

THE ROLE OF
REFERRALS

**IN FINANCING
TECHNOLOGY-BASED
VENTURES**

JORIS HEUVEN

**THE ROLE OF REFERRALS IN FINANCING TECHNOLOGY-
BASED VENTURES**

THE ROLE OF REFERRALS IN FINANCING TECHNOLOGY- BASED VENTURES

DISSERTATION

to obtain
the degree of doctor at the University of Twente,
under the authority of the rector magnificus,
prof. dr. H. Brinksma,
on account of the decision of the graduation committee,
to be publicly defended
on Thursday the 12th of February 2009 at 15:00 hrs

by

Joris Marinus Johannes Heuven

born on the 25th of May 1979
in Zwolle, The Netherlands

This dissertation has been approved by:

Prof. dr. A.J. Groen (promotor)

Promotion committee:

Prof. dr. P. van Loon (chairman)	University of Twente
Prof. dr. A.J. Groen (promotor)	University of Twente
Prof. dr. M. Bernasconi	CERAM Sophia Antipolis
Prof. dr. T. Elfring	VU Amsterdam
Prof. dr. S. Gullander	Stockholm University
Prof. ir. R. Pieper	University of Twente
Prof. dr. S.A. Zahra	University of Minnesota

Cover design: dennistenhove.nl

Printed by: Gildeprint Drukkerijen BV, Enschede

ISBN: 978-90-365-2780-4

© J.M.J. Heuven, Haarle, 2009

All rights reserved. No part of the material protected by this copyright notice may be reproduced or utilized in any form or by any means, electronic or mechanical, including photocopying, recording, or by any information storage and retrieval system, without prior written permission of the author.

for Gerard and Wilma

Abstract

Referrals play an important role in a great many search and evaluation processes. For example, in the job market, third party referrals are an important source of information for both employers and people that are looking for a job. As well as making people aware of a job opportunity or of a potential employee, referrals also play an important role in evaluating employers and potential employees; once an employer considers a certain person to be suitable for a job, third party referrals of all kinds are often used to collect information about the potential employee. Similarly, potential employees also use third party referrals to evaluate the employer and the company.

Similar referral mechanisms can be found in the context of entrepreneurship. Networks and third party referrals play a prominent role in spotting entrepreneurial opportunities and in acquiring the resources necessary for growth. In this dissertation, the focus is on the role of referrals in acquiring of one specific type of resource, namely financial resources. Referrals play an important role in both getting new ventures connected to financial resource providers and in the due diligence process of these potential investors. This dissertation focuses specifically on the acquisition of one type of funding by new ventures, namely the acquisition of venture capital (VC).

In this dissertation, the role of explicit referrals in new-venture funding is studied along several dimensions. The main focus is on the network configurations and actor contingencies that determine which referrals are the most influential and successful. In addition, the VC funding process is divided into multiple stages to research whether the influence of referrals differs at the various investment stages. By combining both qualitative and quantitative techniques, a more complete understanding of the role of networks and referrals in new-venture funding is developed.

By studying the role of referrals in the acquisition of (venture capital) funding by new ventures, a contribution is made to several fields of literature. First, a contribution to network literature is made by focusing, in depth, on referral mechanisms in funding new ventures. Next, a contribution is made by focusing on specific network configurations that make these referrals most effective. Added to this, the multi dimensional approach to networks and referrals that is applied in this dissertation fosters more understanding of specific contingencies that determine the effectiveness of certain network characteristics. Finally, a contribution is made to network literature by studying the role of referrals in multiple stages of the VC funding process. Therefore, the research contributes to a more complete understanding of the role of networks and referrals in VC decisions. In addition to network literature, a contribution is also made to VC literature. Past research on VC has failed to study the impact of explicit referrals in the VC-funding process at a detailed process level. Therefore, many studies of VC decisions still lack focus on the social context of these decisions. With the study of the referrals involved in the VC funding process, a contribution is made to a more socialized approach to the VC-funding process.

In addition to the theoretical implications, this study also has practical implications for entrepreneurs, incubators, venture capitalists and policy makers. A more systematic understanding of the role that referrals play in the funding process is a valuable asset for

entrepreneurs applying for funding, universities designing incubators and governments making entrepreneurship policy.

This dissertation consists of two main parts. Part one gives an overview of the dissertation starting with an explanation of the four key themes that are studied in the dissertation. After this, abstracts are presented of the six papers included in the dissertation. Subsequently, the core results are summarized and the contributions and the implications of the dissertation are discussed. Finally, part one is closed by discussing several limitations of the dissertation and potential areas for future research. Part two of the dissertation consists, quite simply, of the six full papers.

Acknowledgements

A dissertation cannot be completed without the help and support of many people. Therefore, I owe some thanks to the people that helped me along my research process. First of all, I would like to thank my supervisor, Aard Groen, for his input and guidance. Aard, I really admire the way in which you are able to combine theoretically well-grounded research with practical relevance. I would also like to thank you for the freedom and resources you gave me during my PhD journey. Being able to define my own research proposal and having the freedom and opportunity to attend doctoral consortia and conferences were an invaluable contribution to both my professional and personal development.

I would also like to thank my colleagues at Nikos. Being at Nikos during a time of fast growth taught me a lot about the challenges and dynamics of a rapidly growing organization. I do not want to mention all of my colleagues by name here, since I do not want to run into the risk of forgetting anyone. Most of all, I would like to thank Paul Kirwan, since I could not have wished for a better roommate. Thanks a lot for the interesting and often hilarious discussions and your listening ear. Going through the PhD process together made me feel less lonely. I would also like to thank you for your feedback on my papers. Giving me “the Gerry George one” every now and then really helped me improve my work.

In addition, I would like to thank all the new ventures and VC firms that cooperated in my research. The personal contacts to the entrepreneurs and venture capitalists always forced me to relate my theoretical research questions to practical, relevant situations. Special thanks go to the venture capitalists in both The Netherlands and Sweden for sharing their insight, which often went far beyond my research questions. Your stories gave me a much better understanding of the VC industry. Regarding the interviews in Sweden, I would like to thank Staffan Gullander and Stockholm University Innovation for making my stay in Stockholm possible. Special thanks to Staffan for hosting me in his wonderful home in Djurgården; it is far more than I could have ever asked for! Your help and generosity made my stay in Stockholm an invaluable experience. Spending a couple of months in Stockholm taught me that Sweden is indeed the second best place in the world to live!

Last but not least, I would like to thank my family and friends. Most of all I would like to thank my parents who always supported me during my studies and PhD journey. I am sure there were times that they wondered when I was finally going to get a “real job”.

Haarle, The Netherlands, December 2008

Joris Heuven

TABLE OF CONTENTS

Abstract.....	i
Acknowledgements	iii
TABLE OF CONTENTS	v
PART 1: OVERVIEW OF THE DISSERTATION	1
INTRODUCTION.....	3
Background	3
Themes and Research Questions	3
Structure of the Dissertation	9
ABSTRACTS OF THE CHAPTERS	11
Chapter 1	11
Chapter 2.....	12
Chapter 3.....	13
Chapter 4.....	14
Chapter 5.....	15
Chapter 6.....	16
CONCLUSIONS, CONTRIBUTIONS AND FUTURE RESEARCH	17
Conclusions	17
Theoretical Contributions and Implications.....	18
Practical Implications.....	20
Limitations and Future Research	21
REFERENCES.....	23
RELATED CONFERENCE PRESENTATIONS	29
LIST OF DEFINITIONS	31
PART 2: PAPER CHAPTERS	33
CHAPTER 1	35
CHAPTER 2	57
CHAPTER 3	83
CHAPTER 4	119
CHAPTER 5	141
CHAPTER 6	159
SUMMARY IN DUTCH	181
CURRICULUM VITAE	187

PART 1: OVERVIEW OF THE DISSERTATION

INTRODUCTION

Background

The acquisition of financial resources is one of the biggest challenges in starting up a technology-based venture. When applying for financial resources, entrepreneurs of new ventures face many obstacles. Because new ventures often lack knowledge of their environment, steady routines and relationships with customers and suppliers, resource providers to new ventures face much organizational and market uncertainty (Sorensen & Stuart, 2000). In addition, when ventures are based on new technologies, the uncertainty faced by potential resource providers is even higher (Aldrich & Fiol, 1994). Because of the organizational, market and technological uncertainty surrounding technology-based ventures, financial resource providers are often reluctant to provide funding for them.

In order to overcome these obstacles, an entrepreneur can pursue several strategies to decrease these uncertainties as perceived by external stakeholders. For example, endorsements of licensing agencies (Baum & Oliver, 1991) and winning certification contests are shown to have beneficial effects for new ventures (Rao, 1994). An additional indicator that can decrease the uncertainty surrounding a new venture is the new venture's network. For example, researchers have shown how previous employers (Burton, Sorensen & Beckman, 2002), reputable directors (Deutsch & Ross, 2003) and high-status customers (Khaire, 2005) all have favourable effects on the entrepreneurial process. In this dissertation, the focus is on one specific type of network mechanism that new ventures can use to decrease the uncertainty as perceived by external stakeholders, namely, the use of explicit third party referrals.

Themes and Research Questions

In this dissertation, the role and impact of explicit referrals in funding technology-based ventures is researched along several themes. These themes were identified based on a study of the literature that focused on the role of networks and referrals in entrepreneurship and new-venture financing. This revealed four core themes and related research questions that are relevant to the study of explicit referrals in the new-venture financing process: (1) the referral perspective to networks; (2) referrals and network configurations; (3) referrals and actor characteristics; and (4) referrals and multiple processes. In the following paragraphs these four themes are further explained. The main theme of this dissertation is covered first; subsequently several specifications of this main theme are described in themes 2, 3 and 4.

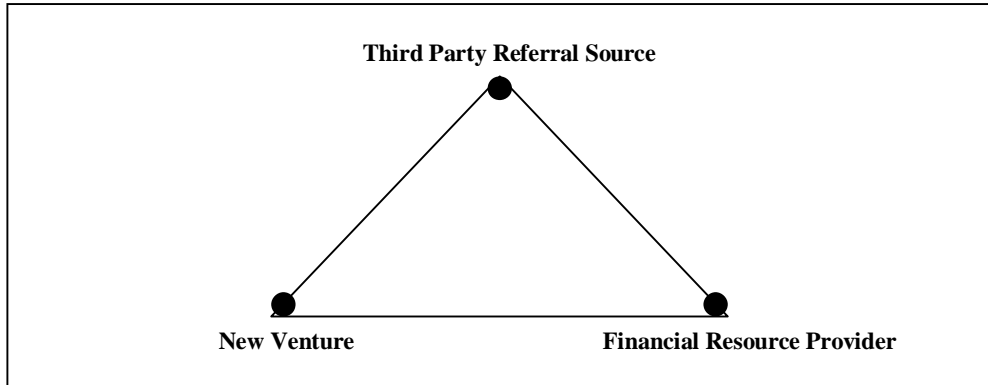
Theme 1: The referral perspective to networks. In past decades, the application of social network theory to the study of organizations has taken flight (e.g., Adler & Kwon, 2002; Aldrich & Zimmer, 1986; Birley, 1985; Burt, 1982, 1992, 1997, 1999, 2000, 2005; Coleman, 1990; Granovetter, 1973, 1985, 1992; Nahapiet & Ghoshal, 1998; Stinchcombe, 1965; Uzzi, 1997, 1999). The central assumption in social network theory is that actors are embedded in their environment by means of social relationships. These social relationships provide opportunities to organizations, but also provide constraints on their actions. In the specific context of entrepreneurship, many studies have been conducted regarding the role of social networks in the entrepreneurial process. For example, it has been shown that social networks influence a venture's ability to spot opportunities, acquire resources and

build legitimacy (e.g., Birley, 1985; Elfring & Hulsink, 2003; Jenssen, 2001; Shane, 2000; Singh, 2000). This dissertation focuses on one specific role that network partners can play in acquiring financial resources, namely the role of explicit referrals. Much of the research in entrepreneurship focuses on the flow of resources through dyadic network relationships (e.g., Adler & Kwon, 2002; Aldrich & Zimmer, 1986; Birley, 1985; Jenssen, 2001; Larson, 1992; Lockett, Ucbasaran & Butler, 2006; Nahapiet & Ghoshal, 1998; Starr & Macmillan, 1990; Zhang, Wong, & Soh, 2003). However, it has been shown that network partners can be beneficial to a company not only by providing resources to the new venture, but also by acting as an implicit or explicit source of referral in order to obtain resources from other actors (e.g., Batjargal, 2007; Stuart, Hoang, & Hybels, 1999).

There are some studies that focus on the role of third party referrals and affiliations in the entrepreneurial process. For example, in the context of venture finance, it has been shown that affiliations with prominent strategic alliance partners, customers and directors have positive signalling effects on the venture-funding process (e.g., Batjargal, 2007; Deutsch & Ross, 2003; Khaire, 2005; Stuart et al., 1999). The effects of these third party referrals are not only shown to be influential from the new-venture perspective; studies from the perspective of the resource providers to new ventures have shown the importance of third party referrals to them as well. For example, researchers have shown how VC firms rely on third party referrals when looking for new deals (e.g., Jugel, 2001; Vater, 2002) and when conducting their due diligence process on new ventures (e.g., Fiet, 1995). Therefore, it appears that third party referrals have influential roles in new-venture funding from both the perspective of the new venture itself and from that of the provider of financial resources. However, in most of these studies, actual referral mechanisms are often implicitly assumed and not studied at a detailed, process level (e.g., Chang, 2004; Deutsch & Ross, 2003; Reuber & Fischer, 2005; Stuart et al., 1999). Also, these studies often focus on the implicit signalling effect of network partners; very few studies have focused on the role of explicit referrals in the entrepreneurial process. Therefore, there is still much to be discovered about the exact workings of these explicit referrals on a detailed process level. Therefore, a triadic network perspective was applied in this study as visualized in Figure 1.

In this triadic perspective, not only the dyadic relationship between the new venture and the provider of financial resources was studied, but also if and how the acquisition of financial resources is influenced by third party referrals. By applying this triadic perspective, a more precise understanding of referral mechanisms is fostered. Therefore, the first research question to be answered is as follows:

Do referrals play a role in the funding of technology-based ventures?

Figure 1: Visualization of the Financial Triad

Theme 2: Referrals and network configurations. The second theme of this dissertation is the focus on actual network configurations in studying explicit referrals. Given the importance of social networks to the entrepreneurial process, researchers have started to explore the actual network configurations that are most effective to entrepreneurs (e.g., Hoang & Antoncic, 2003). Two main dimensions of these network configurations are relevant to this dissertation: the structural dimension of the networks and the relational dimension of the networks. *The structural network dimension* refers to the structure of an actor's network in the wider environment. This dimension can best be summarized by the discussion between Burt and Coleman on the effectiveness of the structure of certain networks. On the one hand, there is Burt (1982, 1992, 1997, 1999, 2000, 2005) who claims that optimal network value is created through structural holes. The structural holes argument claims that a certain actor can create value by brokering connections between segments that would otherwise be unconnected. Such a network provides unique information and opportunities to that actor. On the other hand, Coleman (1972, 1988, 1990) claims that network value is not created through structural holes but through dense networks and redundant ties. These network configurations improve the reliability of information because the same information can reach an actor from different sides, therefore creating value. Because dense and redundant networks improve the flow and reliability of information within the network, the actors in the network are more committed to doing a good job. *The relational network dimension* refers to the effectiveness of weak vs. strong ties to new ventures (Granovetter, 1985, Uzzi, 1997, 1999). Weak ties are claimed to be more effective for the acquisition of new information, whereas strong ties seem to be more effective in generating trust between actors.

In the specific context of new-venture funding, the structural network dimension has received little attention. Most research in this area has studied how the dyadic network relationship between the venture and resource provider influences the venture's ability to acquire financial resources (e.g., Batjargal, 2007, Batjargal & Liu, 2004; Elfring & Hulsink, 2003; Jenssen, 2001). However, in this dissertation, it is hypothesized that the venture-funding process is also influenced by third party referrals. The actual network configurations that make these referrals most effective have received little attention in

network studies to date (e.g., Batjargal, 2007). From the perspective of the resource providers, the role of referrals is mainly studied in the context of VC. In these studies, as in studies from a new-venture perspective, the actual network configurations that cause referrals to be the most influential in their decision-making process have received little attention.

This dissertation hypothesizes that the effectiveness of explicit referrals is dependent on the actual network configurations between the new venture, the provider of the financial resources and the referral sources involved in the funding process. Therefore, concentration on the structural and relational characteristics of networks might lead to a more complete understanding of the role of referrals in new-venture funding. In order to study the actual network configurations in new-venture funding, the following research question was shaped:

Is the impact of referrals in new-venture funding dependent on network configurations between the venture, the financial resource provider and the referral source?

Theme 3: Referrals and the characteristics of the actors. The third theme that is studied in this dissertation is the extent to which the impact of referrals is dependent on the characteristics of the new venture, the financial resource provider and the referral source. Studies on the role of social networks in the entrepreneurial process have shown that the effectiveness of social networks cannot be explained solely by the network configurations between the actors in a network. Researchers have claimed and shown that the value of certain network configurations is also contingent on the characteristics of the “network nodes” (e.g., Elfring & Hulsink, 2003; Groen, 1994, 2000, 2005; Groen, Wakkee & De Weerd-Nederhof, 2008; Leenders & Gabbay, 1999; Oh, Chung, & Labianca, 2004). For example, research has shown that the effectiveness of certain structural and relational network configurations is contingent on the life cycle stage that a new venture is in (Hite & Hesterly, 2001) and on the type of technology that is being commercialized by the venture (Groen, 1994, 2000, 2005). From a referral perspective, it has also been shown that the effectiveness of certain referrals is dependent on the characteristics of the referral source. For example, referrals seem to be more effective when the referral source is more prominent (e.g., Burton et al., 2002; Stuart et al., 1999), has more expertise (e.g., Baum, Calabrese, & Silverman, 2000; Reuber & Fischer, 2005) and is strongly tied to the financial resource provider (e.g., Batjargal, 2007).

Although the contingencies that influence the effectiveness of networks and referrals in entrepreneurship have received some attention in previous studies, some problems can be identified regarding those approaches. First, the characteristics of network actors are often selected in an ad hoc way without providing a theoretical rationale as to why certain contingencies should be included in a particular study. Second, the characteristics of the actors that determine the effectiveness of certain network configurations have only received fragmented attention. Few studies have studied the characteristics of the actors that influence the effectiveness of network configurations in a multidimensional way. In order to overcome these shortcomings, a multidimensional framework of entrepreneurship was applied in this dissertation.

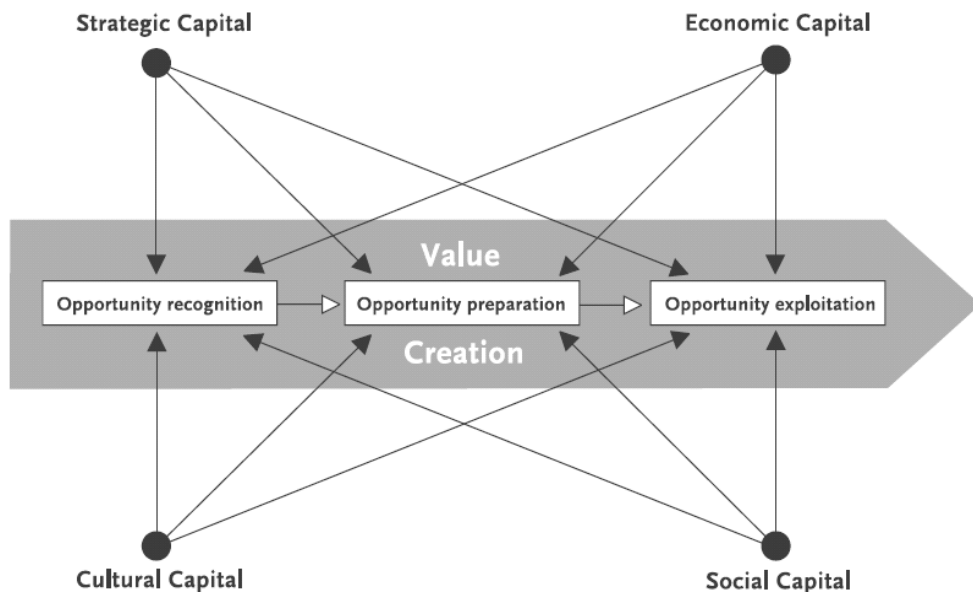
The core theoretical framework used to deduce the actor contingencies is the ‘Entrepreneurship in Networks’ (EiN) model. This model is based on the theory of social systems (e.g., Groen, 1994, 2005; Groen, De Weerd-Nederhof, & Kersens-van Drongelen, 2002; Groen et al., 2008; Parsons, 1964, 1977) and is specifically designed to study entrepreneurial processes. An overview of the EiN model is provided in Figure 2. Even though the complete model is not explained in this introduction, it is important to note in the context of this dissertation, that categorization of the types of capital that are studied in this dissertation are based on this model. The types of capital that influence the performance and influence of the actors involved in the entrepreneurship are based on the basic definition of a social system as defined by Parsons (1964). Originally, a social system was defined by Parsons as follows:

“. . . a social system consists in a plurality of individual actors interacting with each other in a situation which has at least a physical or environmental aspect, actors who are motivated in terms of a tendency to the “optimization of gratification” and whose relation to their situations, including each other, is defined and mediated in terms of culturally structured and shared symbols” (Parsons, 1964, pp. 5–6).

