studied the abstracts, data and results section of each article. Those articles not in the research stream of value adding activities in the venture capital industry were eliminated. Most of the excluded studies dealt with the question whether venture capital firms create value at all, but not how. Furthermore, I eliminated all articles which were not based on empirical research since the present study analyzes data, variables and methods

of studies. In 37 out of 124 articles value adding activities in the venture capital industry were the dominant addressed topic (see Figure 1).

Figure 1: Selection strategy and overview of articles from EBSCOhost and ScienceDirect



This searching strategy of identifying relevant literature is subject to a limitation since important works that have not used the selected key words but analyzed a comparable subject might be neglected. To reduce this problem, I searched for further articles in the references of the selected articles. Nevertheless, this review may not have identified every study published in this field of research. Due to this systematic approach I believe that the overview is comprehensive enough to provide a broad overview of research in this subject.

3. Literature on Value Adding Measures by Venture Capital Firms

The literature stream of value adding activities of venture capital firms started to grow in the 1980s. Considering our selected articles this review shows that the number of studies increased over the last three decades. The rise of studies especially in the 2000s reflects the growing importance of value adding activities of venture capital firms. Especially in times of money as a commodity (Rosenstein et al., 1993) value adding activities become even more important to attract the most promising ventures and higher the chance of a successful exit of the investment. Research in this field mainly focuses on different types of value creation measures and their impact on different success indicators of the venture, i.e. performance (Sapienza, 1992), sales growth (Macmillan et al., 1989), returns (Cumming et al., 2005; Macmillan et al., 1989), exit success (Bellavitis et al., 2014; Bottazzi and Da Rin., 2002; Busenitz et al., 2004; Checkley et al., 2010; Cumming et al., 2005; Hochberg et al., 2007; Siepel, 2016), initial public offering (Chang, 2004; Checkley et al., 2010; Cumming, 2005) and internal rate of return (Cumming et al., 2005; Manigart et al., 2002).

Samples, data collection and data analysis methods of previous studies

The selected studies were analyzed under various viewpoints considering data, variables and methods (see table 1): Sample size, observed object, data collection method, data analysis method and region. The samples range in terms of size heavily depending on the type of data collection method and data analysis method. As it can be expected samples collected from databases have rather large sample sizes, surveys and interviews middle size samples and case studies small samples. Furthermore, it is not observable that sample sizes grew over time. A great diversity exists in terms of which person or object was analyzed in the samples. First, a distinction can be made between different types of people like entrepreneurs (e.g. see Ehrlich et al., 1994), CEOs of VC-backed firms (e.g. see Sapienza, 1992) and venture managers or partners (e.g. see Robbie et al., 1997) and secondly between institutions like VC-backed firms (e.g. see Timmons and Bygrave, 1986; Barney et al., 1989), VC firms (e.g. see MacMillan et al., 1989; Gorman and Sahlmann, 1989), VC funds (e.g. see Sweeting, 1997), corporate VC firms (e.g. see Knyphausen-Aufseß, 2005) as well as VC deals or transactions (Bellavitis et al., 2014; Cumming, 2005). When it comes to data collection method this review shows that mainly databases, surveys and interviews were used to gather relevant data. However, only one study is based on the original deal documents (Steier and Greenwood, 1995). Over time a tendency towards multiple data collection approaches becomes apparent and the usage of databases increases. In more than 50% of the studies data was analyzed mainly from the United States and/or overall North America. Especially in the 1980s and 1990s studies were foremost conducted in the United States which can be explained by the fact that the VC market in the United States as well as research is further

developed in the United States compared to other regions. There are some studies from Europe (e.g. Lehmann, 2006), from Asia (e.g. Pruthi et. al., 2003), from Australia (Cumming et al., 2005) and Africa (Dagogo and Ollor, 2009). Only 16% of researchers collected their samples in different countries. Furthermore, the comparison of similarities and differences across countries is even less researched (e.g. Sapienza et al., 1996). The types of sampling and data collection method have implications for the research method as well as the interpretation of the results since the applied techniques are diverse and subject to several limitations.