Four mechanisms are embodied in this definition: (1) striving for attainment of a goal; (2) optimization of processes; (3) maintenance of patterns of culturally-structured and shared symbols and (4) interaction between actors. Each of these mechanisms is related to a specific “capital need” that has to be fulfilled by the actors involved in entrepreneurship in order to perform better or be influential. The four types of dimensions/capital following from these mechanisms are (1) strategic capital, (2) economic capital, (3) cultural capital and (4) social capital. The central assumption of the EiN model is that companies (and the actors involved in entrepreneurship) will need sufficient ‘capital’ to be sustainable over time. This implies that new-venture entrepreneurs need to have or have access to sufficient strategic, economic, cultural and social capital to establish a viable enterprise.

In each interaction between actors, the four types of capital play a role. In the context of this dissertation, it is not only hypothesized that these four types of capital play a role for the central actor in entrepreneurship, the entrepreneur, but as well for the actors that are involved in the process of venture funding. In terms of the EiN model, the focus in this dissertation is on the question how the various types of capital of the actors involved in venture-funding influence the effectiveness of referrals in the venture-funding process. The EiN model helped to identify and deduce the relevant dimensions of the actors that influence the referral mechanisms in a more complete and systematic way. In summary, I deduced that the effectiveness of referrals in new-venture funding could be influenced by the strategic, economic, cultural and social capital of the new venture, the financial resource provider and the referral source involved in the funding process. This led to the following research question:

Is the impact of referrals in new-venture funding dependent on the EiN model characteristics of the venture, the financial resource provider and the referral source?

Figure 2: The Entrepreneurship in Networks Model

Theme 4: Referrals and multiple processes. The last theme that is studied in this dissertation is the process dimension. The previous sections already introduce the idea that the effectiveness of networks and referrals can be explained by studying the actual network configurations in referral mechanisms. Furthermore, it was explained that the effectiveness of these network configurations might be contingent on the characteristics of the network actors (“nodes”) involved in the funding process. In this last theme an additional contingency is added that can influence the effectiveness of referral mechanisms in venture funding. This last contingency is the process dimension of referrals. Previous studies on entrepreneurial networks have confirmed that the effectiveness of certain network configurations is contingent on the stage of the entrepreneurial process (e.g., Elfring & Hulsink, 2003; Hite & Hesterly, 2001). In the context of VC, some studies have, for example, shown that the role of referrals is also quite influential in the various stages of the VC funding process. (e.g., Fiet, 1995; Jugel, 2001; Tyebjee & Bruno, 1984, Vater, 2002). However, it can be expected that the effectiveness of certain network configurations and actor contingencies might be different over the various stages of the VC funding process. Both network literature and VC literature provide support for the claim that a process approach should be applied when studying referrals in new-venture funding. Since it is expected that the types of referrals involved in the different stages of the funding process might differ at each stage of the funding process, the role of referrals in multiple stages of the (VC) funding process was studied, leading to the following research question:

Does the impact of referrals vary over the different stages of the (VC) funding process?

Structure of the Dissertation

This dissertation is based on six papers which can be found in part two. Each of these papers contributed to answering the research questions in different ways. This section explains how the six papers in the dissertation relate to the four themes of this study.

Chapter one provides the theoretical foundation for the dissertation. An analytical framework is presented, based on a review of the literature. The framework is based on the themes as presented in this introduction. Chapter one explains why this framework is better than existing research approaches to the role of networks and referrals in entrepreneurship.

Chapter two is a qualitative chapter that focuses on the role of referrals along the various stages of the VC funding process. This chapter focuses mainly on the network relationships between the referral source and the venture capitalist and between the referral source and the new venture. Less attention is paid to the specific characteristics of the EiN model that influence the effectiveness of these relational network characteristics.

Chapter three is a qualitative chapter which takes the perspective of a new venture that is looking for funding by first exploring when new ventures use referrals to get access to funding. Then the specific network configurations and EiN model contingencies that are most effective in doing so are studied. The focus in this chapter is on identifying and getting access to financial resource providers.

Chapter four is a quantitative elaboration of Chapter three. Chapter three showed that the prior experience of the entrepreneurial team is an important contingency in the VC funding process. The results in Chapter three indicated that more experienced teams have less difficulty in getting funded. Chapter four studies exactly why this is the case, using the dimensions of the EiN model. The chapter focuses on the multiple effects of prior entrepreneurial and functional experience on the venture capitalist's investment decision.

Chapter five is a quantitative elaboration of Chapter two which found that referrals play an important role in the venture capitalist's deal flow. Chapter two only looked at the relational network characteristics that make referrals more influential in deal flow. Chapter five also looks at the other dimensions of the EiN model that make referral sources more influential in this stage.

Chapter six is also a quantitative elaboration of Chapter two and looks in depth at the referrals involved in the VC due diligence process. Chapter two found that referrals play an important role in the venture capitalist's due diligence procedure. The characteristics of influential referrals are also found to be dependent on the type of information to be acquired by the venture capitalists. Chapter two only looks at the relational network configurations that make referrals the most influential factor in the acquisition of multiple types of information in the VC due diligence process. Chapter six also looks at the other dimensions of the EiN model that make referral sources the most influential factor in this stage, hereby focusing on referral sources that were contacted for multiple types of information.

Table 1 illustrates a schematic overview of the papers. Table 1 shows how the six papers contribute to answering the research questions that follow from the four themes of this dissertation. Extended abstracts of the chapters are provided in the following section. After the abstracts, the most important results and implications of the dissertation are

summarized. Finally, the first part of this dissertation is concluded by providing several limitations of the dissertation and several directions for future research.

Table 1: Overview of the Chapters

	Ch. 1	Ch. 2	Ch. 3	Ch. 4	Ch. 5	Ch. 6
Theme 1: Referral perspective						
VC perspective	*					
Entrepreneurial team perspective	*		*	*		
Referral source perspective	*	*			*	*
Theme 2: Referrals and network configurations						
Structural network characteristics	*		*			
New venture/ VC tie	*		*	*		
New venture/ Referral source tie	*	*	*			
Referral source/ VC tie	*	*			*	*
Theme 3: Referrals and actor characteristics						
Strategic capital	*		*	*	*	*
Economic capital	*		*	*	*	*
Cultural capital	*		*	*	*	*
Social capital	*	*	*	*	*	*
Theme 4: Referrals and multiple processes						
Identification and access to finance	*	*	*		*	
Financial due diligence and decisions	*	*		*		*

ABSTRACTS OF THE CHAPTERS

Chapter 1

THE ROLE OF SOCIAL NETWORKS IN FINANCING TECHNOLOGY-BASED VENTURES: A THEORETICAL FOUNDATION

The focus in this theoretical paper is on the question of how social networks play a role in new-venture financing. After a review of the literature, the shortcomings and gaps in current studies on the role of networks in financing new ventures are identified. Subsequently, four research themes are introduced that can help to overcome the shortcomings that are identified in the literature.

The first shortcoming identified in studies on the role of networks in the new-venture financing is that they take a one-dimensional approach to networks. However, past research has shown how the effectiveness of certain network characteristics is dependent on multiple contingencies (e.g., Hite & Hesterly, 2001; Leenders & Gabbay, 1999). In order to overcome this shortcoming, as identified in a review of the literature, a multidimensional process model is introduced: the 'Entrepreneurship in Networks' (EiN) model (e.g., Groen, 2000, 2005; Groen et al., 2008). This process model of company development is proposed as a fruitful theoretical perspective to researching the effects of networks in the financing of new ventures.

A second shortcoming in the studies on entrepreneurial networks is that they often focus solely on the direct role of social networks. However, this paper explains that a firm's social network is important in two ways: (1) network partners are important because they can exchange financial resources and information directly between new ventures and financial resource providers through dyadic ties, and (2) they can also be important because they can play a referral role to financial resource providers (e.g., Batjargal, 2007). Therefore, a triadic approach to the role of networks in financing new ventures is proposed, studying not only the direct relationship between the venture and (potential) resource providers, but also considering how this relationship is influenced by third party referrals.

An additional shortcoming that can be identified in the literature is that networks are often studied without explicitly theorizing on the actual underlying network configurations. For example, the role of third party affiliations and referrals in the context of venture financing is often studied without looking at the relational network configurations between these referral actors, the ventures and financial resource providers. However, these actual network configurations are probably an important driver of success for these affiliations and referrals. Therefore, network theory should be integrated into the EiN model in order to come to a more complete understanding of the role of networks in funding new ventures.

Finally, many studies on the role of networks in the entrepreneurial process fail to take a process-oriented approach to networks. To contribute to a better understanding on the role of networks in new-venture finance, the actual processes in which social networks are studied should be clearly delineated (e.g., Hite & Hesterly, 2001). Therefore we show how our research framework (that is based on the three themes as explained in the previous sections) can be applied to various stages of the funding process of the new venture.

Chapter 2

REFERRALS IN THE VENTURE CAPITAL FINANCING PROCESS: DO NETWORK TIES MATTER?

This qualitative paper focuses on the role of third party referrals in the VC funding process. Especially in the context of early-stage investments, these third party referrals are shown to have an influential role in a VC's funding process. For example, previous studies have shown that these third party referrals play an influential role in a VC's deal flow (e.g., Fried & Hisrich, 1994; Tyebjee & Bruno, 1984; Vater, 2002) and in a VC's due diligence process (e.g., Batjargal, 2007, Fiet, 1995). However, the actual network characteristics and contingencies that make these third parties more or less influential in the VC funding process have received little attention (e.g., Batjargal, 2007; Fiet, 1995; Maula, 2001). In order to create a better understanding of the role of third party referrals in the VC funding process, we take network theory as our central theoretical perspective. First of all, the question of if and how third parties play a role in the funding process is explored. Subsequently, the focus is on both the network ties between new-venture teams and third parties and the network ties between venture capitalists and third parties. The extent to which the influence of third party referrals is contingent on the stage of the funding process is also studied. The role of these referrals is therefore explored in three investment stages: (1) deal flow, (2) the initial meeting with an entrepreneurial team and (3) the due diligence process.

The research questions were examined by conducting structured interviews with ten early-stage venture capitalists in The Netherlands. In-depth information on the third parties involved in twenty-five VC investment decisions was collected. The data shows some interesting findings: (1) when a third party is involved in connecting the new venture to the VC fund, strong ties between both the venture team and the third party and between third party and venture capitalist appear to be favourable; (2) at the initial meeting between the new venture and the venture capitalist, third parties do not appear to play a role at all; (3) during the due diligence process, the role of third parties again becomes important as an information source for venture capitalists. However, the effectiveness of particular network ties seems to be contingent on the type of information provided by the third party. For technological and Intellectual Property (IP) information, the tie between the referral and the venture capitalist and the tie between the referral and the venture do not seem to matter. For information on the market, financing and strategy, the venture capitalists tend to rely on people with whom they have strong ties. For information on the entrepreneurial team, both a strong tie between the referral and the venture capitalist and a strong tie between the referral and the entrepreneurial team appear to be most effective. These results have important implications for both the network theory and the literature on VC decision-making.

Chapter 3

THE ROLE OF SOCIAL NETWORKS IN FINANCING TECHNOLOGY-BASED VENTURES: AN EMPIRICAL EXPLORATION

In this paper, the focus is on the role of networks in both identifying and accessing financial resource providers by technology-based ventures. The aim of the paper is to test whether a one-dimensional network approach can fully explain the effectiveness of certain network configurations in identifying and accessing financial resource providers (e.g., Burt, 1999, 2000, 2005; Coleman, 1990). In doing so, hypotheses are shaped based on one-dimensional network approaches and an alternative hypothesis based on a multidimensional approach, the 'Entrepreneurship in Networks' (EiN) model (e.g., Groen, 2000, 2005; Groen et al., 2008). In this multidimensional model, one of the main pillars is the network dimension. However, the model can also be used to systematically deduce the potential contingencies that influence the effectiveness of certain network configurations.

In order to explore the research questions, case studies were conducted in four technology-based ventures in the Twente region of The Netherlands. Using multiple sources of data, the network characteristics were explored that were most effective in identifying and accessing financial resource providers. In doing so, the focus was on both positional network and relational network characteristics. The positional network was measured by a tool that was adapted from McEvily and Zaheer (1999). The relational network was measured by the items for the strength of ties as developed by Granovetter (1973; Scholten, 2006). In this paper, the extent to which the effectiveness of these network configurations is dependent on the contingencies that can be deduced from the EiN model was explored as well.

Results show that for the identification of financial opportunities/resource providers a positional network rich in structural holes appears to be favourable for new ventures. In a relational sense, when new ventures directly access financial resource providers, weak ties are most effective. When new ventures use a referral to access a financial resource provider, referral sources who are strongly tied to the new venture seem to be most effective. Furthermore, results show that the effectiveness of direct access to the financial source compared to the use of referrals is largely influenced by the strategic, economic and cultural characteristics of the new venture, the provider of the financial resources and the source of the referral. Ventures started by people with market and business experience are better able to access financial resource providers directly. The findings also show that new ventures that have entrepreneurs with little business experience benefit from referrals to access the providers of financial resources. The characteristics of the referral source also play an important role since one of the findings is that referrals of business-oriented people seem to be more effective than referrals of technology-oriented people. Subsequently, it seems that referrals are more effective for bigger investments facing higher risks, typically private equity investments. Since the effectiveness of certain network characteristics is contingent on the strategic, economic and cultural characteristics of the actors involved in the funding process, a multidimensional approach to networks as proposed in the EiN model is a promising direction for future research.

Chapter 4

VENTURE CAPITAL FUNDING FOR TECHNOLOGY-BASED VENTURES: DISENTANGLING THE EFFECTS OF AN ENTREPRENEURIAL TEAM'S START-UP AND FUNCTIONAL EXPERIENCE

Previous studies have shown that more experienced entrepreneurial teams have fewer difficulties in acquiring financial capital (e.g., Beckman, Burton, & O'Reilly, 2007; Cohen & Dean, 2005; Higgins & Gulati, 2003, 2006). This paper is specifically interested in the effects of two types of experience on the investment decision of the venture capitalist: the start-up experience and the functional experience of the entrepreneurial team. This paper not only studies the direct relationship between prior experience and the VC-funding decision, but also explores whether this direct effect can be disentangled into multiple effects. Using the 'Entrepreneurship in Networks' (EiN) model, the paper not only hypothesizes the direct effect of prior start-up experience and functional business experience on the venture capitalist's funding decision, but also deduces that this direct relationship could potentially be mediated by a strategic capital and a social capital effect (e.g., Groen, 2000, 2005; Groen et al., 2008).

The hypotheses were tested by conducting structured interviews with 57 early-stage venture capitalists in The Netherlands and Sweden. In total, this led to a sample of 138 VC funding decisions for early-stage, technology-based ventures. In discussing these funding decisions, in-depth data was collected on the start-up experience and functional experience of the entrepreneurial teams (cultural capital), their reputations (strategic capital) and their existing ties to the venture capitalists (social capital). In order to be able to disentangle the multiple effects of experience on the venture capitalist funding decision, the data was analysed using structural equations modelling.

Results show that both the start-up experience and functional experience of the team have a strong, positive and direct effect on the venture capitalist's funding decision. However, the mediating effects of strategic capital and social capital differ for the two types of experience. Entrepreneurial teams with more extensive start-up experience have higher reputations (strategic capital) but not significantly stronger ties to the venture capitalists (social capital). Entrepreneurial teams with more functional business experience do have higher reputations as well, but in addition to this, also have stronger ties to the venture capitalists. For the funding decision, only the mediating effect of social capital (as measured by the strength of ties with the venture capitalist) has a significant impact on the venture capitalist's funding decision. The effect of strategic capital (as measured by team reputation) does not have an influence on the VC funding decision. These findings contribute to the development of the EiN model, literature on the role of prior experience in entrepreneurship and literature on VC decision-making.

Chapter 5

REFERRALS AND VENTURE CAPITAL DEAL FLOW: WHO DO VENTURE CAPITALISTS RELY ON?

Early-stage, technology-based ventures often have difficulties in acquiring the financial resources needed for growth. Technology-based ventures face a liability of newness and therefore potential investors face a lot of uncertainty when investing in this type of venture (Stinchcombe, 1965). Previous research has shown several strategies that ventures can pursue in order to overcome the liability of newness. In this study, the focus is on one of these strategies, namely the use of explicit third party referrals when connecting to VC firms. The role that referrals can play for new ventures has been widely acknowledged; however the specific characteristics that make the one referral more successful than the other have received little attention (e.g., Batjargal, 2007; Jugel, 2001; Maula, 2001). Based on the 'Entrepreneurship in Networks' (EiN) model, a model to study entrepreneurial processes, four types of referral capital that could be influential in connecting new ventures to VC firms are deduced (e.g., Groen, 2000, 2005; Groen et al., 2008). These four types of capital for referrals are strategic, economic, cultural and social capital.

In order to study the referrals involved in VC deal flow, structured interviews with 57 early-stage venture capitalists in The Netherlands and Sweden were conducted. In total, this lead to a sample of 84 referrals involved in early-stage VC deal flow. In studying the referrals involved in deal flow, data was collected on the referral source's reputation (strategic capital), the referral source's financial interest in the proposition (economic capital), the referral source's functional background in business and technology, and the referral source's tie to the venture capitalist (social capital). In order to test which characteristics drive the success of a referral involved in a venture capitalist's deal flow, a logistics regression analysis was conducted.

It was found that two types of capital in the EiN model drive the success of the referral involved in the deal flow. First, the referral involved in deal flow is more successful when the referral source has a strong functional background in business (cultural capital). Second, venture capitalists rely heavily on referrals from people with whom they have strong ties (social capital). The other dimensions of the EiN model do not have a significant impact on the influence of a referral. These findings have important implications for the development of the EiN model and the literature on social networks, signalling and VC decision-making.

Chapter 6

REFERRAL CHARACTERISTICS IN THE VC DUE DILIGENCE PROCESS: TYPE OF INFORMATION AS KEY CONTINGENCY

In this paper, the focus is on one type of information-source for VC firms in their due diligence process, namely third party referrals. Under conditions of uncertainty, third party referrals will play a very important role in a venture capitalist's approval of new ventures (e.g., Harrison, Dibben, & Mason, 1997; Stuart et al., 1999). In this paper, the role of third party referrals in VC due diligence is explored along two directions: (1) referral source characteristics and (2) the type of information provided by the referral source. First, the importance to the VC due diligence process of certain referral characteristics is studied along four types of characteristics. These characteristics were deduced from the 'Entrepreneurship in Networks' (EiN) model (e.g., Groen, 2000, 2005; Groen et al., 2008). This multidimensional model is specifically designed to study entrepreneurial processes. The resulting referral source characteristics taken into account in the context of the VC due diligence process are (1) strategic capital (2) economic capital (3) cultural capital and (4) social capital. Subsequently, this paper also tests whether the characteristics of influential referral sources differ significantly for the sourcing of different types of information.

Data for this paper was collected by interviewing 57 VC funds in the Netherlands and Sweden, which resulted in a sample of 101 influential referrals involved in VC due diligence procedures. In studying a referral source involved in the due diligence process, data was collected on the referral source's reputation (strategic capital), the referral source's financial interest in the proposition and/or the VC fund (economic capital), the referral source's functional background in business and technology (cultural capital) and the referral source's tie to the venture capitalist (social capital). Subsequently, data was collected on the types of information provided by the referral source. In the first step of the analysis, the referrals were clustered based on both their characteristics from an EiN perspective and on the type of information they provided. In the second step of the analysis, a test was carried out to determine whether the referral clusters, as identified in the first clustering, significantly differ, depending on the provision of multiple types of information as identified in the second clustering. This was tested this using a chi square test.

Results show that the third party referrals can be classified into two groups based on their characteristics. First, venture capitalists rely on a group of referral sources with strong business backgrounds, with strong ties to the venture capitalist and with an economic stake in the new venture. This group is predominantly used for the sourcing of market, financial and strategic information. Referral sources in the second group have weaker business backgrounds, no or weak ties to the venture capitalist and do not have a stake in the new venture. This group is predominantly used to source information on the new venture's technology and IP. By studying the referral source characteristics of referrals involved in the VC due diligence process and relating them to types of information, a contribution is made to VC literature since a more detailed understanding on the social context of the venture capitalist's decisions is achieved.

CONCLUSIONS, CONTRIBUTIONS AND FUTURE RESEARCH

Conclusions

In this dissertation, the focus was on the role of referrals in funding technology-based ventures. The most important results of this dissertation are summarized in this section, providing answers to the research questions. The results are discussed for the two main stages of the VC funding process (research question 4) and for each stage, a paragraph is included on the specific characteristics of referrals and the characteristics of the new ventures that influence the impact of referrals in venture funding (research questions 1, 2 and 3).

Identification and access to finance. First, results are reviewed regarding the role of referrals in getting access to the financial resource providers, more specifically venture capitalists. The results show that referrals play a very important role in the venture capitalist's deal flow. On average, 46% of the total venture capitalist's deal flow comes to him by referral. Added to this, 55% of the venture capitalists in the sample regarded referrals as their most important source for new deals. There are certain characteristics of referrals that make them more influential in the decision to arrange a first meeting between the entrepreneurial team and the venture capitalist. When considering the multiple dimensions of the EiN model, the business background of the referral source (cultural capital) and the strength of the tie between referral source and the venture capitalist (social capital) are the only two characteristics that significantly influence the impact of the referral. The other dimensions of the EiN model (strategic capital and economic capital) do not have significant effects on the success of a referral in a venture capitalist's deal flow.