Table 1: Overview of selected studies for review with respect to data, data collection and data analysis method (n=37)

Authors	Sample/ respondents	Data collection method	Data analysis method	Region
Timmons and Bygrave (1986)	n= 1,501 VC-backed firms	Venture Economics database, interviews	Descriptive statistics, cluster analysis	North America
MacMillan et al. (1989)	n= 62 VC firms	Survey	Descriptive statistics, cluster analysis, regression analysis	North America
Gorman and Sahlmann (1989)	n= 49 VC firms	Survey	Descriptive statistics	North America
Barney et al. (1989)	n= 54 VC-backed firms	Interviews, American Electronics Association membership directory and announcements in the venture capital journal	OLS regression	North America
Gomez-Mejia et al. (1990)	n= 20 VC firms and CEOs of VC-backed ventures	Interviews and participant-observation methods	Qualitative analysis	North America
Sapienza (1992)	n= 51 CEOs of VC-backed firms and lead VC investor	Survey	Descriptive statistics, correlations, regression analysis	North America
Rosenstein et al. (1993)	n= 198 CEOs of VC-backed firms in survey, n= 98 CEOs of VC-backed firms in telephone interview	Survey, telephone interviews	Descriptive statistics	North America
Ehrlich et al. (1994)	n= 47 Entrepreneurs	Survey	Descriptive statistics, ANOVA, cross tabulations	North America
Elango et al. (1995)	n= 149 VC firms	E-Mail survey	Descriptive statistics	North America
Fried and Hisrich (1995)	n= 14 VC-financed firms	Interviews	Qualitative analysis	North America
Steier and Greenwood (1995)	n= 1 VC-backed firm	Interviews, site visits and archival material	Case study analysis	North America

Sapienza et al. (1996)	n= 51 VC firms and CEO of venture	Survey	Descriptive statistics, regression analysis	North America and Europe
Murray (1996)	n= 6 VC-backed firms	Survey	Case study analysis	Europe
Sweeting (1997)	n= 3 VC funds	Interviews and published statistics	Descriptive statistics, qualitative analysis	UK
Fried et al. (1998)	n= 68 VC firms	E-Mail survey	Descriptive statistics	North America
Robbie et al. (1997)	n= 25 individuals from VC firms, n= 108 VC firms	Interviews based on structured questionnaire, mailed survey	Descriptive statistics	UK
Flynn and Forman (2001)	n= 87 VC firms	Survey	Descriptive statistics, correlations	Worldwide
Manigart et al. (2002)	n= 209 VC firms	Survey	Descriptive statistics, correlations, LDV regression	North America and Europe
Brandner et al. (2002)	n= 284 VC-backed exits	Dataset collected by Macdonald & Associates	Descriptive statistics, regression analysis	North America
Gabrielsson and Huse (2002)	n= 135 small technology based entrepreneurial firms, n= 65 CEOs of VC firms	Multiple data collection approach	Descriptive analysis, correlations, regression analysis	Sweden
Pruthi et. al. (2003)	n= 37 venture capitalists	Survey, interviews	Descriptives statistics, ANOVA, correlations, regression	Asia
Saetre (2003)	n= 4 VC-backed firms	Interviews	Multiple case study analysis	Norway
Chang (2004)	n= 1,106 VC-backed firms	Venture Economics database and Joint Venture/ Strategic Alliance Database of the SDC	Descriptive statistics, correlations, hazard model	Worldwide
Busenitz et al. (2004)	n= 183 VC-backed firms	E-Mail survey	Descriptive statistics, correlations, bivariate analysis, Cox regression	North America
Cumming et al. (2005)	n= 806 VC-backed entrepreneurial firms	Australian Bureau of Statistics Venture Capital Survey	Descriptive statistics, cross-sectional econometrics	Australia
Cumming (2005)	n= 3083 transactions	Dataset collected by Macdonald & Associates	Descriptive statistics, Panel data, correlations, logit regression	North America

Knyphausen-Aufseß (2005)	n= 4 Corporate venture capitalists	Website information, press releases, company presentations and ten personal interviews with executives and investment managers of the companies	Multiple case study analysis	Worldwide
Maula et al. (2005)	n= 91 CEOs and founders of CVC financed firms	Survey	Descriptive statistics, univariate tests, regression analysis, ANOVA	North America
Lehmann (2006)	n= 108 VC-backed firms	Hand collected data set from German Neuer Markt, German Patent Office, Deutsche Börse AG, Datastream, OnVista	Descriptive statistics, OLS estimation, probit and negative binomial estimation	Germany
Hochberg et al. (2007)	n= 3,469 VC funds	Thomson Financial's Venture Economics Database	Descriptive statistics, network analysis, regression analysis	North America
De Clercq and Dimov (2008)	n= 200 VC firms, n= 8,162 initial investments	Thomson Financial's VentureXpert database	Descriptive statistics, correlations, logit regression	North America
Bottazzi and Da Rin (2002)	n= 119 venture firms, n=503 venture partners, n=1,652 portfolio companies	Survey, Amadeus, Worldscope, Venture Expert, national venture capital associations, Thomson Financial, SDC	Descriptive statistics, univariate tests, probit regression	Europe
Campbell and Frye (2009)	n= 444 ventures	Initial public offering prospectus database developed by R. R. Donnelley Financial and initial public offering Crossroads	Descriptive statistics, instrumental variables regression, Heckman regression	North America
Dagogo and Ollor (2009)	n= 120 (VC-backed and non VC-backed firms)	Selection under SMEEIS	Descriptive statistics, multiple regression analysis	Nigeria
Checkley et al. (2010)	n= 39 VC firms, observed over 11 years	Hand collected data set from a commercial database developed by IE Consulting and supplementary data from British Venture Capital Association's Directory of Members and VC firm's websites	Descriptive statistics, correlations, Granger causality	UK

Fujiwara and Kimura (2012)	n= 32 VC firms	Combination of primary data collected in an internet-based survey and secondary data from public databases, i.e. Dow Jones Galante's Venture Capital & Private Equity Directory	Descriptive statistics, OLS regression, correlations, probit regression	North America
Bellavitis et al. (2014)	n= 1,264 VC-backed companies with n=5,344 VC deals	Qualitative interviews, Thomson One Banker database	Descriptive statistics, correlations, random-effect panel logistic regression	North America

Research methods used in previous studies

In the reviewed studies mainly three types of research methods were applied, namely empirical studies, qualitative analyses and case study approaches. In order to test the impact of various value adding activities on different success measures, studies used different statistical analysis techniques, such as correlations, multivariate regression, Granger causality, network analysis, negative binomial estimation, hazard model etc. In studies with an explorative nature data was foremost collected by semi-structured interviews (e.g. Fried and Hisrich, 1995; Knyphausen-Aufseß, 2005; Saetre, 2003; Steier and Greenwood, 1995). A moderate amount of studies used secondary or third resources, e.g. company data or surveys, to combine different analysis methods (e.g. Bellavitis et al., 2014; Fujiwara and Kimura, 2012). In the reviewed studies the majority of respondents or interview partners were chief executive officer, entrepreneurs or venture managers. Some studies utilized also mixed respondents, i.e. VC-backed and non VC-backed firms (Dagogo and Ollor, 2009) or managers of ventures and VC firms (Gabrielsson and Huse, 2002; Rosenstein et al., 1993; Sapienza et al., 1996). The approach of mixed respondents is firstly useful to lessen the problems of common method bias and secondly provides results from different perspectives of different stakeholders. As shown in table 1, statistical methods used to test the impact of value adding activities on success of VC-backed investments developed over time. Early studies foremost used descriptive statistics, multiple regression or qualitative methods. In more recent studies techniques like Granger causality, Cox and Heckman regressions or cross-sectional econometrics were applied. Studies of explorative nature included also tables, figures, and matrices to illustrate results.

Measuring value adding activities in previous studies

The second aim of the review is the analysis of variables used in the selected studies to measure value adding activities. Thereby, it was also targeted to compare how different studies measure the same or comparable variables, e.g. the

variable advisory board was measured in six different ways (see table 3). The majority of studies used the number of seats on board like Campbell and Frye (2009), Gabriellsson and Huse (2002), Gorman and Sahlmann (1989), Rosenstein et al. (1993) and Sapienza et al. (1996). Fujiwara and Kimura (2012) measured this variable on a 4 point scale, whereas Fried et al. (1998) used a 7 point scale. Furthermore, Bottazzi et al. (2008) and Robbie et al. (1997) controlled if the VC firm has at least a seat on board and Barney et al. (1989) measured the percentage of seats the VC firm has on the venture board.

For all types of value adding activities which were identified in the literature, i.e. financial, governance, strategic, operational, network and human capital improvements, various variables were used to measure their impact on venture's success. Variables measuring governance value adding activities were found in the majority of the selected studies (see table 3). Furthermore, to measure governance value adding activities the highest numbers of variables was used (compared to the other five types of value adding activities). This might reflect the importance of governance improvements in VC-backed firms since VC firms are active investors and use several governance mechanisms to control and monitor the venture firm. In terms of the number of studies analyzing different types of improvements it is also apparent that also financial and network value adding activities are of high relevance (see tables 2 and 6). To the contrary, strategic, operational and human capital value adding activities are relatively moderately researched (see tables 4, 5 and 7). Nevertheless, studies proved that strategic, operational and human capital value adding activities impact the success of VC-backed investments (Guo and Jiang, 2013; Gorman and Sahlman, 1989; Sapienza et al., 1996).

Analyzing how the great variety of variables was measured it is obvious that there are some variables, e.g. follow-up financing, advisory boards, monitoring or development of business strategy, which were used very often in studies. Nevertheless, there is also a considerable amount of variables which I found only once in the selected studies, e.g. organizational development, contacts for follow up financing and exit or development of competencies of management team. Furthermore, when it comes to the point how variables are measured great inconsistencies are apparent as well. This can be explained by the variety of data collection methods used in studies. Secondly, several studies have an explorative character in which no established scales existed since this research stream is rather young.