Before contacting a VC fund, entrepreneurial teams collect information about the many types of funding available to them. In this stage, networks rich in structural holes appear to be beneficial to the new ventures. Those ventures with structural holes are more aware of the financial options they have and have more heterogeneous financial structures. In getting access to a specific provider of financial resources, a team can contact a venture capitalist directly, or the team can use a referral to do so. Whether or not an entrepreneurial team uses, or needs to use, a referral to arrange a first meeting is very much contingent on the characteristics of the entrepreneurial team. The prior experience of the team is one characteristic that strongly determines the use of referrals in arranging a first meeting with financial resource providers. When entrepreneurial teams do use referrals to get access to financial resource providers, strong ties between the referral source and the entrepreneurial team appear to be most effective.

Financial due diligence and decisions. Results of the role of referrals in the due diligence and decision-making stage of the VC funding process show that the characteristics of the referral source used by venture capitalists to source information capitalists during the due diligence process are heavily dependent on the type of information to be gathered. The characteristics in the EiN model differ between these different types of referrals. For technological and IP information, venture capitalists tend to rely on: (1) referral sources that have weaker ties to the venture capitalist compared to other due diligence referrals (social capital); (2) referral sources that have weaker business backgrounds compared to other due diligence referrals (cultural capital); and (3) referral sources that have no financial

interest in the specific proposition (economic capital). For market, financial and strategic information, venture capitalists prefer to rely on: (1) referral sources with whom they have strong network ties (social capital); (2) referral sources that have strong business backgrounds (cultural capital); and (3) referral sources that have a financial interest in the proposition (economic capital).

The findings of the qualitative papers indicate that the prior experience of the entrepreneurial team brings benefits to the funding process of the new venture. The characteristics of the entrepreneurial team become very important during the first meeting with the venture capitalists. In this stage, the personal contact between the entrepreneurial team and the venture capitalist is initiated. Once these actors are connected, the role of the deal flow referral is over and the personal relationship between venture team and the venture capitalist becomes the most important factor. More in-depth study reveals exactly what it is about start-up and functional business experience that makes them so beneficial to the decisions of the venture capitalist. Once the entrepreneurial team meets with the venture capitalist, prior experience brings several things to the table. Those teams that have prior start-up experience have higher reputations (strategic capital) and have more knowledge and skills (cultural capital). Those teams with stronger functional business backgrounds have higher reputations (strategic capital) and also have more knowledge and skills (cultural capital). These teams also have stronger ties to venture capitalists when comparing them to teams that lack a strong functional business background (social capital). Although these types of experience bring multiple things to the table, only the skills and knowledge (cultural capital) and the network tie between venture team and the venture capitalist (social capital) influence the investment decision of the venture capitalist. The reputation of a team (strategic capital) does not have any effect on the venture capitalist's decision whether to invest or not.

Theoretical Contributions and Implications

Theme 1: The referral perspective to networks. The findings contribute to network literature in several ways. First, more insight is given into the role that referrals can play in getting access to financial resources. The focus on these referrals was one of the four key themes of this dissertation. Most studies that focus on the role of networks in the acquisition of resources, focus on the dyadic tie between the new venture and the resource provider. Less attention is paid to the referral role that other network contacts can play in the process of resource acquisition (e.g., Chang, 2004; Zhao & Aram, 1995). Network contacts can provide resources for new ventures themselves, but they can also play a referral role for ventures in getting access to resources of other (unconnected) actors. Those studies that do focus on this referral effect lack focus on the actual micro-mechanisms of referrals. In these studies, the beneficial effects of third party referrals and affiliations are, for the most part, implicitly assumed (e.g., Deutsch & Ross, 2003; Khaire, 2005; Reuber & Fischer, 2005). In this dissertation, the focus is on the role of explicit referrals at a detailed process level, and thus overcoming these shortcomings in network literature. By focusing on the referral effect of a network, a contribution is not only made to network literature but also to the literature that applies signalling theory in the study of entrepreneurship. In these approaches, the role of network partners as a signalling mechanism for new ventures is also acknowledged. An important theoretical implication of this study is that it shows that third

party referrals do not, by definition, have a positive effect on the venture-funding process. For example, the results of Chapters 2 and 5 show that there are also certain types of referrals that do not have a positive effect on the venture-funding process. This is an important insight since current studies that focus on the role of third party affiliations and referrals in new-venture funding usually assume that using these third parties is always, by definition, something positive.

In addition to the contribution to network literature, a contribution is also made to VC literature by focusing on referrals in the investment process. Although VC is extensively studied in entrepreneurship research, the role of referrals and their social aspects in the funding process have received little attention. However, both social aspects and referrals in the VC funding process have proven to be very influential, especially when there is much uncertainty surrounding the deal (Batjargal, 2007; Fried & Hisrich, 1994; Harrison et al., 1997; Hustedde & Pulver, 1992; Lockett et al., 2006). The venture capitalist is often studied as an actor that balances multiple decision-criteria and takes a rational decision. By involving the study of referrals in VC decisions, a contribution is made to a better understanding of the social context of VC decisions.

Theme 2: Referrals and network configurations. A contribution to network literature is made as well because of the focus on the actual network configurations that make referrals influential (e.g., Batjargal, 2007; Batjargal & Liu, 2004). The focus on these network configurations was identified as one of the key themes of this dissertation. Therefore, the effectiveness of the relational network characteristics between the new venture, the venture capitalist and the referral sources involved in the funding process is included in the study. The focus is also on the positional network that is most effective for new ventures for spotting financial opportunities. A contribution is thus made to both the relational and positional network discussions in literature (e.g., Burt, 1982, 1992, 1997, 1999, 2000, 2005; Coleman, 1972, 1988, 1990; Granovetter, 1973; Uzzi, 1997, 1999). The results of this dissertation have some implications for network theory. For example, within the one-dimensional network paradigm, having weak ties is often related to having structural holes, whereas having strong ties is often associated with having a closure-type of network (e.g., Burt, 2000, 2005; Coleman, 1988, 1990). However, the results of this thesis show that the relationship between positional and relational network characteristics is independent. For example, the results in Chapter 3 indicate that new ventures with less-experienced founders seem to profit from a network rich in structural holes combined with strong ties. New ventures with more experienced founders seem to benefit from a network rich in structural holes combined with many weak ties (Mehra, Dixon, Brass, & Robertson, 2006).

Theme 3: Referrals and actor characteristics. A contribution is also made to literature since a multidimensional approach is applied to the actors (“nodes”) involved in the funding process of the new venture. By doing so, more knowledge is generated on the contingencies that determine the effectiveness of certain network configurations. This multidimensional approach to the study of referrals is one of the core themes of this dissertation. The multidimensional EiN model allows the theorization of the specific contingencies at stake in the funding process of new ventures (e.g., Groen, 1994, 2005; Groen et al., 2008; Parsons, 1964, 1977). Many other network studies have taken a one-dimensional approach to networks by only focusing on the relational and positional

characteristics of a network to explain certain performance indicators. They often do not look at the characteristics of the actors that influence the effectiveness of the network configurations. By applying the EiN model, other dimensions as well as the social capital dimension are taken into account, contributing to a more systematic and complete understanding of the role of networks and referrals in financing technology-based ventures.

Applying the EiN model in the dissertation does not only contribute to network theory. More is also learned about the EiN model itself (e.g., Groen, 1994, 2005; Groen et al., 2008; Parsons, 1964, 1977). This dissertation is one of the first studies in which the EiN model is applied in an empirical setting. The results of the various papers show how the application of the EiN model helps to foster a more systematic and complete understanding of the mechanisms at stake. First, the EiN model can be used to deduce the dimensions that are at stake in certain research contexts. Based on a particular research question, one can hypothesize on the mechanisms at stake, using the dimensions of the EiN model. Examples of such an approach can be found in Chapters 1, 3, 4, 5 and 6. The results in Chapter 1 also show how other theories can be integrated into the EiN model to act as auxiliary theories. This dissertation focuses on integrating network theory in the EiN model; however the results of Chapters 2 and 6 provide interesting opportunities to do the same with knowledge (transfer) literature as well. Although the EiN model was a useful model to use in this research, there are some modifications that could be made to the model. Most importantly, the strategic capital dimension of the EiN model had no substantial impact in any of the papers. The cultural, social and to a lesser extent, the economic dimensions of the EiN model were the main explanatory dimensions in the three quantitative papers. The additional value of the strategic capital dimension could therefore be questioned in the research context of this dissertation. However one should be careful to take the strategic capital dimension out of the model, since this study was conducted only in the specific context of venture funding.

Theme 4: Referrals and multiple processes. An additional contribution is made to the literature because a process-oriented approach to networks is applied in this dissertation. The integration of this process dimension was identified as one of the four themes of the dissertation. By doing so, the call for more process-oriented approaches in both network and VC literature is met (Hoang & Antoncic, 2003; Leenders & Gabbay, 1999; Shane & Stuart, 2002; Wright & Robbie 1998). In this dissertation, the VC funding process is divided into multiple stages and the role of referrals is studied in each of these stages. The results show how the effectiveness of certain referral characteristics is contingent on the stage of the financing process. This implies that in order to come a more complete understanding on the role of networks and referrals in the VC funding process, the processes and stages to be studied have to be clearly defined.

Practical Implications

This dissertation has practical implications for several stakeholders. First of all, this study has implications for entrepreneurs. The dissertation contributes to a more complete understanding of the specific referrals to use to get access to VC funds and of the specific effects of prior experience that are valued by venture capitalists in their decision-making. A better understanding of the VC funding process on these issues will make entrepreneurs

better able to manage this funding process, which will increase the probability of getting funded.

In addition, this dissertation has practical implications for those people that play a referral role in the financing of new ventures. This could be corporate financial houses, university incubators or independent business developers. When they want to help entrepreneurs to access VC funds, a strong, functional business background and strong ties between these referrals sources and the venture capitalists are the most effective. These referral actors should therefore invest in their relationships with venture capitalists. In doing so, fewer strong ties to a limited number of VC funds would be a better strategy than weak ties to many of them. The results also show that referrals of people with strong business backgrounds are the most effective ones. Strong technological backgrounds do not appear to have a significant impact on the success of the referral. Especially university incubators should realize that a referral of a professor might not always be the best way to help a venture to access VC funds.

An additional stakeholder that can benefit from this research is the VC community. When investment managers talk about their meetings with entrepreneurial teams and about their investment decisions, they often come up with “vague” investment policies. Investment managers often stress the fact that there has to be a “fit” with the entrepreneurial team and that they rely on “their gut feeling” to take investment decisions. The findings on the role of referrals and network ties in the VC funding processes can explain many of these “vague” investment policies. Especially in the early stage of deals, when much information on traditional investment criteria is lacking, the social context of investment decisions may be the most influential investment criterion available. When venture capitalists are more aware of this, they will be more selective in the people they rely on for deal flow and the due diligence process.

Finally, there are policy makers that can benefit from this research. Since the role of referrals and networks are influential in funding new ventures, more attention should be paid to the development of these (referral) networks. The problem of VC funding for ventures in the early stages is often countered by governments by setting up their own VC funds or investing in existing funds. Results of this research show some specific reasons why new-venture entrepreneurs have difficulties in getting access to VC funds and in obtaining funding from venture capitalists. These reasons are more fundamental than simply a lack of VC funds available to these ventures. Governments could therefore have more impact on the funding of new ventures by helping new-venture entrepreneurs and their supporting institutions to overcome these fundamental problems.

Limitations and Future Research

One of the limitations of this study is that it focuses in depth on the referral characteristics that make referrals influential in the VC funding process and on the role of entrepreneurial team experience as a key contingency in this process. Less attention is paid to other characteristics that could influence their impact. For example, characteristics of the entrepreneurial team beyond the role of prior team experience are not explored in depth. In addition, other characteristics of deals that could impact the influence of referrals are not addressed. For example, the value of the investment the venture has applied for and the

specific type of technology the venture focuses on was also not considered. Due to the limited sample size, some characteristics of venture capitalists are also not included. Taking into account these different characteristics of the venture, the deal and the venture capitalist provides interesting areas for future research.

A related limitation is that the study of referrals was only conducted in the specific context of funding for early-stage, technology-based ventures. It is possible that the findings would have been different if the study had been conducted in another context. For example, researchers have proved that the effectiveness of certain network configurations is contingent on a company's stage of maturity and its particular entrepreneurial process (Hite & Hesterly, 2001). Following this finding, it could be expected that the effects of direct and referral networks are dependent on the stage of maturity of the company. For example, it could be expected that the influence of the referrals declines when a company is more mature. This could be caused by the fact that in a later stage, the company has its own track record to refer to. Therefore applying the research model to other stages of maturity could also provide an interesting direction for future research. In addition, the study was conducted in countries that are culturally similar. It would also be interesting to extend the study to a more heterogeneous set of countries. In doing so, a study of macro factors that influence referral mechanisms in entrepreneurship would also be possible.

An additional weakness in this study is the fact that I only focus on explicit referrals. In future, it would be interesting to study whether the impact of implicit referrals differs from that of the explicit referrals in this study. For example, does it make a big difference that referral source actually talks to the venture capitalist or is the fact that a certain actor is simply affiliated with a new venture enough to have a substantial impact on the funding process? Related to this, this dissertation focuses on the characteristics of the referral sources involved in the venture-funding process. In future research, it would also be interesting to study the actual content of the information they provided to the VC funds. This work focuses only on explicit referrals as an information source for VC firms, which could be identified as an additional weakness of this study. In future studies, it would be interesting to study how the importance of these referrals is related to the importance of other information sources (e.g., business plans, desk research).

In future studies, it would also be interesting to study the effects of interaction between the different types of capital in the EiN model. In this dissertation, it is assumed that the types of capital in the EiN model influence the impact of a referral in the venture-funding process independently. However, it would also be interesting to study to what extent the four types of capital interact. For example, the reputation (strategic capital) of a referral might not have a direct effect on a referral's success in the VC deal flow (economic capital), but it is possible that reputation has a moderating effect on the relationship between the business background (cultural capital) of the referral source and the success of the referral.

To conclude, it would also be interesting to study the role of referrals in acquiring other types of resources, for example, whether the role of referrals is similar in a (potential) employee's decision to work for a new venture, and whether customers rely on referrals in a similar way when they decide to do business with a new venture. The application of this research approach to the acquisition of other types of resources would also be a fruitful area for future research.

REFERENCES

- Adler, P., & Kwon, S. 2002. Social Capital: Prospects for a New Concept. *Academy of Management Review*, 27(1): 17-40.
- Aldrich, H., & Fiol, C. 1994. Fools rush In? The Institutional Context of Industry Creation. *Academy of Management Review*, 19(4): 645-670.
- Aldrich, H., & Zimmer, C. 1986. Entrepreneurship through Social Networks. In D. Sexton & R. Smiler (eds.), *Art and Science of Entrepreneurship*: 3-23. Cambridge: Ballinger Publishing Company.
- Baum, J., & Oliver, C. 1991. Institutional Linkages and Organizational Mortality. *Administrative Science Quarterly*, 36(2): 187-218.
- Baum, J., Calabrese, T., & Silverman, B. 2000. Don't go it Alone: Alliance Network Composition and Startups' Performance in Canadian Biotechnology. *Strategic Management Journal*, 21(3): 267-294.
- Batjargal, B. 2007. Network Triads: Transitivity, Referral and Venture Capital Decisions in China and Russia. *Journal of International Business Studies*, 38(6): 998-1012.
- Batjargal, B., & Liu, M. 2004. Entrepreneurs' Access to Private Equity in China: The Role of Social Capital. *Organization Science*, 15(2): 159-172.
- Beckman, C., Burton, D., & O'Reilly, C. 2007. Early Teams: The Impact of Team Demography of VC Financing and Going Public. *Journal of Business Venturing*, 22(2): 147-173.
- Birley, S. 1985. The Role of Networks in the Entrepreneurial Process. *Journal of Business Venturing*, 1(1): 107-117.
- Black, B., & Gilson, R. 1998. Venture Capital and the Structure of Capital Markets: Banks versus Stock Markets. *Journal of Financial Economics*, 47(3): 243-277.
- Burt, R. 1982. *Towards a Structural Theory of Action*. New York: The Free Press.
- Burt, R. 1992. *Structural Holes: The Social Structure of Competition*. Cambridge: Harvard University Press.
- Burt, R. 1997. The Contingent Value of Social Capital. *Administrative Science Quarterly*, 42(2): 339-365.
- Burt, R. 1999. Entrepreneurs, Distrust and Third Parties. In L. Thompson, J. Levine & D. Messick (Eds.), *Shared Cognition in Organizations: The Management of Knowledge*: 213-243. Hillsdale: Lawrence Erlbaum Associates.
- Burt, R. 2000. The Network Structure of Social Capital. In R. Sutton & B. Staw (Eds.), *Research in Organizational Behavior*: 345-423. Greenwich: JAI Press.
- Burt, R. 2005. *Brokerage and Closure: An Introduction to Social Capital*. Oxford: Oxford University Press.
- Burton, M., Sorensen, J., & Beckman, C. 2002. Coming from Good Stock: Career Histories and New Venture Formation. *Social Structure and Organizations Revisited*, 19: 229-262.
- Chang, S. J. 2004. Venture Capital Financing, Strategic Alliances, and the Initial Public Offerings of Internet Startups. *Journal of Business Venturing*, 19(5): 721-741.
- Cohen, B.D., & Dean, T.J. 2005. Information Asymmetry and Investor Valuation of IPOs: Top Management Team Legitimacy as a Capital Market Signal. *Strategic Management Journal*, 26(7): 683-690.
- Coleman, J. 1972. Systems of Social Exchange. *Journal of Mathematical Sociology*, 2:

- 145-163.
- Coleman, J. 1988. Social Capital in the Creation of Human Capital. *American Journal of Sociology*, 94(Supplement): 95-120.
- Coleman, J. 1990. *Foundations of Social Theory*. Cambridge: Harvard University Press.
- Deutsch, Y., & Ross, T. 2003. You Are Known by the Directors You Keep: Reputable Directors as a Signalling Mechanism for Young Firms. *Management Science*, 49(8): 1003-1017.
- Elfring, T., & Hulsink, W. 2003. Networks in Entrepreneurship: The Case of High-technology Firms. *Small Business Economics*, 21(4): 409-422.
- Fiet, J. 1995. Reliance upon Informants in the Venture Capital Industry. *Journal of Business Venturing*, 10(3): 195-223.
- Fried, V., & Hisrich, R. 1994. Towards a Model of Venture Capital Investment Decision Making. *Financial Management*, 23(3): 28-37.
- Granovetter, M. 1973. The Strength of Weak Ties. *American Journal of Sociology*, 78(6): 1360-1380.
- Granovetter, M. 1985. Economic Action and Social Structure: The Problem of Embeddedness. *American Journal of Sociology*, 91(3): 481-510.
- Granovetter, M. 1992. Economic Action and Social Structure: The Problem of Embeddedness. In M. Granovetter & R. Swedberg (Eds.), *The Sociology of Economic Life*: 60-74. Boulder: Westview Press.
- Groen, A. 1994. *Milieu en MKB, Kennis en Kennissen, Milieuinnovatie in de Grafische Industrie: Modelmatig verklaard*. University of Groningen, Groningen.
- Groen, A. 2000. Marketing and Performance of Firms: Networking or Efficient Working? *Tijdschrift voor Bedrijfskunde*.
- Groen, A. 2005. Knowledge Intensive Entrepreneurship in Networks: Towards a Multilevel Approach. *Journal of Enterprising Culture*, 13(1): 69-88.
- Groen, A., de Weerd-Nederhof, P., & Kerssens-van Drongelen, I. 2002. Creating and Justifying Research and Development Value: Scope, Scale, Skill and Social Networking in R&D. *Creativity and Innovation Management*, 11(1): 2-16.
- Groen, A., Wakkee, I., & De Weerd-Nederhof. 2008. Managing Tensions in a High-tech Start-up. *International Small Business Journal*, 26(1): 57-81.
- Harrison, R., Dibben, M., & Mason, C. 1997. The Role of Trust in the Informal Investor's Investment Decision: An Exploratory Analysis. *Entrepreneurship Theory and Practice*, 21(4): 1042-1087.
- Higgins, M., & Gulati, R. 2003. Getting Off to a Good Start: The Effects of Upper Echelon Affiliations on Underwriter Prestige. *Organization Science*, 14(3): 244-263.
- Higgins, M., & Gulati, R. 2006. Stacking the Deck: The Effects of Top Management Backgrounds on Investor Decisions. *Strategic Management Journal*, 27(1): 1-25.
- Hite, J., & Hesterly, W. 2001. The Evolution of Firm Networks: from Emerge to Early Growth of the Firm. *Strategic Management Journal*, 22(3): 275-286.
- Hoang, H., & Antoncic, B. 2003. Network-based Research in Entrepreneurship: A Critical Review. *Journal of Business Venturing*, 18(2):165-187.
- Hustedde, R., & Pulver, G. 1992. Factors Affecting Equity Capital Acquisition: The Demand Side. *Journal of Business Venturing*, 7(5): 363-374.
- Jenssen, J. 2001. Social Networks, Resources and Entrepreneurship. *The International Journal of Entrepreneurship and Innovation*, 2(2): 103-109.