Table 2: Overview of variables and measurements of financial value adding activities

	Follow up financing/ fundraising	Receiving financial expertise	Convertible	Preferred stocks	Give sense of economic safety	Debt	Strategic alliances/ syndication
Gorman and Sahlmann (1989)	Ranking						
Cumming et al., (2005)		Proportion of investments receiving financial expertise					
Chang (2004)							Counts of articles written
Hochberg, et al., (2007)							Binary
Cumming (2005)			Proportion	Proportion		Proportion	
MacMillan et al., (1989)	4 point scale					4 point scale	
Rosenstein et al., (1993)	Rating of top five					Rating of top three	
Elango et al., (1995)	5 point scale						
Brandner et al., (2002)							If syndication occurs = 1, not = 0
De Clercq and Dimov (2008)							Number of syndication partners
Checkley et al., (2010)							Not available
Fujiwara and Kimura (2012)							7 point likert scale
Lehmann (2006)							Number of VC firms provided equity to investors
Pruthi et al., (2003)	5 point likert scale						
Bottazzi and Da Rin, (2002)	value 1 if VC firm helped to obtain additional financing, 0 otherwise						value 1 indicates if company is financed by single investor, 0 otherwise
Gomez-Mejia et al. (1990)	Mentioned in interviews	Mentioned in interviews					
Ehrlich et al. (1994)	Ranking						
Fried and Hisrich (1995)	Mentioned in interviews						
Gabrielsson and Huse (2002)	Five point scale	Five point scale			Five point scale		Participation in syndicates
Maula et al. (2005)	Multi item scale measuring satisfaction						

Table 3: Overview of variables and measurements of governance value adding activities

	Advisory board	Independent directors at board	Contracts	Monitoring	Milestones	Reporting	Personal exchange/ interaction	Resolve compensation issues	Preferred Stock	Dilution	Equity based compensation	Help form and manage board
Sapienza (1992)							Frequency of interaction per week					
Gorman and Sahlman (1989)	Number of seats in board						% of total working hour spending with monitoring and assisting portfolio companies	Ranking and frequency				Ranking and frequency
Cumming et al., (2005)							Average days per month with investee company					
Sapienza et al. (1996)	Number of directors serving on board	Number of independent directors and VC firm members in board					7 point scale (frequency of face to face interaction)					
Fujiwara and Kimura (2012)	4 point scale								4 point scale	4 point scale		
Manigart et al., (2002)				Percentage of lead investments/ number of investments per VC firm								
MacMillan et al., (1989)				4 point scale								
Fried et al. (1998)	7 point scale											
Rosenstein et al. (1993)	Number of directors serving on board			Rating of top three								
Elango et al. (1995)								5 point scale				5 point scale
Robbie et al., (1997)	Has seat on board			4 point scale/ Amount of monitoring information and actions required	Number of performance targets	Increased amount and/or frequency of reporting	More frequent presentation/ visit					

Campbell and Frye (2009)	Number of directors serving on board	Number of independent directors and VC firm members in board									Percentage of management compensation that is equity based	
Dagogo and Ollor (2009)				n/a								
Pruthi et al., (2003)			5 point scale	5 point scale		5 point scale		5 point scale				
Barney et al., (1989)	% of seats in board of VC firm											
Bottazzi and Da Rin, (2002)	value 1 indicates of VC firms is a board member		value 1 indicates if instruments like straight debt, preferred equity or convertible debt are used					value 1 if monthly or weekly contact between VC firm and venture				
Gomez-Mejia et al. (1990)						Mentioned in interviews		Mentioned in interviews				
Ehrlich et al. (1994)				Ranking				Five point scale				
Fried and Hisrich (1995)								Mentioned in interviews				
Gabrielson and Huse (2002)	Number of directors serving on board	Number of outside directors		Nine point scale				Total amount of time spend				

Table 4: Overview of variables and measurements of strategic value adding activities

	Development of business strategy	Review business plan	Analysis of competitors	Strategic support IM	Evaluate acquisitions	Sounding board
Gorman and Sahlmann (1989)				Ranking and frequency		
Cumming et al., (2005)				Proportion of investments receiving strategic/management support		
Sapienza et al., (1996)				Ratings of importance and effectiveness		Ratings of importance and effectiveness
MacMillan et al. (1989)	4 point scale					4 point scale
Fried et al. (1998)	7 point scale					
Rosenstein et al., (1993)	Rating of top three					
Dagogo and Ollor (2009)	not available			not available		
Pruthi et al. (2003)	5 point scale			5 point scale	5 point scale	5 point scale

Pruthi et al., (2003)	5 point scale				5 point scale				
Gomez-Mejia et al. (1990)	Mentioned in interviews								
Ehrlich et al. (1994)	Ranking								
Fried and Hisrich (1995)		Mentioned in interviews							
Gabrielsson and Huse (2002)		Five point of scale			Five point of scale				
Maula et al. (2005)	Multi item scale measuring satisfaction								
Bellavitis et al., (2014)						Self-developed matrix	Self-developed matrix		

Table 7: Overview of variables and measurements of human capital value adding activities

	Contacts to consultants and new personal	Coach/ Mentor	Development of competencies of management team	Recruiting	Hiring outside investors	Manage crises and problems	Motivation
Gorman and Sahlmann (1989)	Ranking and frequency						
Sapienza et al., (1996)		Ratings of importance and effectiveness		Ratings of importance and effectiveness			
MacMillan et al., (1989)	4 point scale			4 point scale		4 point scale	4 point scale
Rosenstein et al., (1993)	Rating of top three			Rating of top three		Rating of top three	
Elango et al., (1995)	5 point scale			5 point scale			
Pruthi et al., (2003)	5 point scale					5 point scale	5 point scale
Bottazzi and Da Rin, (2002)				value 1 if VC firm recruited for venture, 0 otherwise	value 1 if VC firm involved in hiring outside director, 0 otherwise		
Gomez-Mejia et al. (1990)		Mentioned in interviews		Mentioned in interviews			
Ehrlich et al. (1994)			Ranking	Ranking		Ranking	Ranking
Gabrielsson and Huse (2002)		Five point of scale		Five point of scale			
Maula et al. (2005)				Multi item scale measuring satisfaction			

Table 8: Overview of dependent variables

	Sales growth	Employment growth	Performance	Returns	Market share	Exit success	ROA	IPO	IRR
MacMillan et al. (1989)	Five point scale			Five point scale	Five point scale				
Barney et al. (1989)				\$ value					
Sapienza (1992)			Multi-criterion measure						
Bottazzi and Da Rin (2002)							In Percent	If IPO took place	
Manigart et al. (2002)									Seven category criterion in %
Brandner et al. (2002)		Measured by the number of employees							
Chang (2004)								IPO success rates	
Busenitz et al. (2004)						Exit rate			
Cumming et al. (2005)						Proportion of investment exited			\$ value
Hochberg et al. (2007)						Exit rate, \$ exit rate		IPO rate, \$ IPO rate	
Checkley et al. (2010)						Number of successful exits			
Bellavitis et al. (2014)						1 if venture was acquired, merged or IPO; 0 if otherwise			
Paglia and Harjoto (2014)	Percentage change of Sales	Percentage change of employment							

3. Gaps and Deficiencies in Literature

The literature analysis showed that the research stream on value adding activities in VC investments received a growing attention over the past 30 years. For the review I studied qualitative as well as quantitative studies including surveys, interviews and case studies. The majority of studies is of quantitative nature. Based on this review I suggest six directions to improve the literature stream on VC value adding:

Use original deal documents rather than surveys or databases

Value adding activities are among the most sensitive tasks for many VC firms. Hence, collecting data is consistently difficult. Furthermore, young, entrepreneurial ventures are not subject to publication duties of company data like large corporations. To represent the population adequately researchers have to collect data from as many observations as possible. However, the number of companies willing to take part in these studies is very limited. Therefore,

researchers often rely on surveys or databases to collect data. Using surveys or databases data is subject to several limitations. The response rate of surveys is often relatively low which limits the meaningfulness of the study since it presents only a low percentage of the whole population. Furthermore, survey responses also underlie biases, e.g. socially desirable answers or the subjectivity of scales, especially when these are not standardized. Considering databases, the deepness and wideness of these data is rather limited since they are often based on publicly available data. Therefore, it is difficult to gather data on internal practices of VC firms. As recommendation for further research, it would be meaningful if future studies base their data analysis on real deal documents, e.g. decision templates, reporting and investment committee papers of VC firms. However, it is known that it is of great difficulty to get access to this kind of data.

Include perspectives from multiple stakeholders in the analysis

In the selected studies researchers preferentially relied on single respondents. Thereby, foremost VC firms or the entrepreneur/ manager of the venture have been taken into account in the analysis. Only very few studies like Gabriellsson and Huse (2002) analyzed both perspectives which is useful to enrich the quality of the results. Studying different stakeholders would offer different perceptions. Furthermore, this has the advantage of validating the results.