- Jugel, S. 2001. *Der Leistungsstand Deutscher Beteiligungsgesellschaften*. Fachhochschule Wiesbaden zusammen mit Baumgartner & Partner, Nachrichten, Wiesbaden.
- Kamm, J., Shuman, J., Seeger, J., & Nurick, A. 1990. Entrepreneurial Teams in New Venture Creation: A Research Agenda. *Entrepreneurship Theory and Practice*, 14(4): 7–17.
- Khaire, M. 2005. *Great Oaks from Little Acorns Grow: Strategies for New Venture Growth*. Columbia University, 1-52.
- Larson, A. 1992. Network Dyads in Entrepreneurial Settings: a Study of Governance of Exchange Relationships. *Administrative Science Quarterly*, 37(1): 76-104.
- Leenders, R., & Gabbay, S. 1999. *Corporate Social Capital and Liability*. Boston: Kluwer Academic Publishers.
- Lockett, A., Ucbasaran, D., & Butler, J. 2006. Opening Up the Investor–Investee Dyad: Syndicates, Teams, and Networks. *Entrepreneurship Theory and Practice*, 30(2): 117-130.
- Maula, M. 2001. *Corporate Venture Capital and the Value Added for Technology Based Ventures*. Helsinki University of Technology, Espoo.
- McEvily, B., & Zaheer, A. 1999. Bridging Ties: A Source of Firm Heterogeneity in Competitive Capabilities. *Strategic Management Journal*, 20(12): 1133 - 1156.
- Mehra, A., Dixon, A., Brass, D., & Robertson, B. 2006. The Social Networks Ties of Group Leaders: Implications for Group Performance and Leadership Reputation. *Organization Science*, 17(1): 64-79.
- Murray, G. , & Lott, J. 1995. Have UK Venture Capitalists a Bias against Investment in New Technology-Based Firms? *Research Policy*, 24(2): 283-299.
- Nahapiet, N., & Ghoshal, S. 1998. Social Capital, Intellectual Capital, and the Organizational Advantage. *Academy of Management Review*, 23(2): 242-266.
- Oh, H., Chung, M., & Labianca, G. 2004. Group Social Capital and Group Effectiveness: The Role of Informal Socializing Ties. *Academy of Management Journal*, 47(6): 860–875.
- Parsons, T. 1964. *The Social System*. New York: The Free Press.
- Parsons, T. 1977. *Social Systems and the Evolution of Action Theory*. New York: The Free Press.
- Rao, H. 1994. The Social Construction of Reputation: Certification Contests, Legitimation, and the Survival of Organizations in the Automobile Industry. *Strategic Management Journal*, 15(Winter Special Issue): 29-44.
- Reuber, A., & Fischer, E. 2005. The Company You Keep: How Young Firms in Different Competitive Contexts Signal Reputation through Their Customers. *Entrepreneurship Theory and Practice*, 29(1): 57-78.
- Scholten, V. 2006. *The Early Growth of Academic Spin-offs*. University of Wageningen.
- Shane, S. 2000. Prior Knowledge and the Discovery of Entrepreneurial Opportunities. *Organization Science*, 11(4): 448-469.
- Shane, S., & Stuart, T. 2002. Organizational Endowments and the Performance of University Start-ups. *Management Science*, 48(1):154-170.
- Singh, R. 2000. *Entrepreneurial Opportunity Recognition Through Social Networks*. New York: Garland.
- Sorensen, J., & Stuart, T. 2000. Aging, Obsolescence, and Organizational Innovation.

- Administrative Science Quarterly*, 45(1): 81-112.
- Starr, J., & MacMillan, I. 1990. Resource Cooptation via Social Contracting: Resource Acquisition Strategies for New Ventures. *Strategic Management Journal*, 11(Special Issue): 79-92.
- Stinchcombe, A. 1965. Social Structure and Organizations. In J. March (Ed.), *Handbook of Organization*: 142-193. Chicago: Rand McNally.
- Stuart, T., Hoang, H., & Hybels, R. 1999. Interorganizational Endorsements and the Performance of Entrepreneurial Ventures. *Administrative Science Quarterly*, 44(2): 315-349.
- Tyebjee, T., & Bruno, A. 1984. Venture Capital: Investor and Investee Perspectives. *Technovation*, 2(3): 185-208.
- Uzzi, B. 1997. Social Structure and Competition in Interfirm Networks: The Paradox of Embeddedness. *Administrative Science Quarterly*, 42(1): 35-67.
- Uzzi, B. 1999. Embeddedness in the Making of Financial Capital: how Social Relations and Networks benefit Firms Seeking Financing. *American Sociological Review*, 64(4): 481-505.
- Vater, W. 2002. *Die Qualität Deutscher Private Equity Unternehmen - Optimierungsmöglichkeiten bei der Vergabe von Beteiligungskapital*. Wiesbaden.
- Wright, M., & Robbie, K. 1998. Venture Capital and Private Equity: A Review and Synthesis. *Journal of Business Finance & Accounting*, 25(5&6): 521-570.
- Zhang, J., Wong, P., & Soh, P. 2003. *Network Ties, Prior Knowledge and Resource Acquisition by High Tech Entrepreneurs*. Academy of Management Proceedings, 1-6.
- Zhao, L., & Aram, J. D. 1995. Networking and Growth of Young Technology-Intensive Ventures in China. *Journal of Business Venturing*, 10(5): 349-370.

RELATED CONFERENCE PRESENTATIONS

Chapter 1

Heuven, J.M.J., & Groen, A.J. 2006. *The Role of Social Networks in Financing Technology-Based Ventures*. Academy of Management Conference, Atlanta (USA).

Chapter 2

Heuven, J.M.J., & Groen, A.J. 2008. *Third Parties in the VC Financing Process: Do Network Ties Matter?* Academy of Management Conference, Anaheim (USA).

Chapter 3

Heuven, J.M.J., & Groen, A.J. 2007. *The Role of Referrals in Financing Technology-Based Ventures: An Empirical Exploration*. SMS Special Conference; New Frontiers in Entrepreneurship, Catania (Italy).

Chapter 4

Heuven, J.M.J., & Groen, A.J. 2008. *Venture Capital Funding for Technology-Based Ventures: Disentangling the Effects of an Entrepreneurial Team's Start-up and Functional Experience*. Babson College Entrepreneurship Research Conference, Chapel Hill (USA).

Chapter 5

Heuven, J.M.J., & Groen, A.J. 2008. *Referrals and Venture Capital Deal Flow: Who do Venture Capitalists Rely On?* Babson College Entrepreneurship Research Conference, Chapel Hill (USA).

Chapter 6

Heuven, J.M.J. 2008. *Referral Characteristics in the VC Due Diligence Process: Type of Information as Key Contingency*. European Summer University Conference in Entrepreneurship Research and Education (ESUCO), Bodo (Norway).

LIST OF DEFINITIONS

Early-stage finance: Seed, start-up and other early-stage investment, for new and young companies in technology-related areas (Murray & Lott, 1995).

Technology-based venture: An independently owned business established for not more than five years and based on the exploitation of an invention or technological innovation which implies substantial technological risks (Adapted from Arthur D. Little Group).

Explicit referral: Any independent individual who explicitly provides information on a certain proposition. In the context of this dissertation this means that this individual is neither a member of the entrepreneurial team nor a member of the VC company's investment team or committee.

Venture capital: Investment by specialized organizations in high-growth, high-risk, often high-tech firms that need capital to finance product development or growth and must, by the nature of their business obtain this capital largely in the form of equity rather than debt (Black & Gilson, 1998).

Entrepreneurial team: Two or more individuals who jointly establish a business in which they have equity (financial) interest (Kamm, Shuman, Seeger & Nurick, 1990).

PART 2: PAPER CHAPTERS

CHAPTER 1

THE ROLE OF SOCIAL NETWORKS IN FINANCING TECHNOLOGY-BASED VENTURES: A THEORETICAL FOUNDATION

JORIS HEUVEN
University of Twente
NIKOS
Capitool 15
Enschede, The Netherlands, 7500 AE
Tel: (+31) 53 - 4895355
Fax : (+31) 53 – 4892159
E-mail: j.m.j.heuven@utwente.nl

AARD GROEN
University of Twente
NIKOS

ABSTRACT

Our focus in this paper is on the question how social networks play a role in new-venture financing. After a review of the literature, the shortcomings and gaps in current studies on the role of networks in financing new ventures are identified. Our claim in this paper is that a firm's social network is important in two ways: (1) network partners are important because they can directly exchange financial resources and information between new ventures and financial resource providers through dyadic ties; and (2) they can also be important because networks can play a referral role to financial resource providers. In order to overcome the shortcomings as identified in the review of the literature, we introduce the 'Entrepreneurship in Networks' (EiN) model. This multidimensional process model of business development is our central theoretical perspective to research the dual effect of networks in financing new ventures. Since networks are of primary interest in this study, we show how network theory can be integrated into the EiN model. Subsequently we show how the resulting research framework can be applied to multiple stages of the venture-funding process. In this paper, we explain how this research framework can fill the gaps and overcome the shortcomings in current research, thereby contributing to a more complete understanding of the role that social networks play in the financing process of new ventures.

INTRODUCTION

The acquisition of financial resources is one of the biggest challenges in starting up a new business. In doing so, new-venture entrepreneurs face many obstacles. In his seminal paper, Stinchcombe (1965) refers to these obstacles as 'the liability of newness'. Because new ventures often lack knowledge of their environment, steady routines and relationships with customers and suppliers, they often have difficulties in identifying, accessing and convincing financial resource providers. Especially in the context of technology-based ventures, potential new-venture resource providers face a great deal of technological, market and organizational uncertainty (e.g., Aldrich & Fiol, 1994; Sorensen & Stuart, 2000). These various types of uncertainty surrounding new ventures often cause a financial resource provider to be reluctant to provide funding to a technology-based venture. However, new ventures and financial resource providers can pursue many strategies and mechanisms in order to decrease the problems surrounding the funding of technology-based ventures. The specific focus in this paper is on one of these mechanisms: the role that social networks can play in new-venture funding.

The importance of networks in financing new ventures is widely acknowledged; however current research on the effects of networks in new-venture financing has many shortcomings. For example, much of the research takes a one-dimensional approach to networks, often leading to contradicting findings (e.g., Leenders & Gabbay, 1999; Oh, Chung & Labianca, 2004). In addition, many previous approaches do not combine the two roles that a network can have: the direct role and the referral role. The direct effect of a network refers to the exchange of information and resources through dyadic ties. The referral effect refers to the signalling value of a new venture's network partners to other actors (Batjargal, 2007; Batjargal & Liu, 2004; Janney & Folta, 2006; Lockett, Ucbasaran & Butler, 2006). Although previous approaches recognize these two roles of networks, not

enough attention is paid to the actual structural and relational network configurations that fosters optimal results for new ventures. For example, the beneficial effects of network referrals are often implicitly assumed without theorizing on the actual relational and positional network characteristics that make these referrals most influential (e.g., Burton, Sorensen, & Beckman, 2002; Deutsch & Ross, 2003). Added to this, current approaches to the role of networks in new-venture funding only study the role of these networks at one point in time. However, in order to come to a more complete understanding of social networks in the context of venture funding, a study of networks in the various stages of the funding process might be a better strategy.

In this paper we attempt to overcome these shortcomings in past approaches by using the EiN model, which is based on social systems theory, as the central perspective in researching the role of networks in obtaining financing. The EiN model provides a framework that allows a multidimensional and process-oriented approach to the study of networks in (technology-based) entrepreneurship (Groen, 2003, 2005). Based on the EiN model, we construct a research framework that is designed to study both the direct and the referral network effect in venture funding. In this paper, we explain how this social, systemic approach can provide a more complete understanding of the role that networks play in financing new ventures. This is done by showing how the EiN model can contribute to network studies by integrating relational and positional network theory into our research framework. We also show how the resulting research framework can be applied to the study of new-venture funding at different stages in time. In doing so, the following research question is addressed:

“What are the direct and referral effects of social networks on the acquisition of financial capital in new ventures?”

In this paper, the main focus is on the theoretical contributions of our proposed research framework. However, in future research, this model will be tested in empirical settings. In practice, this could lead to many interesting implications, because knowing more about the workings of a network and referral mechanism under multiple contingencies and in multiple stages in time can help to catalyze the new-venture funding processes. For example, we could give entrepreneurs tailor-made advice when they apply for funding. Future findings might also have implications for financial resource providers and for people that play a referral role (e.g., incubators and business consultants) in new-venture funding.

This paper starts with a review of the literature related to the research question. Subsequently, the gaps and shortcomings in the literature on new-venture financing through networks are discussed. In order to fill these gaps and to overcome the shortcomings in current literature, the EiN model is proposed as the theoretical departure point to study our research question. After a short introduction of this central theoretical perspective, we continue with an outline of our research framework and explain how applying this approach can fill the gaps and overcome the shortcomings in current literature. Subsequently we focus on the social capital dimension of the EiN model in depth and shape some propositions. In the concluding sections of the paper, we summarize how our approach can overcome the most important shortcomings in the literature about the role of networks in financing new ventures. The paper concludes by providing some directions for future research.

SOCIAL NETWORKS AND FINANCING NEW VENTURES: A REVIEW OF THE LITERATURE

In this paper, the focus is on both the direct and the referral effects of networks on the acquisition of financial resources. Before introducing our theoretical approach to studying this dual effect, existing approaches related to the research question are reviewed. In this section, we review the literature on social networks and resource acquisition, literature on social networks and new-venture financing and literature on the referral role of social networks. This section closes with a discussion of the gaps and shortcomings in current approaches.

Social Networks and Resource Acquisition in Entrepreneurship

In previous studies of entrepreneurship, researchers put a great deal of effort into researching the effects of network ties on the behaviour of both individuals and organizations (e.g., Adler & Kwon, 2002; Aldrich & Zimmer, 1986; Birley, 1985; Burt, 1982, 1992, 1997, 1999, 2000, 2005; Coleman, 1972, 1988, 1990; Florin, Lubatkin, & Schulze, 2003; Granovetter, 1973, 1985, 1992; Gulati, 1998; Mitchell, 1969; Nahapiet & Ghoshal, 1998; Powell, 1990; Powell & Smith-Doerr, 2005; Rowley, Behrens, & Krackhardt, 2000; Stinchcombe, 1965; Uzzi, 1997, 1999). Past research has provided mixed results in the definition of optimal network structures and relations. For example, Burt (1992) claims that individuals and teams that are embedded in sparsely-connected networks enjoy advantages of efficiency and brokerage because of exchanges of non-redundant information. On the other hand, Coleman (1990) argues that intense connections between members of a network lead to cooperative behaviour, which provides many advantages over sparsely-connected networks. Other researchers who apply a relational network approach claim that a mixture of weak and strong ties is the optimal configuration. For example, Uzzi (1997, 1999) states that the ideal network includes a mixture of strong and weak ties. A relational governance of strong ties promotes the development of trust, the transfer of fine-grained information and tacit knowledge, whereas weak ties increase diversity and may provide access to new information and opportunities (Granovetter, 1973, 1985, 1992). Researchers who focus specifically on new-venture networks claim that the optimal structural and relational characteristics of the new-venture network are dependent on several contingencies. For example, the organizational process (Elfring & Hulsink, 2003), the life cycle stage of the new venture (Hite & Hesterly, 2001), and the type of technology that is being commercialized (Groen, 1994, 2000, 2005) are all shown to have an influence on the effectiveness of certain network configurations. The acquisition of resources is one of the key processes in entrepreneurship (Elfring & Hulsink, 2003). Therefore, many researchers in entrepreneurship have focused on the role of networks in the acquisition of resources by new ventures (e.g., Jenssen, 2001; Jenssen & Koenig, 2002; Larson, 1992; Starr & MacMillan, 1990; Uzzi, 1997, 1999; Wilson & Appiah-Kubi, 2002; Zhang, Wong, & Soh, 2003). The results of Jenssen and Koenig (2002) indicate that weak ties are important channels for information, strong ties are important for motivation issues and that a mixture of strong and weak ties gives access to finance.

Social Networks and Acquiring Financial Resources

In this paper, we are interested in the role of the network in acquiring one specific type of resource: the acquisition of financial resources. In the past, researchers have focused on the options of entrepreneurs to finance their ventures and their likelihood of success. For example, Bates (1997) found that entrepreneurs prefer to rely on family wealth and loans while Colombo and Grill (2005) found that new ventures that received private external equity financing have greater start-up sizes. In addition to studies from the perspective of an entrepreneur, a substantial proportion of studies are conducted from an investor's perspective (i.e., Fried & Hisrich, 1994; Gupta & Sapienza, 1992; Hall & Hofer, 1993; Maula, Autio, & Murray, 2005; Zacharakis & Meyer, 1998). This volume of literature mainly focuses on the psychology and decision-criteria of financial resource providers. In this paper, the specific focus is on the role of social networks in new-venture financing. We focus on the direct and referral effects of social networks in fulfilling the needs of new-venture entrepreneurs. This direct effect of social networks is defined as the direct provision of financial resources by network contacts of the new venture. In current literature, examples can be found of researchers that focus on the direct role of networks in financing. For example, Chang (2004) shows that the more successful new ventures have larger networks and have ties to prominent venture capitalists. One step further, researchers have focused on the actual strength of the network ties that are most effective for the acquisition of resources. For example, the results of Jenssen (2001) indicate that financial resources are acquired through strong ties. In the context of venture capital (VC), Batjargal (2007) and Batjargal and Liu (2004) also found that strong ties between the new venture and the VC fund have favourable effects, while Uzzi (1999) found that financial resources are best acquired through a mixture of weak and strong ties.

Social Networks and Acquiring Financial Resources: The Referral Network Effect

In addition to the direct provision of resources by network partners, we also focus on a second network effect in the provision of financial resources: the referral network effect (Batjargal, 2007; Lockett et al., 2006). The referral network effect in the context of financing can be described as the signalling value that the network of a new venture has to financial resource providers. Because financial resource providers face uncertainty regarding a new venture's technologies, markets and team, the network of the new venture can play an important role in decreasing this uncertainty as perceived by the financial resources providers. In research on entrepreneurship, many researchers have shown how the affiliations of the new venture are beneficial to the new-venture start-up process. For example Burton et al. (2002) show how former employers of the entrepreneurs can have a favourable signalling effect on the venture process. Khaire (2005) shows how customers can be used to decrease uncertainty regarding the venture, and Deutsch and Ross (2003) show a similar mechanism by showing the signalling value of a new venture's board of directors.

There are some studies that show the favourable role of the referral network effects in the context of new-venture financing. For example Shane and Cable (2002) claim that networks are important to new-venture financing because they transfer information and therefore

decrease the perceived uncertainty of resource providers. Shane and Stuart (2002) found support for the referral network effect by showing that not only direct ties but also indirect ties to investors increase the chance of the venture to get funded. Added to this, Stuart, Hoang and Hybels (1999) illustrated that privately-held biotech firms with prominent strategic alliance partners and organizational equity investors go to Initial Public Offering (IPO) faster and earn greater valuations than firms that lack these connections. The relevance of the referral network effect is not only supported in research on new ventures, but also in literature on one specific type of financing: venture capital. Researchers in this field have shown the importance of referrals to both deal flow and the VC due diligence process. For example, Jugel (2001) found that on average, 46% of the venture capitalist's deal flow comes by third party referral. Vater (2002) found a percentage of 54% and Tyebjee and Bruno (1984) even found a percentage as high as 65%. In addition, once the new venture is connected to the VC fund, researchers have shown that referrals play an important role in the VC's due diligence process (e.g., Fiet, 1999; Hustedde & Pulver, 1992; Maula, 2001).

In order to get a better understanding of referral mechanism in financing new ventures, researchers have focused on the specific characteristics that make some referrals more influential in the financing process. For example, referrals seem to be more effective when the referral source is more prominent (e.g., Janney & Folta, 2006; Maula, 2001; Stuart et al., 1999), when they are perceived to have expertise (e.g., Baum, Calabrese & Silverman, 2000; Reuber & Fischer, 2005) and when they have a financial stake in the new venture (e.g., Megginson & Weiss, 1991). In this paper, the main focus is on the actual characteristics of the social network that make referrals most effective. This question has received little attention. Two of the few studies that do address it are the ones of Batjargal (2007) and Batjargal and Liu (2004). In these studies, support was found for the idea that strong ties between the new venture, the VC fund and the referral source have favourable effects for the funding of the venture.

Gaps and Shortcomings in the Current Literature: A Research Agenda

In current research on networking, we found that a great deal of the research on entrepreneurial networks applies a one-dimensional approach. Their claim is that network theory alone can explain empirical phenomena. Past researchers have provided mixed results on the effectiveness of certain network characteristics in acquiring both financial resources and resources in general. We argue that many of these mixed results can be explained by the fact that these researchers do not look at important contingencies. Our claim is supported by several researchers who claim that there is much work to be done in searching for contingencies that determine the effectiveness and value of particular network characteristics. (Higgins & Gulati, 2003; Hoang & Antoncic, 2003; Leenders & Gabbay, 1999; Oh et al., 2004; Shane & Stuart, 2002). This implies that one-dimensional network theory alone cannot explain empirical phenomena. Therefore our research approach could contribute to a better understanding when we focus on the contingencies and interactions that determine the effectiveness of network characteristics in process of new-venture financing.

Second, in our review of new-venture finance literature, we found that most of the studies on networks and finance are either solely focused on direct network effects or solely focused on referral network effects (e.g., Chang, 2004; Lockett et al., 2006; Zhao & Aram, 1995). Very few studies have combined the effects of both direct and referral networks into one study. Therefore our study would add value to existing studies by focusing on both network effects. In our study, we not only view social networks as a source of resources to the firm, but also as an information signal to outsiders (Podolny, 1993, 2001). By addressing this dual role of networks, a more complete understanding of the role that networks play in the new-venture financing process will be created. A dual focus could also facilitate a comparison between the direct and referral network effect and their prominence at the different stages of the financing process. Since we want a focus on two network effects, it is very important to make a clear analytical distinction between these effects in the study of venture financing. Therefore the approach to the research has to be well suited to make this distinction.