Improve consistency in variables used to measure a certain value adding activity type

Established literature has shown that six different types or groups of value adding activities were studied in literature before, i.e. financial, strategic, governance, operational, human capital and network improvements. Additionally, for each of the value adding activity types various measures can be pursued by VC firms to improve the venture. For example to advance a venture from a financial perspective, researchers analyzed the measures support in follow up financing/ fundraising, receiving financial expertise, convertibles, preferred stocks, give a sense of economic safety, debt and syndication. In the selected studies foremost two to three variables were used to investigate financial improvements. Hence, a great diversity exists among studies how a certain value adding activity type was analyzed. Therefore it is again complicated to compare the results of different studies. However, it offers more in-depth implications for practitioners which measure or sets of value adding activities measures can be useful.

Develop and use established scales to measure similar variables

The need for developing established scales of certain variables is one of the core suggestions of this paper since I observed that the way how variables are measured is highly inconsistent across studies. Established scales have the advantages of easy understanding, but also of reliability and validity. Furthermore, they assure that is measured what is intended. Some studies try to

use comparable measures or prior published studies to overcome the problem of non-comparability. Nevertheless, the variations are high for nearly all variables.

Improve consistency in usage of dependent variable

Considering the dependent variable “value added”, in the selected studies it can be observed that also in this respect a great variety exists among studies (see table 8). This might be partially explained by the fact that value added or success is difficult to measure. Measuring the success of new ventures is not trivial due to the lack of historical data and the accessibility of data (Brush and Vanderwerf 1992; Gartner and Shane 1995). This problem might be reduced by using sets of different success indicators and multiple sources according to Brush and Vanderwerf (1992) and Murphy et al. (1996). Studies like Cumming et al. (2005) and Hochberg et al., (2007) used at least three different success measures. Nevertheless, which value added measure was used and how it was measured varied a lot, e.g. returns was measured in dollar value (Cumming et al., 2005) and at a five point scale (Macmillan et al., 1989). Moreover, exit success was measured as value 1 if the venture was acquired or merged, or listed in an initial public offering (Bellavitis et al., 2014), as value 1 if the venture was acquired or listed in an initial public offering and 0 if otherwise (Bottazzi and Da Rin, 2002), as exit rate (Busenitz et al., 2004), as number of successful exits (Checkley et al., 2010) and as proportion of investments exited (Cumming et al., 2005). Due to this great variety of value added measures it is again difficult to compare the results of the different studies. On the other hand, the use of different target variables shows that different value adding activity measures influence certain success measures differently. This offers greater implications for practitioners which value adding activity is more effective for certain goals.

Increase number of international or comparative studies

The majority of studies were conducted based on a sample analyzing VC firms or VC-backed ventures from the United States. During the 1990s the first studies were published analyzing different regions or countries regarding value adding activities of VC firms. Nevertheless, the number of studies from other countries is currently rather moderate. Furthermore, only very few studies undertook comparative studies like Sapienza et al. (1996) and Manigart et al. (2002). Therefore, a lack of research is existent analyzing commonalities as well as differences in value adding activities across countries which can be expected due to cultural differences.

4. Conclusion and Future Research

During the last thirty years a growing and noteworthy amount of research offering useful findings for practitioners and researchers was published in the research

stream of value adding activities of VC firms. The most often discussed topics were the two questions if and how VC firms affect VC-backed venture's performance. Researchers have shown that VC firms apply diverse sets of tools to increase the likelihood of investment's success.

The growing number of studies in this area encouraged this review. I hope that this review is informative and somewhat provoking and that it shows researchers how data, variables and methods can be improved. Both qualitative and quantitative studies showed rich evidence on the critical role of value adding activities by VC firms. Nevertheless, there are a number of gaps and deficiencies in this research topic highlighting the need for better data quality and variables. Considering these gaps and deficiencies, I identified some important considerations for future research. Firstly, original deal documents would higher the quality of data immensely since most of the studies use surveys or databases as data collection method. Secondly, to validate the findings and extend the perspective on value adding activities of VC firms, future studies considering both the perspective of the VC firm and the VC-backed venture would enrich this literature stream. Lastly, there is a great variety regarding which variables are analyzed in studies and how they are measured. This holds true for dependent as well as independent variables. Therefore, the development and use of established scales as in other literature streams like psychology or marketing would improve the comparability of studies.

References:

- Achleitner, A.-K., Engel, N. and Reiner, U. (2013), "The performance of venture capital investments: Do investors overreact?" *Review of Financial Economics*, 22(1): p 20–35.
- Agarwal, M. N. and Chatterjee, L. (2007), "Entrepreneurial human capital and new venture performance: In search of the elusive link." *Academy of Entrepreneurship Journal*, 13(1): p 1–22.
- Barnes, S. (2004), "The Renovo Story: Venture Capital at the Cutting Edge", *International Journal of Entrepreneurship Education*, 2(3), 379-404.
- Barney, J. B., Busenitz, L., Fiet, J. O. and Moesel, D. (1989), "The Structure of Venture Capital Governance: An Organizational Economic Analysis of Relations between Venture Capital Firms and New Ventures." *Academy of Management Best Papers Proceedings*, p 64–68.
- Barry, C. B., and Mihov, V. T. (2013), "Debt Financing, Venture Capital, and the Performance of Initial Public Offerings." *Journal of Banking & Finance*, 58: p 144-165.
- Bellavitis, C., Filatotchev, I. and Kamuriwo, D. S. (2014), "The Effects of Intra-industry and Extra-industry Networks on Performance: A Case of Venture Capital Portfolio Firms." *Managerial and Decision Economics*, 35(2): p 129–144.
- Bessler, W., and Seim, M. (2012), "The performance of venture-backed IPOs in Europe." *Venture Capital*, 14(4): p 215–239.
- Bottazzi, L., Da Rin, M. (2002), "Venture Capital in Europe and the Financing of Innovative Companies." *Economic Policy*, 17(34): p 229–269.
- Brandner, J. A., Amit, R. and Antweiler, W. (2002), "Venture capital syndication: Improved venture selection vs. Value added hypothesis", *Journal of Economics & Management Strategy*, 11(3): p 423–452.

- Brush, C. G. and Vanderwerf, P. A. (1992), "A comparison of methods and sources for obtaining estimates of new venture performance", *Journal of Business Venturing*, 7(2): p 157-170.
- Busenitz, L. W., Fiet, J. O. and Moesel, D. D. (2004), "Reconsidering the venture capitalists' "value added" proposition: An interorganizational learning perspective." *Journal of Business Venturing*, 19(6): p 787-807.
- Campbell, T. L. and Frye, M. B. (2009), "Venture capitalist monitoring: Evidence from governance structures". *The Quarterly Review of Economics and Finance*, 49(2): p 265-282.
- Chang, S. J. (2004), "Venture capital financing, strategic alliances, and the initial public offerings of internet start-ups." *Journal of Business Venturing*, 19(5): p 721-741.
- Checkley, M., Higon, D. A. and Angwin, D. (2010), "Venture capital syndication and its causal relationship with performance outcomes." *Strategic Change*, 19(5-6): p 195-212.
- Chiampou, G. F., and Kallett, J. J. (1989), "Risk/return profile of venture capital." *Journal of Business Venturing*, 4(1): p 1-10.
- Cumming, D. J. (2005), "Capital structure in Venture Capital." *Journal of Corporate Finance*, 11: p 550-585.
- Cumming, D., Fleming, G. and Suchard, J.-A. (2005), Venture capitalist value-added activities, fundraising and drawdowns. *Journal of Banking & Finance*, 29(2): p 295-331.
- Dagogo, D. W. and Ollor, W. G. (2009), "The effect of venture capital financing on the economic value added profile of Nigerian SMEs." *African Journal of Accounting, Economics, Finance and Banking Research*, 5(5): p 37-51.
- De Clercq, D. and Dimov, D. (2008), "Internal knowledge development and external knowledge access in venture capital investment performance." *Journal of Management Studies*, 45(3): p 585-612.
- Ehrlich, S. B., De Noble, A. F. and Moore, T. (1994), "After the cash arrives: A comparative study of venture capital and private investors involvement in entrepreneurial firms." *Journal of Business Venturing*, 9(1): p 67-82.
- Elango, B., Fried, V. H., Hisrich, R. D. and Polonchek, A. (1995), "How venture capital firms differ." *Journal of Business Venturing*, 10(2): p 157-179.
- Flynn, D. and Forman, A. M. (2001), "Life cycles of new venture organizations: Different factors affecting performance." *Journal of Development Entrepreneurship*, 6(1): p 41-59.
- Fried, V. H. and Hisrich, R. D. (1995), "The venture capitalist: A relationship investor." *California Management Review*, 37(2): p 101-113.
- Fried, V. H., Bruton, G. D. and Hisrich, R. D. (1998), "Strategy and the board of directors in venture capital-backed firms." *Journal of Business Venturing*, 13(6): p 493-503.
- Fujiwara, H. and Kimura, H. (2012), "How manager's compensation, strategy, and institutional environment motivate entrepreneurial financing choices: Some evidence from venture capital firms." *The Journal of Private Equity*, 15(3): p 45-61.
- Gabrielsson, J. and Huse, M. (2002), ""Outside" directors in SME boards: a call for theoretical reflections." *Corporate Board: Roles, Duties & Composition*, 1(1): p 28-37.
- Gartner, W. B. and Shane, S. A. (1995), "Measuring entrepreneurship over time." *Journal of Business Venturing*, 10(4): p 283-301.
- Gomez-Mejia, L. R., Balkin, D. B. and Welbourne, T. M. (1990), "Influence of venture capitalists on high tech management." *Journal of High Technology Management*, 1(1): p 103-118.
- Gorman, M., and Sahlman, W. A. (1989), "What do venture capitalists do?" *Journal of Business Venturing*, 4(4): p 231-248.
- Guo, D. and Jiang, K. (2013), "Venture capital investment and the performance of entrepreneurial firms: Evidence from China." *Journal of Corporate Finance*, 22: p 375-395.
- Hochberg, Y. V., Ljungqvist, A. and Lu, Y. (2007), "Whom You Know Matters: Venture Capital Networks and Investment Performance." *The Journal of Finance*, 62(1): p 251-301.
- Knyphausen-Aufseß, D. (2005), "Corporate venture capital: Who adds value?" *Venture Capital*, 7(1): p 23-49.
- Large, D., and Muegge, S. (2008), "Venture capitalists' non-financial value-added: an evaluation of the evidence and implications for research." *Venture Capital*, 10(1): p 21-53.
- Lehmann, E. E. (2006), "Does venture capital syndication spur employment growth and shareholder value? Evidence from German IPO Data." *Small Business Economics*, 26(5): p 455-464.