Third, in the literature on network effects in new-venture financing, little attention is paid to the underlying explanations of findings from a network perspective (Baum et al., 2000; Burton et al., 2002; Higgins & Gulati, 2003, 2006; Shane & Cable, 2002; Shane & Stuart, 2002; Stuart et al., 1999). In studies that focus on the importance of being affiliated with prominent partners, researchers assume that status ‘flows through network ties’ (Goode, 1978; Podolny, 1993). In current literature, we did not find any research that focused on the conditions under which status ‘flows through ties’. For example, to what extent do structural and relational network characteristics influence the referral network effects of affiliations with prominent partners? Our research approach could therefore foster a better understanding of the role that specific network configurations play in the two network effects networks.

To conclude, an additional weakness in current studies on networks and new-venture financing is the static nature of the studies even though several studies have shown that the effectiveness of certain network configurations is contingent on the specific type of process in which these configurations are studied (Hite & Hesterly, 2001; Elfring & Hulsink, 2003). Our research approach could therefore contribute by providing a research framework that is suitable for studies with a process-oriented character, and thus providing more insight into the effectiveness of network configurations for new-venture financing at multiple points in time. In the next section, our central research framework is introduced and we explain how it meets these requirements.

OUR RESEARCH APPROACH: OVERCOMING THE GAPS AND SHORTCOMINGS IN THE LITERATURE

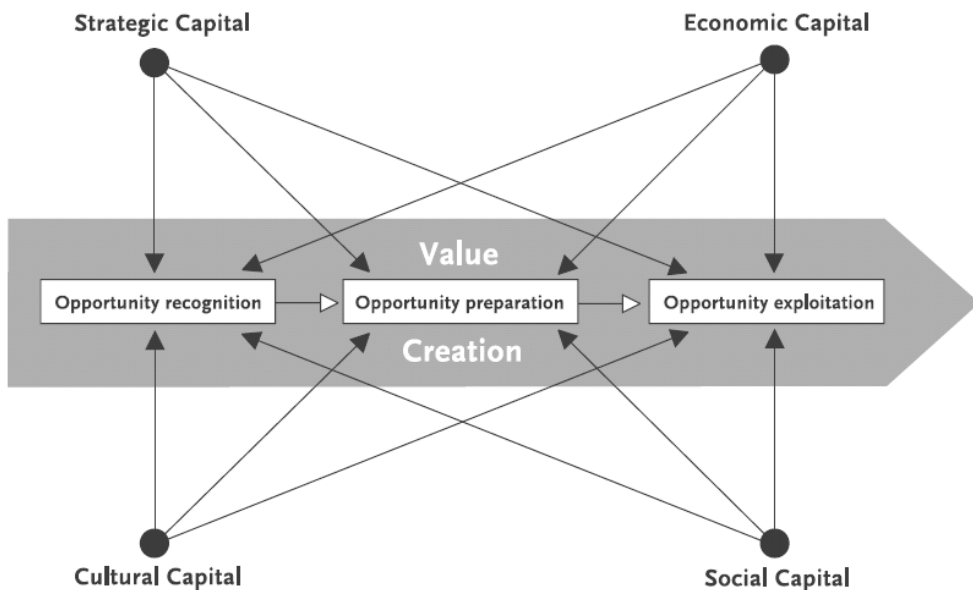
The Entrepreneurship in Networks Model: A Multidimensional Approach

In this section, we first explain the core model used to study entrepreneurial processes: the ‘Entrepreneurship in Networks’ (EiN) model. This model is based on social systems theory (e.g., Groen, 1994, 2000, 2003, 2005; Groen, Daring, & Weaver, 2001; Groen, de Weerd-Nederhof, & Kerssens-van Drongelen, 2002; Groen, Wakkee & De Weerd-Nederhof, 2008; Parsons, 1964, 1977) and is designed specifically for the study of entrepreneurial processes.

An illustration of the EiN model is provided in Figure 1. Even though we do not explain the complete model in this paper, it is important to note that this paper uses the categorization of the types of capital from the EiN model. The types of capital that influence the performance and influence of the actors involved in an enterprise are based on the basic definition of a social system as defined by Parsons (1964). Originally, a social system was defined by Parsons as follows:

“... a social system consists in a plurality of individual actors interacting with each other in a situation which has at least a physical or environmental aspect, actors who are motivated in terms of a tendency to the “optimization of gratification” and whose relation to their situations, including each other, is defined and mediated in terms of culturally structured and shared symbols” (Parsons, 1964, pp. 5–6).

Figure 1: The Entrepreneurship in Networks Model



Four mechanisms are embedded in this definition: (1) interaction between the actors; (2) striving for goal attainment; (3) optimization of processes; and (4) maintaining patterns of culturally structured and shared symbols. Each of these mechanisms is related to a specific “capital need” that has to be fulfilled by the actors involved in an enterprise in order for them to perform better or be influential. This leads the way to four generic types of capital requirement. ‘Striving for goal attainment’ (mechanism 2) deals with the strategic goals and the position that the enterprise strives for and is labelled as *strategic capital*. Strategic capital also refers to issues of legitimacy and reputation surrounding entrepreneurship. ‘Optimization of processes’ (mechanism 3) refers to the efficient organization of the entrepreneurial processes and is quite simply related to money as the basic resource, i.e., *economic capital*. ‘Pattern maintenance and institutionalization of shared symbols’ (mechanism 4), are embodied in *cultural capital*, as they can be found in the values,

knowledge, skills, experience, and technology of the organization. Finally, ‘Interactions between actors’ (mechanism 1), is related to the *social network capital*. The central assumption of the EiN model is that actors involved in entrepreneurship will need sufficient ‘capital’ for the venture to be sustainable over time. This implies that new-venture entrepreneurs need to have or have access to sufficient strategic, economic, cultural and social capital to establish a viable enterprise.

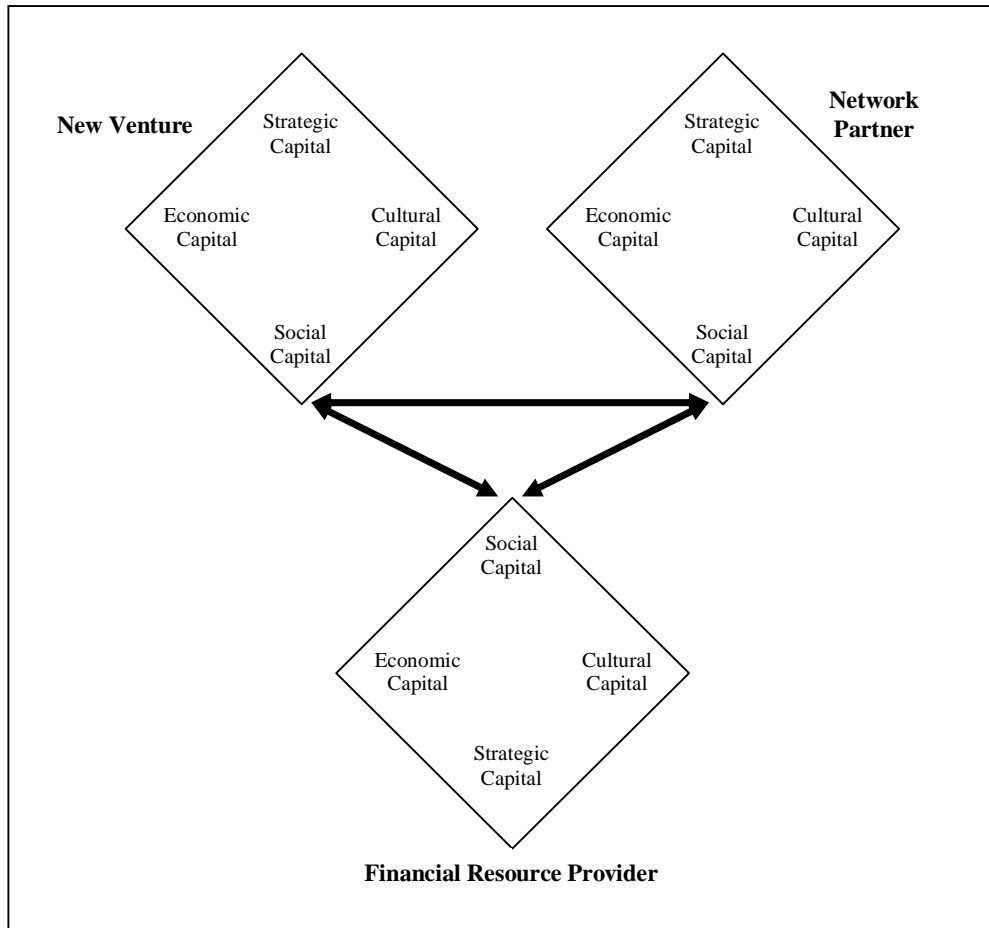
In the review of the literature, the shortcomings and gaps in current studies on social capital and new-venture financing were identified. The first shortcoming was the one-dimensional nature of many network studies in entrepreneurship. One of the strong points of the EiN model is that it provides a multidimensional framework to study entrepreneurship. The multidimensional approach provides a valuable foundation to theorize on the interactions and actor contingencies that play a role in entrepreneurship and new-venture financing. Where many researchers look for variables in an ad hoc sense, the EiN model provides a more deductive approach to theorize on the contingencies and interactions that play a role in new-venture financing. So by starting with the EiN model we overcome already one of the weaknesses of current research as identified in the literature review.

In the context of this paper, we do not only hypothesize that the four types of capital of the EiN model play a role for the central actor in entrepreneurship, the entrepreneur, but we also hypothesize the role of other actors that influence and contribute to the process of entrepreneurship. Examples of these other actors are new-venture resource providers and actors that play an intermediary or supportive role for entrepreneurs. Therefore, in the specific context of new-venture financing, we hypothesize that the effectiveness of the direct and referral network effect in venture funding is dependent on the strategic, economic, cultural and social capital characteristics of the entrepreneurial team, the referral source and the financial resource provider.

Direct and Referral Effect of Networks

A second shortcoming that was identified in the literature was a failure to combine the direct and referral effects of social networks in new-venture financing. We do this by modelling the (potential) actors involved in new-venture financing in a triad. In Figure 2, three actors are presented: the new venture, the financial resource provider and the (referral) partner(s) of the new venture. By studying this triad, which will be referred to as the financing triad, an analytical distinction can be made between the two network effects, a distinction that is often overlooked in past network approaches. On the one hand, we have the direct network effect (the tie between the new venture and financial resource provider) and on the other hand, the referral networks effect (the mediating effect of the network partners of the new venture) in financing new ventures. Figure 2 also illustrates how the EiN model can be integrated in the triad by showing the four types of capital of the three actors. All these actors bring their four types of capital into play through the social capital dimension. Our assumption is that the effectiveness of direct and referral network configurations is dependent on the EiN characteristics/types of capital of the new venture, the financial resource provider and the referral partners of the new venture.

Figure 2: Research Framework



Integrating Network Theory into the Entrepreneurship in Networks Model

In the previous sections, we explained our approach to the study of the new-venture financing process. We showed how the EiN model allows a multidimensional approach and how a distinction can be made between the direct and referral network effects. Our approach can also enable us to look at the actual network configurations that play a role in the financing process. An important feature of the EiN model is that the social network dimension plays a central role in the model. Since the EiN model provides a rather abstract, theoretical framework, auxiliary theories can be integrated into the model in order to specify the model. In our research, we are mainly interested in the social capital dimension. In the propositions section, we therefore focus in depth on this dimension and show how existing network literature can be applied to shape propositions on the effectiveness of structural and relational network configurations in different stages of the financing process.

A Process-oriented, Staged Approach

An additional weakness that was identified in the review of the literature was the static nature of studies on networks in entrepreneurship. Therefore, another important characteristic of the EiN model is that it allows a process-oriented approach in the research (Van de Ven, 2007). Since interaction between dimensions is one of the central assumptions in the model, the model can be applied dynamically. For example, one could study the dimensions and interactions between the dimensions over time, thereby providing a better understanding of the process of acquisition of financial resources over time.

In order to allow for a process-oriented, staged approach in the context of financing, a distinction is made between three financing events: (1) identification of financial opportunities and resource providers (2) access to financial resource providers and (3) the actual financing decision. We will explain how the generic framework of Figure 2 can be applied to these different financing stages in order to foster a process-oriented, staged approach.

Initially, the new venture has to be aware of the financial opportunities that exist and has to identify potential providers of financial resources. The strategic, economic and cultural capital of the new venture will affect the configuration of the initial network of the new venture that can help it identify the financial opportunities and the resource providers. In the second step, the new venture has to access the financial resource providers. This can be done in two ways. First, the new venture can directly access the financial resource provider (direct network effect). However, the new venture can also use a referral to access the financial resource provider (referral network effect). Following our model, we claim that the effectiveness of direct vs. indirect access is dependent on the types of capital of the new venture, of the financial resource provider and of the referral source. For example, direct access could be more effective when the entrepreneur has work experience in the market that helped the entrepreneur to build a good reputation (strategic capital). Additionally, direct access could be more effective for financial decisions facing low risk (strategic capital of the financial resource provider). From a referral point of view, it could, for example, be expected that a referral would be more effective when the referral source has a prominent position in the market (strategic capital of the referral source). The last stage of the financing process concerns the actual financing decision. Again, the effectiveness of network configurations in this process is contingent on the strategic, economic and cultural characteristics of the triad: the new venture, the financial resource provider and the referral source. In this stage, the financial resource provider takes a decision whether to finance or not. In doing so, he collects information about the new venture from multiple actors. First, he collects information about the firm's strategic, economic, cultural and social capital by talking to the new venture team (direct network effects) and second, he collects information through third party referrals (referral network effect).

In this chapter, we explain how we overcome the shortcomings as identified in the literature. First, we apply a multi dimensional approach to networks using the EiN model. Second, we focus on both the direct and the referral network effect by placing the venture team, the referral source and the financial resource provider in a triad. Third, we examine the actual structural and relational network configurations that make those direct and referral network effects most influential because the EiN model allows for the integration of

auxiliary network theory. And finally, we apply a process-oriented, staged approach by studying our research framework over the multiple events in the financing process.

PROPOSITIONS

Entrepreneurship in Network Model Proposition

In this paper, the main focus is on the network dimension of the EiN model. The actual shaping of propositions in the other dimensions of the EiN model is beyond the scope of this paper. This does not mean that these other dimensions do not play a role. Therefore, we will start with a proposition from a general EiN model. The central claim of the model is that a social system has to have “sufficient capital” in each of the dimensions in order to survive. When this basic proposition is translated to our research model, our straightforward proposition is:

Proposition 1. The ability of a new venture to identify financial options, access financial resource providers and acquire financial resources is dependent on the strategic, economic, cultural and social capital of the actors involved in the financing process.

Network Propositions

As already introduced in the previous chapter, the EiN model provides a central framework into which auxiliary theories can be integrated. In this section, we develop the model one step further by focusing in depth on the social capital dimension of our research model. Past researchers have provided mixed results on the effectiveness of structural and relational network configurations in (financial) resource acquisition. We therefore turn to the discussion between Burt and Coleman, who both have different views on the mechanisms that foster optimal *structural network* configurations. On the one hand, there is Burt (1982, 1992, 1997, 1999, 2000, 2005) who claims that optimal network value is created through structural holes. The structural holes argument claims that a certain actor can create value by brokering connections between segments that would otherwise be unconnected. Such a network provides unique information and opportunities to that actor. On the other hand, Coleman (1972, 1988, 1990) claims that network value is not created through structural holes but through dense networks and redundant ties. These network configurations improve the reliability of information because the same information can reach an actor from different sides, therefore creating value. Because dense and redundant networks improve the flow and reliability of information within the network, actors in the network are more committed to doing a good job. *The relational network* dimension refers to the effectiveness of weak vs. strong ties to new ventures (Granovetter, 1985, Uzzi, 1997, 1999). Weak ties are claimed to be more effective for the acquisition of new information, whereas strong ties seem to be more effective in generating trust between actors¹. The discussion between Burt and Coleman provides a good departure point to shape our propositions on the role of networks in financial resource acquisition by new ventures. The primary focus of

¹ For the purpose of this paper we consider the relational weak tie argument to be part of the Burt logic and the relational strong tie argument to be part of the Coleman logic.

the Burt and Coleman discussion is on structural network configuration; however this section also provides some examples of relational network propositions regarding the acquisition of financial resources by new ventures.

Identification of financial options. The first process in the research approach as previously introduced is the identification by a new venture of the various financial opportunities and resource providers. For this first process, the structural hole argument of Burt seems to be more relevant than the Coleman argument. New ventures having networks rich in structural holes are better able to identify the various financial opportunities that exist. The structural holes function as a diverse pool of information about financial opportunities, making the new venture aware of more financing opportunities. Therefore our proposition regarding the identification of financial options is as follows:

Proposition 2. New ventures having networks rich in structural holes are better able to identify various financial options and financial resource providers.

Access to financial resource providers. After having identified the various financial options and potential resource providers, a new venture has to get access to them. In this section, we theorize about a situation in which a new venture is not already connected to the financial resource provider, since we expect that if the new venture is already connected, he would not face problems in arranging a first meeting. In accessing these unconnected resource providers, the new venture has two options, direct access or through a referral. When a new venture is able to directly access the financial resource provider, we claim that the information function of the network is more important to the new venture. When a new venture can directly access the financial resource provider, the venture does not need its network to build the trust of the financial resource provider. In this case, providing information about the new venture to the financial resource provider is the most important network function. We expect that, in these cases, the information function of the network is more effective through weak ties than strong ties. New ventures having networks rich in weak ties are able to access and spread more and more diverse information, as opposed to networks with strong ties. Therefore, when directly accessing financial resource providers our proposition is:

Proposition 3a. For new ventures that directly access financial resource providers, having many weak ties will be favourable.

The new venture can also access financial resource providers in a second way, namely through a referral. In this case, the new venture explicitly uses a network partner to access the financial resource providers. For referrals, we expect that the Coleman network logic has more value than the Burt logic. Therefore, our claim is that the network partner helping the new venture in accessing financial resource providers will be more influential when strongly tied to the new venture. Strong ties are more committed to connecting a new venture to financial resource providers than weak ties. Additionally, a possible failure of the venture could also damage the position of the connecting network partner. We assume that weak ties are more averse in taking this risk than strong ties. Coleman's logic also seems to be most relevant for the tie between the referral source and the financial resources provider. We expect that financial resource providers prefer to rely on referrals from people to whom they are strongly tied. The favourable effect of strong ties between the new venture and the

referral source and between the referral source and the financial resource provider is supported in the context of venture capital financing by Batjargal (2007) and Batjargal and Liu (2004). Therefore, the following propositions were shaped regarding the network ties that are most effective in accessing financial resource providers:

Proposition 3b. A referral will be more successful in connecting a venture to a financial resource provider when the new venture is strongly tied to the referral source.

Proposition 3c. A referral will be more successful in connecting a venture to a financial resource provider when the financial resource provider is strongly tied to the referral source.

The actual financing decision. We are now at the point where a new venture has identified and has accessed the financial resource provider(s). If a financial resource provider is still interested in the proposition at this stage, he conducts a due diligence procedure on the new venture and consults the venture team and the third party referral sources to collect as much information about the venture as possible. In doing so, he consults the entrepreneurial team (direct network effect) but also third party referral sources (referral network effect). We have shaped propositions on the prominence of the direct and referral network effect in the actual financing decision. The first proposition concerns the straightforward assumption that the direct network effect in a financing decision will increase when the venture is strongly tied to the financial resource provider. The second proposition concerns the interaction effect of the tie between new venture and financial resource provider and the importance of a referral in the actual financing decision. Our claim is that the importance of the referral in a financing decision will decrease when a financial resource provider has a strong tie to the new venture at the moment of the actual financing decision. When this tie is strong, the financial resource provider will be better informed about new venture and will therefore rely less on referral network effects. Our claim is that the referral will be more important when the tie between the new venture and the financial resource provider is weak, because in such cases, the uncertainty as perceived by the financial resource provider will be greater. Therefore, our first two propositions regarding the direct and referral network effect in financing are as follows:

Proposition 4a. The direct network effect will be more prominent in the actual financing decision when the new venture is strongly tied to the financial resource provider.

Proposition 4b. A referral will be less influential in the actual financing decision when the new venture is strongly tied to the financial resource provider.

The third proposition about the actual financing decision concerns the tie between the new venture and the referral source that is used as an informant by the financial resource provider. In this case, our straightforward assumption is that the stronger the connection to the referral, the more influential the effect of the referral network will be. This is supported by assumptions in past research that argued that status ‘flows’ through network ties (e.g., Batjargal, 2007; Batjargal & Liu, 2004; Lai, Lin, & Leung, 1998; Lin, 1999; Benjamin & Podolny, 1999). The proposition for this mechanism is therefore:

Proposition 4c. A referral will be more influential in the actual financing decision when the new venture is strongly tied to the referral source.

The last proposition concerns the tie between the financial resource provider and the referral that is used to collect information about the proposition. The impact of a third party referral in the due diligence process is higher when the financial resource provider has a strong tie to this third party. In this case, the referral is considered to be a more trustworthy source of information. This claim is supported by Batjargal (2007) who found that strong ties between a new venture and a venture capitalist are favourable for a referral. This logic leads to the following proposition.

Proposition 4d. A referral will be more influential in the actual financing decision when the financial resource provider is strongly tied to the referral source.

In the propositions above, we described how the structural ‘Burt and Coleman discussion’ and the related relational network rationales can be used to theorize on the social capital dimension of the EiN model. Their claims can be used to construct propositions regarding the influence of direct and referral network effects over multiple stages of financing.

CONCLUSIONS

The specific focus of this paper was on the question of how new ventures acquire financial resources through social networks. We developed a research approach regarding the role of social networks in the financing of new ventures and explained how this approach can be used to overcome the shortcomings identified in past research. We started by conducting a review of the literature on existing approaches to the dual role of networks in financing new ventures. In doing so, some gaps and shortcomings in current approaches were identified. First of all, we found that many researchers apply a one-dimensional network approach. There is still a great deal of work to be done in identifying the specific actor contingencies that determine the effectiveness of particular network configurations (Higgins & Gulati, 2003; Hoang & Antoncic, 2003; Leenders & Gabbay, 1999; Oh et al., 2004; Shane & Stuart, 2002). Additionally, regarding the role that networks can play in financing, our review showed that most studies focus on the direct network effect in financing new ventures. The effect of referral networks in financing new ventures is studied less extensively (e.g., Chang, 2004; Lockett et al., 2006; Zhao & Aram, 1995). An additional weakness is that the studies that focus on the direct and referral role of networks in financing new ventures fall short in studying actual network configurations. For example, there is still little agreement on the role of specific network configurations in the effects of direct and referral networks (e.g., Batjargal, 2006; Jenssen 2001; Uzzi, 1999). Finally, in current approaches, many researchers take a static approach to networks, whereas a process-oriented approach would offer a more complete understanding of the role of networks in financing new ventures (e.g., Hite & Hesterly, 2001).

In order to overcome these gaps and shortcomings, the EiN model was introduced as the central theoretical perspective to research the dual effect of networks in financing new ventures (e.g., Groen, 1994, 2005; Groen et al., 2002, 2008). The EiN model provides an interesting starting point to overcoming the shortcomings in current network literature on entrepreneurship. The model provides a more complete view on entrepreneurship and

enables a multidimensional approach to networks. The multidimensional approach allows us to theorize about the contingencies and interactions that play a role in the financing process. Subsequently, the dimensions of the EiN model were integrated into the financing triad. The focus on the triad of the new venture, the new-venture partner(s) and the financial resource provider enables us to study the effects and interactions of both the direct and referral networks. Since our main focus is on the social capital dimension of the EiN model, we showed how network theory can be integrated into the EiN model. In the propositions section, we demonstrated how the EiN model and the fundamental network theories of Burt, Coleman and Granovetter can reinforce each other. On the one hand Burt, Coleman and Granovetter provide the auxiliary network theory to refine the social capital dimension of the EiN model. On the other hand, the EiN model provides a theoretical framework to apply network theory to the new-venture financing process and to deduce the contingencies at stake. Finally, since our review of the literature also indicated that it is important to specify the exact process to be studied, we divided the financing process of a new venture into multiple events: (1) identification of financial opportunities; (2) access to financial resource providers; and (3) the actual financing decision. In the proposition section, we showed how our research framework can be used to shape propositions regarding the role of networks in these stages of the funding process.

DIRECTIONS FOR FUTURE RESEARCH

Our research approach suggests some interesting areas for future research. First of all, it would be interesting to explore our propositions empirically. Since there is still little research available on referral mechanisms, case studies might be a fruitful direction to begin with. An additional area for future research could take into account the other characteristics of the actors. Although we hypothesize, in depth, on the social network characteristics of direct and referral network effects, the EiN model clearly suggests the contingencies that could potentially influence these network mechanisms.

A limitation in our approach is the focus on new ventures. Past research has shown that the effectiveness of network configurations is heavily contingent on a company's stage of maturity and its specific entrepreneurial process (Hite & Hesterly, 2001). It could therefore be expected that the interaction and function of the two network effects is dependent on the stage of maturity of the company. For example, it could be expected that the influence of the referral network effect declines when a company is more mature. This is caused by the fact that in a latter stage, the company has its own track record to refer to. Therefore applying the research framework to other stages of maturity would provide an interesting direction for future research.

Finally, the question also rises as to how the influence of direct and referral network effects would be in acquiring other resources. For example, for which resources is a referral from a high-status scientist most effective? Referrals of prominent scientists could be more effective in acquiring highly-qualified staff instead of in acquiring financial resources. Therefore, applying the dual effects of networks to other resources would also be an interesting direction for future research.

REFERENCES

- Adler, P., & Kwon, S. 2002. Social Capital: Prospects for a New Concept. *Academy of Management Review*, 27(1): 17-40.
- Aldrich, H., & Fiol, C. 1994. Fools rush In? The Institutional Context of Industry Creation. *Academy of Management Review*, 19(4): 645-670.
- Aldrich, H., & Zimmer, C. 1986. Entrepreneurship through Social Networks. In D. Sexton & R. Smiler (eds.), *Art and Science of Entrepreneurship*: 3-23. Cambridge: Ballinger Publishing Company.
- Bates, T. 1997. Financing Small Business Creation: The Case of Chinese and Korean Immigrant Entrepreneurs. *Journal of Business Venturing*, 12(2): 109-124.
- Batjargal, B. 2007. Network Triads: Transitivity, Referral and Venture Capital Decisions in China and Russia. *Journal of International Business Studies*, 38(6): 998-1012.
- Batjargal, B., & Liu, M. 2004. Entrepreneurs' Access to Private Equity in China: The Role of Social Capital. *Organization Science*, 15(2): 159-172.
- Baum, J., Calabrese, T., & Silverman, B. 2000. Don't go it Alone: Alliance Network Composition and Startups' Performance in Canadian Biotechnology. *Strategic Management Journal*, 21(3): 267-294.
- Benjamin, B., & Podolny, J. 1999. Status and Social Order in the California Wine Industry. *Administrative Science Quarterly*, 44(3): 563-589.
- Birley, S. 1985. The Role of Networks in the Entrepreneurial Process. *Journal of Business Venturing*, 1(1): 107-117.
- Burt, R. 1982. *Towards a Structural Theory of Action*. New York: The Free Press.
- Burt, R. 1992. *Structural Holes: The Social Structure of Competition*. Cambridge: Harvard University Press.
- Burt, R. 1997. The Contingent Value of Social Capital. *Administrative Science Quarterly*, 42(2): 339-365.
- Burt, R. 1999. Entrepreneurs, Distrust and Third Parties. In L. Thompson, J. Levine & D. Messick (Eds.), *Shared Cognition in Organizations: The Management of Knowledge*: 213-243. Hillsdale: Lawrence Erlbaum Associates.
- Burt, R. 2000. The Network Structure of Social Capital. In R. Sutton & B. Staw (Eds.), *Research in Organizational Behaviour*: 345-423. Greenwich: JAI Press.
- Burt, R. 2005. *Brokerage and Closure: An Introduction to Social Capital*. Oxford: Oxford University Press.
- Burton, M., Sorensen, J., & Beckman, C. 2002. Coming from Good Stock: Career Histories and New Venture Formation. *Social Structure and Organizations Revisited*, 19: 229-262.
- Chang, S. J. 2004. Venture Capital Financing, Strategic Alliances, and the Initial Public Offerings of Internet Startups. *Journal of Business Venturing*, 19(5): 721-741.
- Coleman, J. 1972. Systems of Social Exchange. *Journal of Mathematical Sociology*, 2: 145-163.
- Coleman, J. 1988. Social Capital in the Creation of Human Capital. *American Journal of Sociology*, 94(Supplement): 95-120.
- Coleman, J. 1990. *Foundations of Social Theory*. Cambridge: Harvard University Press.
- Colombo, M. G., & Grilli, L. 2005. Start-up Size: The Role of External Financing. *Economics Letters*, 88(2): 243-250.

- Deutsch, Y., & Ross, T. 2003. You Are Known by the Directors You Keep: Reputable Directors as a Signalling Mechanism for Young Firms. *Management Science*, 49(8): 1003-1017.
- Elfring, T., & Hulsink, W. 2003. Networks in Entrepreneurship: The Case of High-technology Firms. *Small Business Economics*, 21(4): 409-422.
- Florin, J., Lubatkin, M., & Schulze, W. 2003. A Social Capital Model of High-Growth Ventures. *Academy of Management Journal*, 46(3): 374-384.
- Fiet, J. 1995. Reliance upon Informants in the Venture Capital Industry. *Journal of Business Venturing*, 10(3): 195-223.
- Fried, V., & Hisrich, R. 1994. Towards a Model of Venture Capital Investment Decision Making. *Financial Management*, 23(3): 28-37.
- Goode, W. J. 1978. *The Celebration of Heroes: Prestige as a Social Control System*. Berkeley: University of California Press.
- Granovetter, M. 1973. The Strength of Weak Ties. *American Journal of Sociology*, 78(6): 1360-1380.
- Granovetter, M. 1985. Economic Action and Social Structure: The Problem of Embeddedness. *American Journal of Sociology*, 91(3): 481-510.
- Granovetter, M. 1992. Economic Action and Social Structure: The Problem of Embeddedness. In M. Granovetter & R. Swedberg (Eds.), *The Sociology of Economic Life*: 60-74. Boulder: Westview Press.
- Groen, A. 1994. *Milieu en MKB, Kennis en Kennissen, Milieuinnovatie in de Grafische Industrie: Modelmatig verklaard*. University of Groningen, Groningen.
- Groen, A. 2000. Marketing and Performance of Firms: Networking or Efficient Working? *Tijdschrift voor Bedrijfskunde*.
- Groen, A. 2003. *Knowledge Intensive Entrepreneurship in Networks: a Social System approach*. Academy of Management Conference, Seattle.
- Groen, A. 2005. Knowledge Intensive Entrepreneurship in Networks: Towards a Multilevel Approach. *Journal of Enterprising Culture*, 13(1): 69-88.
- Groen, A., de Weerd-Nederhof, P., & Kerssens-van Drongelen, I. 2002. Creating and Justifying Research and Development Value: Scope, Scale, Skill and Social Networking in R&D. *Creativity and Innovation Management*, 11(1): 2-16.
- Groen, A., During, W., & Weaver, M. 2001. *Entrepreneurial Networking in Knowledge Intensive SME-based Alliances: A Two-way Approach*. Paper presented at the Babson conference, Jonkoping, Sweden.
- Groen, A., Wakkee, I., & De Weerd-Nederhof. 2008. Managing Tensions in a High-tech Start-up. *International Small Business Journal*, 26(1): 57-81.
- Gulati, R. 1998. Alliances and Networks. *Strategic Management Journal*, 19(4): 293-317.
- Gupta, A., & Sapienza, H. 1992. Determinants of Venture Capital Firms' Preferences Regarding the Industry Diversity and Geographic Scope of Their Investments. *Journal of Business Venturing*, 7(5): 347-363.
- Hall, J., & Hofer, C. 1993. Venture Capitalists' Decision Criteria in New Venture Evaluation. *Journal of Business Venturing*, 8(1): 25-42.
- Higgins, M., & Gulati, R. 2003. Getting Off to a Good Start: The Effects of Upper Echelon Affiliations on Underwriter Prestige. *Organization Science*, 14(3): 244-263.
- Higgins, M., & Gulati, R. 2006. Stacking the Deck: The Effects of Top Management Backgrounds on Investor Decisions. *Strategic Management Journal*, 27(1): 1-25.

- Hite, J., & Hesterly, W. 2001. The Evolution of Firm Networks: from Emerge to Early Growth of the Firm. *Strategic Management Journal*, 22(3): 275-286.
- Hoang, H., & Antoncic, B. 2003. Network-based Research in Entrepreneurship: A Critical Review, *Journal of Business Venturing*, 18(2):165-187.
- Hustedde, R., & Pulver, G. 1992. Factors Affecting Equity Capital Acquisition: The Demand Side. *Journal of Business Venturing*, 7(5): 363-374.
- Janney, J., & Folta, T. 2006. Moderating Effects of Investor Experience on the Signalling Value of Private Equity Placements, *Journal of Business Venturing*, 21(1): 27-44.
- Jenssen, J. 2001. Social Networks, Resources and Entrepreneurship. *The International Journal of Entrepreneurship and Innovation*, 2(2): 103-109.
- Jenssen, J., & Koenig, H. 2002. The Effect of Social Networks on Resource Access and Business Start-ups. *European Planning Studies*, 10(8): 1039-1046.
- Jugel, S. 2001. *Der Leistungsstand Deutscher Beteiligungsgesellschaften*. Fachhochschule Wiesbaden zusammen mit Baumgartner & Partner, Nachrichten, Wiesbaden.
- Khaire, M. 2005. *Great Oaks from Little Acorns Grow: Strategies for New Venture Growth*. Columbia University, 1-52.
- Lai, G., Lin, N., & Leung, S. 1998. Network Resources, Contact Resources, and Status Attainment. *Social Networks*, 20(2): 159-178.
- Larson, A. 1992. Network Dyads in Entrepreneurial Settings: a Study of Governance of Exchange Relationships. *Administrative Science Quarterly*, 37(1): 76-104.
- Leenders, R., & Gabbay, S. 1999. *Corporate Social Capital and Liability*. Boston: Kluwer Academic Publishers.
- Lin, N. 1999. Social Networks and Status Attainment. *Annual Review of Sociology*, 25(1): 467-487.
- Lockett, A., Ucbasaran, D., & Butler, J. 2006. Opening Up the Investor-Investee Dyad: Syndicates, Teams, and Networks. *Entrepreneurship Theory and Practice*, 30(2): 117-130.
- Maula, M. 2001. *Corporate Venture Capital and the Value Added for Technology Based Ventures*. Helsinki University of Technology, Espoo.
- Maula, M., Autio, E., & 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): 3-21.
- Megginson, W., & Weiss, K. 1991. Venture Capitalist Certification in Initial Public Offerings. *The Journal of Finance*, 46(3): 879-903.
- Mitchell, J. 1969. *The Concept and Use of Social Networks: Social Networks in Urban Situations*. Manchester: Manchester University Press.
- Nahapiet, N., & Ghoshal, S. 1998. Social Capital, Intellectual Capital, and the Organizational Advantage. *Academy of Management Review*, 23(2): 242-266.
- Oh, H., Chung, M., & Labianca, G. 2004. Group Social Capital and Group Effectiveness: The Role of Informal Socializing Ties. *Academy of Management Journal*, 47(6): 860-875.
- Parsons, T. 1964. *The Social System*. New York: The Free Press.
- Parsons, T. 1977. *Social Systems and the Evolution of Action Theory*. New York: The Free Press.

- Podolny, J. 1993. A Status-Based Model of Market Competition. *American Journal of Sociology*, 98(4): 829-872.
- Podolny, J. 2001. Networks as the Pipes and Prisms of the Market. *American Journal of Sociology*, 107(1): 33-60.
- Powell, W. 1990. Neither Market Nor Hierarchy: Network Forms of Organization. *Research in Organizational Behaviour*, 12: 295-336.
- Powell, W., & Smith-Doerr, L. 2005. Networks and Economic Life. In N. Smelser & R. Swedberg (Eds.), *The Handbook of Economic Sociology, Second Edition*: 379-402. Princeton: Russell Sage Foundation/Princeton University Press.
- Reuber, A., & Fischer, E. 2005. The Company You Keep: How Young Firms in Different Competitive Contexts Signal Reputation through Their Customers. *Entrepreneurship Theory and Practice*, 29(1): 57-78.
- Rowley, T., Behrens, D., & Krackhardt, D. 2000. Redundant Governance Structures: An Analysis of Structural and Relational Embeddedness in the Steel and Semiconductor Industries. *Strategic Management Journal*, 21(3): 369-386.
- Shane, S., & Cable, D. 2002. Network Ties, Reputation, and the Financing of new Ventures. *Management Science*, 48(3): 364-381.
- Shane, S., & Stuart, T. 2002. Organizational Endowments and the Performance of University Start-ups. *Management Science*, 48(1):154-170.
- Sorensen, J., & Stuart, T. 2000. Aging, Obsolescence, and Organizational Innovation. *Administrative Science Quarterly*, 45(1): 81-112.
- Starr, J., & MacMillan, I. 1990. Resource Cooptation via Social Contracting: Resource Acquisition Strategies for New Ventures. *Strategic Management Journal*, 11(Special Issue): 79-92.
- Stinchcombe, A. 1965. Social Structure and Organizations. In J. March (Ed.), *Handbook of Organization*: 142-193. Chicago: Rand McNally.
- Stuart, T., Hoang, H., & Hybels, R. 1999. Interorganizational Endorsements and the Performance of Entrepreneurial Ventures. *Administrative Science Quarterly*, 44(2): 315-349.
- Uzzi, B. 1997. Social Structure and Competition in Interfirm Networks: The Paradox of Embeddedness. *Administrative Science Quarterly*, 42(1): 35-67.
- Uzzi, B. 1999. Embeddedness in the Making of Financial Capital: how Social Relations and Networks benefit Firms Seeking Financing. *American Sociological Review*, 64(4): 481-505.
- Tyebjee, T., & Bruno, A. 1984. Venture Capital: Investor and Investee Perspectives. *Technovation*, 2(3): 185-208.
- Vater, W. 2002. *Die Qualität Deutscher Private Equity Unternehmen - Optimierungsmöglichkeiten bei der Vergabe von Beteiligungskapital*. Wiesbaden.
- Van de Ven, A. H. 2007. *Engaged Scholarship: A Guide for Organizational and Social Research*. London: Oxford University Press.
- Wilson, H., & Appiah-Kubi, K. 2002. Resource Leveraging via Networks by High-Technology Entrepreneurial Firms. *The Journal of High Technology Management Research*, 13(1): 45-62.
- Zacharakis, A., & Meyer, G. 1998. A Lack of Insight: Do Venture Capitalists Really understand Their Own Decision Process? *Journal of Business Venturing*, 13(1):

57-76.

Zhang, J., Wong, P., & Soh, P. 2003. *Network Ties, Prior Knowledge and Resource Acquisition by High Tech Entrepreneurs*. Academy of Management Proceedings, 1-6.

Zhao, L., & Aram, J. D. 1995. Networking and Growth of Young Technology-Intensive Ventures in China. *Journal of Business Venturing*, 10(5): 349-370.

CHAPTER 2

REFERRALS IN THE VENTURE CAPITAL FINANCING PROCESS: DO NETWORK TIES MATTER?

JORIS HEUVEN
University of Twente
NIKOS
Capitool 15
Enschede, The Netherlands, 7500 AE
Tel: (+31) 53 - 4895355
Fax : (+31) 53 – 4892159
E-mail: j.m.j.heuven@utwente.nl

AARD GROEN
University of Twente
NIKOS

ABSTRACT

In this qualitative paper, the focus is on the role of explicit third party referrals in the venture capital (VC) funding process. Taking network theory as our theoretical perspective, we explore if and how third parties play a role in the funding process. In doing so, the focus is on both the network ties between new-venture teams and third parties and the network ties between venture capitalists and third parties. In order to study these referrals, in depth information on twenty-five venture capital investment decisions was collected and we studied how third parties played a role in three investment stages: (1) deal flow, (2) the initial meeting with an entrepreneurial team and (3) the due diligence procedure. The data show some interesting findings: (1) when a third party is involved in connecting the new venture to the VC fund, strong ties between both the venture team and the third party and between third party and venture capitalist seem to be favourable; (2) at the initial meeting between the new venture and the venture capitalist, third parties do not seem to play a role at all; and (3), during the due diligence procedure, the role of third parties again becomes important as an information source for venture capitalists. However, the effectiveness of particular network ties seems to be contingent on the type of information provided by the third party.

INTRODUCTION

Consider a high-tech venture working in the relatively new field of medical technology based on lab-on-chip (nano) technology. Developing such a venture can be seen as a process of building a resource set with which the firm can create value. However, entrepreneurs in these types of firms often encounter the 'liabilities of newness' (Stinchcombe, 1965). One of these liabilities is the difficulty in acquiring funding because, by definition, they do not have a track record of good business performance. Since many high-tech ventures are capital-intensive by nature, it is therefore not surprising that failing to acquire funding is often mentioned as one of the main barriers to growth. In addition to the lack of a track record, the uncertainty regarding the market, the organization and the technology often cause a reluctance on the part of venture capitalists and other investors to provide financial resources to these early-stage ventures. This situation generates a problem for the venture: getting the attention and the funding of venture capitalists. At the same time, it also constitutes a problem for VC funds to select the best propositions to invest in under conditions of great uncertainty.

There are many strategies that new ventures can pursue to overcome the problems related to 'the liability of newness'. There are also many strategies that venture capitalists can pursue to decrease the uncertainty as perceived by them. In this paper, the focus is on one of these strategies: the use of third party referrals. On the one hand, third parties are used by the new-venture team as a signalling mechanism to venture capitalists and on the other hand, third parties are used by venture capitalists as informants in several stages of their investment process. Building on earlier research on the networks of entrepreneurs and on network research in the context of VC, we focus on the role of third party referrals in funding technology-based ventures.

In this paper, we answer three research questions: (1) is the role of third party referrals important in the multiple venture capital investment stages? (2) if so, do these third parties

have existing ties to the venture capitalist and/or the new venture? and (3) if there are existing ties, to what extent does the strength of the tie between the third party and the venture capitalist and/or the new venture matter? By answering these questions, we can explore whether and how the network ties of the new-venture team or the network of the venture capitalist play a role over the various stages of investment.