- Macmillan, I. C., Kulow, D. M., and Khoysian, R. (1989), "Venture capitalists' involvement in their investments: Extent and performance." *Journal of Business Venturing*, 4(1): p 27-47.
- Manigart, S., Waele, K. D., Wright, M., Robbie, K., Desbrieres, P., Sapienza, H. J. and Beekman, A. (2002), "Determinants of required return in venture capital investments: A five country study." *Journal of Business Venturing*, 17(4): p 291-312.
- Maula, M., Autio, E. and Murray, G. (2005), "Corporate venture capitalists and independent venture capitalists: What do they know, who do they know and should entrepreneurs care?" *Venture Capital*, 7(1): p 3-21.
- Murphy, G. B., Trailer, J. W. and Hill, R. C. (1996), "Measuring performance in entrepreneurship research." *Journal of Business Research*, 36(1): p 15-23.
- Murray, G. (1996), "A synthesis of six exploratory, European case studies of successfully exited, venture capital-financed, new technology based firms." *Entrepreneurship: Theory and Practice*, 20(4): p 41-61.
- Paglia, J. K., and Harjoto, M. A. (2014), "The effects of private equity and venture capital on sales and employment growth in small and medium-sized businesses." *Journal of Banking & Finance*, 47: p 177-197.
- Pruthi, S., Wright, M. and Lockett, A. (2003), "Do foreign and domestic venture capital firms differ in their monitoring of investees?" *Asia Pacific Journal of Management*, 20(2): p 175-204.
- Robbie, K., Wright, M., and Chiplin, B. (1997), "The Monitoring of Venture Capital Firms." *Entrepreneurship: Theory & Practice*, 21(4): p 9-28.
- Robinson, R. B. (1987), "Emerging strategies in the venture capital industry." *Journal of Business Venturing*, 2(1): p 53-77.
- Rosenstein, J., Bruno, A. V., Bygrave, W. D., and Taylor, N. T. (1993), "The CEO, venture capitalists, and the board." *Journal of Business Venturing*, 8(2): p 99-113.
- Saetre, A. (2003), "Entrepreneurial perspectives on informal venture capital." *Venture Capital*, 5(1): p 71-94.
- Sapienza, H. J. (1992), "When do venture capitalists add value?" *Journal of Business Venturing*, 7(1): p 9-27.
- Sapienza, H. J., Manigart, S., and Vermeir, W. (1996), "Venture capitalist governance and value added in four countries." *Journal of Business Venturing*, 11(6): p 439-469.
- Schertler, A. (2003), "A comparative overview of venture capital in Europe and the United States", *International Journal of Entrepreneurship Education*, 1(4): p 539-584.
- Siepel, J. (2016), "Is Venture Capital Performance Affected by Recessions? Evidence from the UK Venture Capital Trust Scheme", *International Review of Entrepreneurship*, 14(1): p 25-49.
- Steier, L. and Greenwood, R. (1995), "Venture capitalist relationships in the deal structuring and post-investment stages of new firm creation." *Journal of Management Studies*, 32(3): p 337-357.
- Sweeting, R. C. (1997), "U.K. venture capital funds and the funding of new technology based businesses: Process and relationships." *Journal of Management Studies*, 28(6): p 601-622.
- Timmons, J. A., and Bygrave, W. D. (1986), "Venture capital's role in financing innovation for economic growth." *Journal of Business Venturing*, 1(2): p 161-176.