By taking this approach, a contribution is made to several sectors of the literature. First, we contribute to network literature by focusing on the role of the third parties that could be helpful in acquiring resources. In previous research, the role of third party referrals in entrepreneurship and VC is widely acknowledged (e.g., Burton, Sorensen, & Beckman, 2002; Deutsch & Ross, 2003; Reuber & Fischer 2005; Vater, 2002); however there is still little understanding of the role of these referrals on a micro level. Added to this, the precise network configurations that are most effective for these referrals have received little attention to date (Batjargal, 2007; Batjargal & Liu, 2004). By focusing, in depth, on the relational network configurations that make particular referrals more influential, we contribute to a better understanding of the role of networks in the VC funding process. Finally, we contribute to network literature, since we study the contingencies that influence the effectiveness of referrals over the funding process. We do this by focusing on the effectiveness of referrals at the different stages of the funding process and for the acquisition of different types of information in the due diligence process.

An additional contribution is made to VC literature, since current studies on the decision criteria of venture capitalists do not adequately consider the social context of investment decisions. Additionally, we contribute to VC literature since we focus on the various stages of the investment decision. Still, little is known about, for example, the importance of the decision criteria of venture capitalists over the various stages of the decision-making process. The stages of VC investment studied in this paper are: (1) deal flow (2) the first meeting with an entrepreneurial team and (3) the due diligence procedure. Added to this, the role of third parties is studied regarding the sourcing of three types of information during the VC due diligence process. This has not been done in VC literature before. The types of due diligence information we identify in this paper are: (1) information about the technology and Intellectual Property (IP), (2) information on business issues, and (3), information on the new-venture team. To conclude, a contribution is made to the literature by combining network literature from a new-venture perspective with literature from a venture capitalist perspective. By doing so, we are able to show whether or not there are substitution or complementary effects between the importance of the network ties of entrepreneurs on the one side and the network ties of the venture capitalist on the other.

The results of this paper can have important practical implications. For example, they provide insight into the controllability of the VC investment process. When a the tie between the new-venture team and third party informant is important in a particular investment stage; it means that this stage can and should be actively controlled by the venture team to increase the chance of getting VC funding. This paper will continue with a review of the literature. After we have identified the shortcomings in the literature, we will present our analytical framework. Subsequently, the findings will be provided and discussed. This paper provides a lot of new insights into the role of networks in the funding

process of venture capitalists; however, the paper also gives rise to interesting new questions. Therefore this paper will conclude by proposing some areas for future research.

REVIEW OF THE LITERATURE

Networks and Entrepreneurship

In this paper, a contribution is made to the literature from two perspectives. On the one hand, a contribution is made to the literature on new-venture networks by researching how networks are beneficial to the entrepreneurial process. On the other hand, we add to the literature that focuses on the role of networks in VC deal flow and VC decision-making. In this chapter, existing literature from these two perspectives is reviewed.

In the past decades, the research on social networks and their effects on organizations has grown rapidly (e.g., Aldrich & Zimmer, 1986; Birley, 1985; Hite & Hesterly, 2001). Two main discussions dominate the literature to date. The first discussion focuses on the structural characteristics of networks and discusses the effectiveness of closed networks vs. networks rich in structural holes (e.g., Burt, 1982, 1992, 1997, 1999, 2000, 2005; Coleman, 1972, 1988, 1990). The researchers that stress the importance of structural holes highlight the positive effects of the diversity of information and the brokerage opportunities in such networks. Researchers that advocate the advantages of closed networks stress the trust-facilitating mechanism as the main advantage of closed networks. Secondly, there is a relational network discussion between researchers focusing on the benefits of weak vs. strong ties to organizations (e.g., Granovetter, 1973; Uzzi, 1997, 1999).

Specific to entrepreneurship, there are many studies that show the effects of networks in the development of new ventures. For example, Zhao and Aram (1995) show in their study, that entrepreneurs who are more involved in networking activities are more successful. As a result of this, researchers are looking at the structural and relational network characteristics responsible for this positive relationship and find that many contingencies are influencing the relationship between networks and entrepreneurial outcome. For example, Elfring and Hulsink (2003) find that the effectiveness of networks is dependent on the organizational process. Hite and Hesterly (2001) find that the effectiveness of networks is contingent on the organizational life-cycle stage and Groen (2000, 2005) claims that the role of networks in the entrepreneurial process is dependent on the type of technology that is being commercialized by the new venture.

Referrals and Networks in Financing Ventures

When we look at current research, we see that a lot of research focuses on the direct provision of opportunities and resources to the new venture by their network contacts. In this paper, the focus is not on the direct provision of resources by network contacts, but on the mechanism in which third parties and network ties can be helpful in getting resources from other parties (Lockett, Ucbasaran, & Butler, 2006). In the literature on entrepreneurship, a lot of evidence can be found about third parties and their influence on new ventures. For example, Burton et al. (2002) show that the prominence of previous employees is closely associated with the firm's initial strategy and the probability of getting external financing. Deutsch and Ross (2003) show how the presence of reputable directors

can be used by new ventures as a signalling mechanism. Khaire (2005) proposes that new firms with few financial resources and few avenues to obtain them grow by acquiring intangible social resources through networking. She specifically focuses on the positive signalling effect of affiliations to high-status customers. This positive signalling effect of customers is also mentioned by Reuber and Fischer (2005).

The positive effects of networks and affiliated parties have also been shown in the context of venture financing. For example, Chang (2004) examines how the reputations of VC firms and strategic alliance partners have a positive impact on Initial Public Offering (IPO) success. Higgins and Gulati (2003) show how the affiliations of new ventures impact the ability to attract prestigious underwriters. Stuart, Hoang and Hybels (1999) show how firms with prominent, strategic, alliance partners and organizational-equity investors go to IPO faster and have higher valuations than firms that lack these connections. Shane and Stuart (2002) and Shane and Cable (2002) have shown that new ventures that have direct and indirect relationships with venture investors are more likely to attract venture funding and are less likely to fail. To conclude, many researchers have shown how third party affiliations and referrals are beneficial to the entrepreneurial process and the acquisition of financial resources.

In this paper, the role of referrals is studied in the context of VC funding. VC and its decision-criteria have been studied extensively (e.g., Gupta & Sapienza, 1992; Hall & Hofer, 1993; MacMillan & Zemann, 1987; Maula, Autio, & Murray, 2005; Zacharakis & Meyer, 1998). In VC literature that focuses on networks, many researchers have shown the importance of third parties to the VC decision-making process. For example, third parties play an important role in generating deal flow. The literature reveals the differences in the number of deals that come to venture capitalists through third parties. Jugel (2001) found that 46% of the new deals come by third party referral. Vater (2002) found a percentage of 54 %, Wells (1974) a percentage of 61% and Tyebjee and Bruno (1984) as much as 65%. These percentages show how dominant the role of third party referrals is in deal flow, compared with active search and cold calls. More interestingly, Fried and Hisrich (1994) find that deals that come by third party referral are more often funded than deals coming without any third party referral involved. Some researchers have also looked into the particular characteristics of third parties that venture capitalists rely on for deal flow (Aram, 1989; Maula, 2001; Stuart et al., 1999). For example, Aram (1989) finds that business referrals are valued above third party referrals from friends and Stuart et al. (1999) claim that third party referrals are particularly valued in areas where these third parties are perceived to have expertise.

Third parties not only play a dominant role in deal flow; they also influence venture capitalists in later stages of the investment decision-making process. For example, Fiet (1995) compares the use of third party informants by business angels and venture capitalists in their due diligence process. He finds that venture capitalists use formal network sources more often than business angels do. Related to these findings, Batjargal (2007) and Batjargal and Liu (2004) show how the tie between the referral source and the venture capitalist, the tie between the referral source and the entrepreneur and the interpersonal trust between referral source and venture capitalist have positive effects on third party referrals and the

investment decisions of venture capitalists. He claims that referrals are more influential when the aforementioned ties are strong.

Shortcomings in Literature

Although many researchers have focused on the role of networks in financing new ventures, some areas can be identified in which there is still a lack of understanding. For example, in the work on networks from a new-venture perspective, the vast majority of studies focus on the role of networks in spotting entrepreneurial opportunities (Shane, 2000; Singh, 2000) and the direct acquisition of resources by new ventures using existing network contacts (Jenssen, 2001). The question of how existing network ties can be used to access (unconnected) parties and their resources is less-well researched (e.g., Batjargal, 2007; Lockett et al., 2006; Shane and Stuart, 2002; Stuart et al., 1999). Related to this, current approaches have paid little attention to the effectiveness of relational network configurations between venture teams and the third parties that could help them in getting funded. Furthermore, most studies on the role of networks in entrepreneurship fail to take a process-oriented approach (Hoang & Antoncic, 2003); therefore there is still little understanding of the development of networks and how they can be effective at different points in time. Related to this, there is a lack of research focusing on micro processes in venture financing (Wright & Robbie 1998). Mostly, the characteristics of a new venture's network are used as an 'explanatory variable' for some kind of 'outcome variable', thus focusing less on the exact micro processes that cause this specific relationship. For example, the value of strong and weak ties in acquiring resources is often researched without specifying the type of resource that is acquired (Jenssen, 2001).

Not only has the work from the new-venture perspective faced shortcomings. The work to date from the perspective of the venture capitalist has many unexplored areas as well. For example, research on VC and VC decision-criteria often assumes that a rational actor collects information, balances it and takes a decision. In this research, the social context in which a venture capitalist takes his decision is often overlooked (Maula, 2001). Although some researchers in VC decision-making have taken into account third party referrals as a dummy in their studies, there is still a lack of understanding of the influence of the precise strength of network ties on these third parties. Added to this, research from the VC perspective also lacks studies that focus on micro processes. This means that these studies often relate the value of third party referrals and networks to IPO or funding decisions (e.g., Batjargal, 2007; Chang, 2004; Higgins & Gulati, 2003; Shane & Cable, 2002; Shane & Stuart, 2002; Stuart et al., 1999); however there are many stages before taking a funding decision that can all be affected differently by third parties (deal flow, first meeting, due diligence). Additionally, researchers have also failed to relate the third party referrals used by venture capitalists during the due diligence procedure to specific types of information, since it can be expected that the types of people used for the due diligence procedure depends on the information sought.

ANALYTICAL APPROACH

In this paper, network theory is applied to obtain a more complete understanding of the role that networks/third parties play in the VC funding process from both the perspective of

the new venture and the venture capitalist. In response to the shortcomings in the literature, there are three main questions that are explored in this paper: (1) is the role of third parties important in the multiple investment stages? (2) if so, do these third parties have existing ties to the venture capitalist and/or the new venture? and (3) if there are existing ties, to what extent does the strength of the ties between the third party and the venture capitalist and/or the new venture matter?

We will explore the importance and strength of existing network ties between the new-venture team and the third parties and between the venture capitalist and the third parties involved in the VC financing process. The ties of interest in this paper are highlighted in Figure 1. The study of these ties will answer questions two and three. In addition, we can also study the potential complementary effects between the two ties. As already mentioned, existing approaches mostly focus on only one of the two ties. When more is known about third party network ties in the VC funding process, a contribution can be made to the discussion in literature on the effectiveness of certain structural and relational networks (e.g., Burt, 1982, 1992, 1997, 1999, 2000, 2005; Coleman, 1972, 1988, 1990; Granovetter, 1973; Uzzi, 1997, 1999)². On one hand, Burt claims that an optimal network is a network rich in structural holes and weak ties. Burt stresses that such a network is favourable because an actor has access to a more diverse pool of information. Coleman, on the other hand, stresses that the optimal network is a closed network with many strong ties. Because of these strong ties, the penalty for bad behaviour increases, so the information transmitted in such networks will be more reliable. In essence, for the purpose of this paper, the discussion between Burt and Coleman is a discussion between the newness and diversity of third party referral information on the one hand, and the trustworthiness of third party referral information on the other hand. When we look at the ties between a new venture and the referral source and between referral sources and venture capitalists, several configurations become apparent. In Table 1, these ties are visualized by showing the potential network configurations that can appear when a referral is involved in the VC funding process. In the context of this paper, Burt would hypothesize that referrals that are in the upper left corner of the table are most effective in the VC funding process. Coleman, on the other hand, would hypothesize that referrals in the lower right section of the table are the most effective in the VC funding process.

While our focus is on relational network characteristics, we also recognize that the influence of referrals might be contingent on the stage of the VC funding process. Therefore, the role of third party referrals involved in the VC funding process is studied in three stages of venture capital investment. These stages are: (1) deal flow - we explore which third parties are involved in bringing new deals to the attention of the venture capitalist; by this we mean the third parties that are involved in arranging a first meeting between the new-venture team and venture capitalist; (2) the first meeting with an entrepreneurial team - we explore how third parties play a role when assisting the new-venture team during the first meeting with the venture capital investment managers; (3) the

² For the purpose of this paper, we consider the relational weak tie argument to be part of the Burt logic and the relational strong tie argument to be part of the Coleman logic (Granovetter, 1985, Uzzi, 1997, 1999).

due diligence procedure - we explore which third parties are involved in due diligence - in other words, what kind of people venture capitalists rely on to provide them with information about potential investments. Since the investment process is divided into several stages, we are well able to see when specific referrals are most influential over the different stages. We also expect that the types of third parties that venture capitalists rely on during due diligence might be contingent on the types of information to be sourced by the venture capitalists. Therefore one additional dimension that is included regarding the third parties involved during due diligence is the type of information. By making this distinction, we also contribute to the VC literature, since relating the third parties to the type of information they provide has not been done in past studies. In Figure 1, an overview is provided of the three stages of venture capital investment that are of interest in this paper.

Figure 1: Analytical Framework

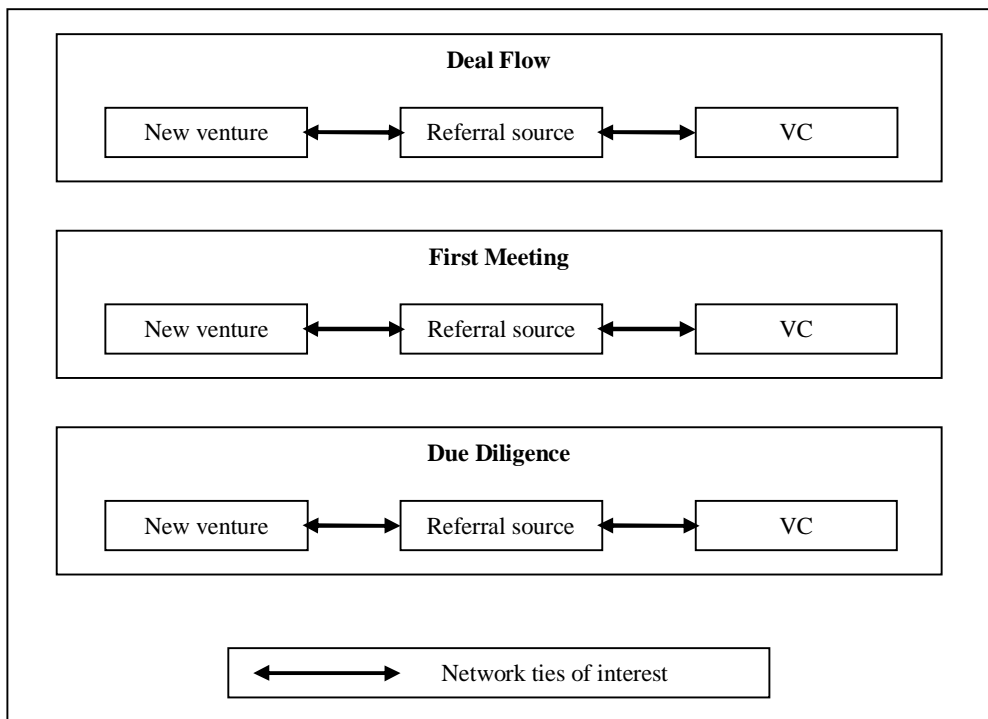


Table 1: Potential Network Tie Configurations Regarding Referrals

Referral Source- Venture Capitalist Tie (Strength)	None	Weak	Strong
Referral Source- Venture Tie (Strength)			
None	Referral source neither has a tie to the venture capitalist nor the venture	Referral source only has a weak tie to the venture capitalist	Referral source only has a strong tie to the venture capitalist
Weak	Referral source only has a weak tie to the venture	Referral source has a weak tie to both the venture and the venture capitalist	Referral source has a strong tie to the venture capitalist and a weak tie to the venture
Strong	Referral source only has a strong tie to the venture	Referral source has a strong tie to the venture and a weak tie to the venture capitalist	Referral source has strong ties to both the venture capitalist and the venture

METHOD AND DATA

Sample

To examine our research questions, structured interviews were conducted with ten early-stage venture capital firms in The Netherlands. These venture capitalists were identified by constructing a database of venture capitalists based on the information from the national venture capital association of The Netherlands. Subsequently, experts from the VC industry were consulted to check whether these venture capitalists were still in existence and whether these venture capitalists really invest in early-stage technology-based ventures. Following this method, 60 early stage VC funds in The Netherlands were identified. These funds were contacted in alphabetical order in order to ensure the randomness in our sample of venture capitalists. In total, eleven VC funds were contacted. Only one was not willing to cooperate. When discussing past investments, the venture capitalists were asked to mention the referrals explicitly involved during the three stages of the investment process. By this, we mean that we focused on those referrals to which the venture capitalist had spoken personally. In the context of this paper, a referral source is defined as any independent individual who explicitly provides information on a certain proposition. This means that this individual is not a member of the entrepreneurial team nor is he a member of the VC

company's investment team or committee. Data was collected by conducting structured interviews with the managers of the VC funds. Because confidentiality is an important issue in VC, the interviews were not taped. Information on referrals outside the scope of the structured interview was noted as well. Where possible, the data was checked with publicly available sources.

During the interviews, twenty funded propositions and five unfunded propositions were discussed with the venture capitalists. The whole investment process was discussed with the twenty funded propositions. For these funded propositions, we asked the venture capitalists to come up with the most recent investments. The five unfunded propositions were all recent examples of propositions that did not manage to arrange a meeting with the venture capitalist because of the third party referral source involved in the deal flow. This led to a sample of fifteen cases in which there was a third party referral involved in deal flow. This third party referral was successful ten times, since ten of the twenty funded propositions came through a referral, and in five cases, the venture capitalists gave examples of third party referrals that did not lead to a first meeting (as just stated, we asked for examples in which the third party characteristics were the main cause to not meet with the venture team in five cases). During the interviews, we also collected information on third parties involved in the first meeting with the entrepreneurial team and in the due diligence process (when this stage was entered for the specific proposition!). For those twenty funded propositions that entered a due diligence process, we asked the venture capitalists to supply one example of someone that played the most influential role in the process. This led to a sample of nineteen third parties that played an influential role in the due diligence process, because, in one of the cases, the venture capitalist did not consult any third party during the process. For the third parties involved in the due diligence process, the venture capitalists were also asked what type of information the third party provided.

Measurement

In our analysis, the data from our structured interview format are combined with the additional qualitative information on the third party referrals and information sources that was noted during the interview. In order to create overviews of the strength of ties between the entrepreneurial team, the referral source and the venture capitalist, we measured the ties between these actors. *Tie strength* between the venture capitalist and the third party was measured by three items derived from Granovetter (1973) (affinity, length of relationship and contact frequency). The affinity between the third party and the new venture was scored by the venture capitalist as well. In this way, we are able to create an overview of actors involved during the VC funding process and the ties between them. By doing so, patterns of network configuration that are the most effective over the funding process can be identified.

Of the nineteen third parties involved in the due diligence process, five provided information on technology, twelve provided information on business issues and eight provided information on the team. These three classes of information during the due diligence process were constructed as follows. Initially we had *seven types of information* in our list of questions (information on (1) the technology, (2) the IP situation, (3) the market, (4) the strategy, (5) financial issues (6) the team and (7) the new-venture partners).

These types of information were based on VC literature and discussions with industry experts. After a series of interviews, we noticed that referrals in the due diligence process often provide more than a single type of information. This led to a lot of overlap when asking the venture capitalists to relate the referrals to the types of information provided. For example, referrals that provide market information also often provide information on the strategy of the new venture. This overlap was especially true for information regarding “business issues” like information on strategy, market and financial issues. Because of this overlap, and in order to simplify our questions regarding information types, we decided to rethink and regroup the types of information that can be provided by third party referrals into broader categories that have less overlap. First of all, we created dummies in our list of questions indicating to what extent the referrals provided information on the seven information types. Subsequently, a cluster analysis was conducted on our total data set on referrals contacted during due diligence to see whether there are certain types of referrals classes that could be identified based on these information dummies. By doing so, a two-cluster solution was found. When analyzing this two-cluster solution, there was only one of our seven information types that could not clearly be assigned to one of these clusters: information on the new-venture team. Therefore we decided to create one extra cluster for this type of information. Following this process, we eventually made a specification of the three main types of information that are provided during the due diligence process. The different types of information are identified as: (1) information on the technology and IP - this concerns, for example, checking the quality of the technology and ability to protect the technology; (2) information on new-venture business issues - for example, market characteristics, strategy, positioning, pricing and marketing; and (3), information on the new-venture team - for example, the background of the team, the knowledge level of the team members, the team’s openness to advice, how the team deals with conflict and the level of skills of the team members.

RESULTS

Deal Flow

The first stage of the VC investment decision in which we explore the role of third parties is deal flow. Before the actual third parties involved in deal flow are discussed, some statistics that were collected during the interviews are provided in order to give some more background on this stage of funding. To start with, we found that the number of deals the VC funds in our sample screen every year ranges between 50 and 600; on average venture capitalists receive 196 requests for financing every year. Related to the topic of this paper, it was found that the percentage of deals that comes to venture capitalists through third parties ranges between 20% and 90%. On average, in about 51% of the deals that reach venture capitalists, there is a third party involved. This means that in more than half of the cases, it is a third party and not an entrepreneur that is responsible for the initial connection to a VC fund. In addition to these statistics, the most important sources of the deal flow of venture capitalists were discussed. Of the ten venture capital funds that were interviewed, six indicated that their network is the most important source of deal flow. Two venture capitalists see new-venture teams coming directly to them as the dominant source of deals and two venture capitalists see active scouting as most important source of deal flow. There

are many reasons why venture capitalists prefer deals that come through their networks or third parties as opposed to deals coming through other channels. Table 2 shows some quotes we collected during the interviews that show the advantages and importance of deals coming through third parties. The summary shows a variety of reasons why third parties can play a positive role in getting access to new deals.³

Table 2: Quotes on Referrals and Deal Flow

Quote 1	“When deals come by mail I am a bit sceptical, because then I know that at least ten other venture capitalists have seen the deal as well. This takes away the exclusivity of the deal, which is something that we value a lot. ”
Quote 2	“When a deal comes by a third party, say a corporate finance house, it shows that the entrepreneur is willing to let other people help him. We often meet entrepreneurs that don’t have much knowledge on financing, but who did not consult any professional in financing before coming to us. This looks to us as being very unprofessional.”
Quote 3	“I can surely say that third party referrals are very important to our deal flow. Looking the propositions that reach us, I can say that we have talked to many entrepreneurs that we wouldn’t have talked to when there was no third party involved.”
Quote 4	“When looking at our portfolio, we see that most of the firms we invested in came to us through our networks. We have hardly funded ventures that came to us outside our network.
Quote 5	“Since our focus is on the region, we take the tips we get from third parties very serious. When we don’t do this they will probably don’t come to us in the future.”
Quote 6	“The investment community is rather small; everyone knows pretty well where a particular venture capitalist is looking for. So when we get tips of other venture capitalists, we know that it will be within our scope of investment.”

Although the quotes show that third parties can be beneficial to new ventures in connecting to venture capitalists, the success of a third party referral is obviously very much influenced by the characteristics of the third party involved. In this paper, the focus is on two of these

³ The quote tables in this paper are solely meant to provide a better understanding of the role of referrals in the VC funding process and the rationales that VC’s have to use third party referrals in their investment process. Our main interest in this paper is, however, on the effectiveness and role of tie strengths between the new venture and the third party referral and between the third party referrals and the VC in the VC investment process.

characteristics: their network ties to the venture capitalist and to the new venture. During the interviews, fifteen third parties that were involved in deal flow were identified. In ten cases, this led to a first meeting with a new-venture team and in five cases it did not. In Table 3, an overview is provided of the people involved in connecting venture capitalists to new deals and strength of their ties to both the venture capitalist and to the new venture. We also indicate whether the third party referral led to a first meeting.

Table 3: Third Party Referrals Involved in Deal Flow

	Third Party - VC Tie			Third Party – Venture Team Tie	Referral Success
	Contact Length in Years	Contact Frequency	Contact Intimacy	Contact Intimacy	Y/N
Other VC	10	Monthly	Very well	Very well	Y
Accountant	5	Monthly	Somehow	Very well	Y
Bank	15	Monthly	Very well	Very well	Y
Other VC	2	Monthly	Very well	Very well	Y
Personal network	3	Weekly	Very well	Very well	Y
Accountant	-	-	-	Somehow	N
Other VC	5	Monthly	Somehow	Somehow	Y
Chamber of commerce	1	Yearly	Very little	Very little	N
Board member of VC	7	Monthly	Very well	Very well	Y
CF advisor	-	-	-	Somehow	N
Bank	5	Weekly	Very well	Very well	Y
CF advisor	7	Yearly	Very little	Somehow	Y
Personal network	2	Yearly	Very little	Somehow	N
Personal network	5	Yearly	Very well	Very well	Y
Consultant	-	-	-	Somehow	N

Table 3 gives some interesting insights into the importance of network ties for deal flow. First of all, it shows that in all the successful referrals, there was an existing tie between the venture capitalist and the third party. Also, when looking at the unsuccessful third party referrals, the table shows that in three of the five cases, the venture capitalist did not have an existing tie to the third party. This result clearly indicates that an existing tie between a venture capitalist and a third party has a positive effect on the chance that a third party referral will lead to a first meeting. When looking at the strength of ties between venture

capitalists and third parties during deal flow, the table clearly shows evidence that stronger ties are favoured over weak ties between venture capitalist and third party. When looking at the tie between a third party and a new venture, the table also shows evidence that a strong tie between third parties and new ventures is also favourable for those accessing venture capital funds. For the successful third party referrals, the venture capitalists indicated that the ties between third parties and new ventures were stronger than for the unsuccessful third party referrals.

First Meeting

The second stage in which the role of third parties is explored is during the first meeting. On average, the venture capitalists in our sample meet 69 new propositions a year, varying between 25 and 125. During the interviews, evidence was found that the role of third parties plays a minor role in this stage. Although third parties can play important roles when connecting entrepreneurs to the venture capitalist, this effect does not hold during the first meeting. Before meeting the new-venture team, the venture capitalist already makes sure that the basic criteria of the deal are matching their criteria (e.g., market size, scalability, focus, proprietary technology). During the meeting with the new-venture team, it is really about the team itself and the venture capitalists indicate that third parties do not play a role. During the first meeting, the venture capitalist’s main focus is on the characteristics of the new-venture team, e.g., the first impression they make, the possibility to coach them, openness, integrity and the fact that the team has a consistent story. Table 4 summarizes some quotes that support the conclusion that referrals and third parties play a minor role when a new venture first meets a venture capitalist.

Table 4: Quotes on Referrals and the First Meeting

Quote 1	“To come back to the role of networks in our financing process, I can say that in this stage networks hardly play a role. A third party might have helped in arranging a connection to us, however during the first meeting it is up to the entrepreneur himself.”
Quote 2	“In this stage we want for example find out if the entrepreneur is a salesman. He can have a brilliant technology, but when he cannot sell it’s useless to us.”
Quote 3	“When we first meet the entrepreneur, we want to find out what kind of guy he is. Very important in this is that their must be a click between us and the entrepreneur, simply said we must like the entrepreneur.”
Quote 4	“When an entrepreneur is in mostly the basic characteristics of the deal are OK. During the meeting I mainly want to find out if the guy is the one that can build the company, since execution is the most important to any idea.”

Due Diligence

The last stage in the decision-making process before deciding to invest is the due diligence process. During this process, the venture capitalist wants to decrease uncertainty as much as possible by collecting and checking information on the proposition. Whereas, in later-stage investments, the due diligence work is often done by external firms, due diligence in early-stage investing is often done by the venture capitalist himself. There are two main reasons for this. First, the venture capitalist does not want to rely on external judgment to base an investment on. In addition, there is also a more practical reason for this: the costs of due diligence procedures. Because the investments in early-stage ventures are usually lower than in later-stage ventures, the size of the investment in early-stage, technology-based ventures often does not justify the relatively high costs of external due diligence work.

During the due diligence procedure, the venture capitalist makes use of a variety of information sources like publicly available information, network contacts and other third parties. In this paper, the focus is on third parties as an information source during the due diligence procedure. In Table 5, we provide some quotes that were collected during our interviews that show the importance of third parties as an information source. On average, the venture capitalists that were interviewed indicated that they contact 6,3 third party informants during the due diligence stage. The number of third parties contacted ranges between 0 and 20.

Table 5: Quotes on Referrals and Due Diligence

Quote 1	“I once invested in a company that I had hardly spoken to. I met the entrepreneur myself only once. For the rest of the due diligence I completely relied on another venture capital firm, since it was a syndicated deal.”
Quote 2	“We once invested in a venture without doing due diligence myself, since a friend of mine assured me that everything was OK. The venture went bankrupt in four months, so I will never invest without conducting my own due diligence again!”
Quote 3	“During due diligence we always call five (potential) customers, because to us this are the most important stakeholders to us that determine the success of a firm.”
Quote 4	“We prefer to conduct our own due diligence. Most of the knowledge we need to judge a proposition we have in house, however especially for technology we rely on our network of contacts.”
Quote 5	“For this proposition it was very important that the professor was enthusiastic about the technology, otherwise I think we would not have had invested.”

Third parties are an important source of information during the due diligence stage. In this paper, we focus, in depth, on the importance of network ties to these third parties. First, we want to repeat that we categorize the information provided by third parties into three types of information. These three types are (1) information on technology and legal issues regarding the technology, (2) information on business issues and (3) information on the new-venture team. During the interviews, in depth information was collected on nineteen third parties that played an important role in a venture capitalist's decision to invest. We will subsequently discuss the importance and presence of network ties between the third party and the venture capitalist and between the third party and the new venture for the three categories of information.

Technology information. When the venture capitalists were asked to mention the most important third party involved in their due diligence process, they mentioned five third parties involved in technological due diligence work. In Table 6, the characteristics of these third parties are summarized. In three of these five cases, the venture capitalist had no an existing relationship to the third party. Therefore, Table 6 appears to indicate that an existing tie to the venture capitalist is not really needed for a technological source to be influential. The table also indicates that a tie between a third party and a new venture does not make a specific referral more influential. In three of the five cases, the venture capitalists relied on a third party referral that was not connected to the new-venture team in any way. To summarize, it appears that for technological information, existing ties between the third party and the venture capitalist and between the third party and the new venture do not matter.

Table 6: Influential Third Party Informants during Due Diligence for Information on Technology & Intellectual Property

	Third Party - VC Tie			Third Party – Venture Team Tie
	Contact Length in Years	Contact Frequency	Contact Intimacy	Contact Intimacy
Professor	6	Monthly	Somehow	-
Technology specialist	10	Monthly	Somehow	-
Law specialist	-	-	-	Somehow
Technology specialist	-	-	-	-
Technology specialist	-	-	-	Very well

Information on business issues. During the interviews, twelve third parties were identified that provided important information on business issues. In Table 7, an overview is provided of the findings. When we look at the tie between these information sources and the venture capitalist, it seems that venture capitalists tend to rely on people with whom they have existing relationships. Added to this, they tend to rely on people that they know very well, so have strong ties to. One exception to this is the role of customers as a source of information. In two cases, the venture capitalists contacted and relied heavily on someone they did not know beforehand and, in both of these cases, this was a customer. Therefore, it seems that customers have a special role in the due diligence process, since network ties seem less important for them in order to be influential. When looking at the ties between the third party referrals involved in providing information on business issues and the new ventures, we see that, in eight of the twelve cases, they have a tie. When looking at these eight cases, the strength of tie does not seem to play a big role. In four of the twelve cases, they had no tie at all, so the tie between new venture and a third party referral does not seem to be very important for the provision of information on business issues.

Table 7: Influential Third Party Informants during Due Diligence for Information on Business Issues (Market, Financial & Strategy Information)

	Third Party- VC Tie			Third Party – Venture Team Tie
	Contact Length in Years	Contact Frequency	Contact Intimacy	Contact Intimacy
Board member of VC	10	Monthly	Very well	Somehow
CEO other company	5	Monthly	Very well	Very little
CEO other company	20	Monthly	Very well	-
Shareholder of VC	15	Monthly	Very well	Very well
CEO other company	4	Monthly	Very well	-
Customer	5	Monthly	Very well	Very well
Customer	-	-	-	Very well
Other VC	10	Monthly	Very well	Somehow
Board member of VC	6	Monthly	Very well	Somehow
CEO other company	7	Monthly	Very well	-
Consultant	10	Yearly	Somehow	-
Customer	-	-	-	Somehow

New-venture team information. The third and last type of information to be collected in the due diligence process was information about the new-venture team. During the interviews, eight third parties were identified that provided information on the new-venture team. As can be derived from Table 8, the finding for the tie between third party and the venture capitalist is similar to the finding on information on business issues. In six of the eight cases, the third party had a strong tie to the venture capitalist, indicating support for a favourable effect of a strong and existing tie. In two cases, the venture capitalist relied on someone they did not know beforehand. Again, in both cases, this was a customer, indicating again the special role of customers in the due diligence process. When we look at the tie between the venture team and the third party, Table 8 shows that in all cases, the third party knew the venture team. This is evident since this is the reason why the venture capitalist contacted the third party in the first place. There was no case in which the venture capitalists indicated that the third party and the new venture knew each other “very little”, indicating support for the claim that venture capitalists want to rely only on third parties that are strongly tied to the new venture.

Table 8: Influential Third Party Informants during Due Diligence for New-venture Team Information

	Third Party- VC Tie			Third Party – Venture Team Tie
	Contact Length in Years	Contact Frequency	Contact Intimacy	Contact Intimacy
Major of town	12	Monthly	Very well	Somehow
Shareholder of VC	15	Monthly	Very well	Very well
Customer	5	Monthly	Very well	Very well
Customer	-	-	-	Very well
Other VC	10	Monthly	Very well	Somehow
Board member of VC	6	Monthly	Very well	Somehow
Customer	-	-	-	Somehow
Other VC	6	Monthly	Very well	Very well

CONCLUSIONS, CONTRIBUTIONS AND IMPLICATIONS

Before discussing the contributions to the literature and practice, we summarize the findings. In Table 9, an overview is provided of the results. First, we find that the role of third parties in the venture capital funding process is most prominent in deal flow and in the due diligence process. When delving into the findings from a new-venture perspective, we see that there are two events in which a tie between the new venture and the third party has a positive contribution to the financing process. It appears that a strong tie between the new

venture and the third party referral has a positive effect when using this third party to get access to VC funds. Secondly, the findings show that a strong tie between the new-venture team and a third party is favourable when this third party is consulted by the venture capitalist regarding information about the team during the due diligence process. For the other events in the VC investment decision, the results do not show evidence of positive effects of ties between the new venture and third parties.

When shifting to the findings from the perspective of a venture capitalist, we find that venture capitalists tend to rely on strongly-tied third party referrals for deal flow. During the due diligence process, a mixed pattern is found. For technological information, an existing network tie between the venture capitalist and the third party consulted by the venture capitalist does not seem to matter. For information on business issues and team information, evidence is found that venture capitalists rely on strongly-tied third party referral sources.

Table 9: Summary of Results

	Importance of Third Parties	Importance of Third Party - VC Tie	Third Party - VC Tie Strength	Importance of Third Party-Venture Team Tie	Third Party-Venture Team Tie Strength
Deal flow	+	+	Strong	+	Strong
First meeting	-	-	NA	-	NA
DD - Tech. info	+	-	NA	-	NA
DD - Bus. info	+	+	Strong	-	NA
DD - Team info	+	+	Strong	+	Strong

NA= Not applicable

Our approach to exploring the role of third parties on the VC investment process adds to network literature in several ways. First, a contribution is made by focusing on the referral role of third parties involved in the VC funding process (e.g., Batjargal, 2007; Lockett et al., 2006; Shane & Stuart, 2002; Stuart et al., 1999). By doing so, more insight is gained on the catalyzing role that networks and third parties can contribute in order to get access to resources of unconnected actors. Previous studies failed to focus on this mechanism and mainly focus on the direct provision of resources by network contacts. Next to this, this paper contributes to network theory by adding to the Burt and Coleman discussion in network literature as described earlier in this paper. In this paper, we show that the effectiveness of the theoretical insights of Burt and Coleman regarding weak and strong ties are hugely dependent on several contingencies. For example, the results show how the various stages of the VC funding process and the type of information to be sourced during the due diligence process strongly determine the effectiveness of Burt's and Coleman's opposing rationales.

The results clearly show how the importance of networks and network ties is contingent on the stage of the investment process (e.g., Hoang & Antoncic, 2003; Wright & Robbie 1998). For example, the results show (see Table 9) that the signalling effect of third parties that are strongly tied to the venture team and the venture capitalist are most important when accessing funds and for the due diligence study on the team. During the first meeting with the venture capitalist, referrals do not seem to play a role at all. In addition, a strong tie between the venture capitalist and the referral source also seems to be effective for the sourcing of information on business issues. For the sourcing of technological information, network ties between the referral and the venture team or venture capitalist do not appear to matter. So, at the deal flow stage, the rationale of Coleman seems to have the most explanatory value. At this stage, the successful referrals that are in the lower right section of Table 1 are most effective. Venture capitalists seem to prefer strong ties over weak ties when getting connected to new propositions, meaning that Coleman's trust argument is more important at this stage than Burt's 'newness and diversity of information' argument. In the due diligence stage, the findings are somewhat mixed. An important contingency that can explain these mixed findings is the type of information to be acquired. For information on technology and IP, the network ties between the third party referral source and the venture team and between the referral source and the venture capitalist do not seem to matter. For information on technology and IP, venture capitalists tend to rely on referrals in the upper left section of Table 1. Therefore, the 'newness of information' rationale of Burt better explains the effectiveness of network ties for this type of information than the 'network trust rationale through strong ties' of Coleman. For information on business issues, the role of a referral is influential when the referral source is strongly tied to the venture capitalist, providing support for the claims of Coleman over the claims of Burt. However, for this type of information, the tie between the referral and the new venture does not seem to matter. For team information, venture capitalists prefer to rely on people to whom they are strongly tied. Added to this, venture capitalists also prefer when these people are as strongly tied to the venture team. The referrals that provide this type of information are most influential when they are classified in the lower right section of Table 1. Therefore, it seems that, for this type of information, venture capitalists tend to rely on people they trust (Coleman) and not on people that can provide them with newer/non redundant information (Burt). In this paper, we started with network theory as our main theory; however when analyzing the results (especially regarding the due diligence stage), we found that other theories could also help to explain the findings. For example, knowledge (transfer) literature provides us with some interesting insights that can explain the network findings discussed in this section. These theories are discussed after we have summarized our contributions to venture capital literature.

This paper also extends the VC literature in several ways. First, we add to the literature by focusing, in depth, on the social context of VC decisions (e.g., Lockett et al., 2006). Although several researchers have made claims of the importance of the social context of VC decisions (especially in early-stage investments), this context is still very much overlooked in earlier research on VC. An additional contribution to the literature is the focus on multiple stages in VC decision-making. Current studies on VC deal flow and VC decision-criteria are mainly conducted by focusing on a particular stage of the VC decision-making process (e.g., Batjargal, 2007; Chang, 2004; Higgins & Gulati, 2003; Shane &

Cable, 2002; Shane & Stuart, 2002; Stuart et al., 1999). However, there is still much to learn about the dynamics of VC decisions and, for example, the importance of certain decision-criteria over the different stages of the investment process. In this paper, we do focus on these dynamics; for example we show that there are two points in time when referrals play an important role in the funding process. First, we show that referrals play an important role in connecting new-venture teams to VC funds. In addition, venture capitalists tend to rely on third party referral sources with whom they have strong ties for deal flow. Networks appear to play a minor role during the first meeting with the venture capitalist, since it is up to the new-venture team itself at this stage. Referrals again play an important role during the due diligence process. This last result is another contribution to the VC literature, because we study the role of networks as an information source during the due diligence process in greater detail. Although some studies take into account a third party referral as a dummy variable, there are hardly any in-depth studies that look into the nature of network ties to these third parties. A very interesting finding in this respect is that the role of network ties during the due diligence process varies for different types of information. As already explained in the previous section, these findings can be explained by network theory; however we also found that knowledge-transfer literature can be very helpful in explaining the results.

As already done in the previous sections, the findings regarding the role of referrals in the VC due diligence process can be explained using the theoretical rationales of Burt vs. Coleman. However, insights adapted from knowledge (transfer) literature can also contribute to a better understanding of the findings. For example, the findings regarding the importance of network ties in the due diligence process can be explained by the literature on tacit vs. codified/explicit knowledge (Nonaka & Takeuchi, 1995; Polanyi, 1966). This literature explains how different types of knowledge require different types of transfer mechanisms. For example, knowledge that is codified requires less interaction when transferred than more tacit types of knowledge, which typically requires more interaction. This insight may also have implications for the transfer of information in the VC due diligence process. For example, the information on technology/IP is more codified than information on the business issues. For information on technology/IP, journal articles and patent databases are codified information sources. In such cases, the venture capitalist will contact someone for a referral that simply has the skills to “objectively” assess these codified sources. However, for business information, the information sources are more tacit. In early-stage deals, information on market size or the correct strategy for the venture is tacit, in the sense that codified information is often lacking. In such cases, the experience of the referral source is of huge importance for providing information on business issues. When this is the case, venture capitalists prefer to rely on experienced and skilled individuals with whom they have strong ties. This is contrary to the sourcing of information on technology/IP, where there is less “tacit” judgment involved for the information to be sourced. In such cases, a strong tie between the venture capitalist and the referral source will be less important. In summary, our claim is that the more tacit the information to be sourced, the higher the importance of trust in the referral source. This makes a strong tie between the referral source and the venture capitalist more important, which provides support for the Coleman argument in these cases. For explicit knowledge, where there is less subjective judgment due to the codified information sources available, trust in the

referral source plays a less prominent role. In such cases, Burt's argument regarding 'newness of information' has more value than Coleman's trust argument.

This paper has important practical implications, especially for the practice of supporting entrepreneurship. For example, now more knowledge is available about the types of third party referrals that are most influential over the VC decision-making process, we are better able to select the people that can support new-venture teams in acquiring VC funding.

LIMITATIONS AND FUTURE RESEARCH

A first direction for future research is to extend the research in a quantitative sense. This will enable us to test whether the relationships we find in this paper are statistically valid. In addition to the acquisition of more data in a quantitative sense, it would also be fruitful to collect data from the referral and new-venture perspective to triangulate the scorings on the strength of ties. In addition, more information could then be asked on the tie between a new venture and a referral source as well. One of the limitations of this study is that we only measured this tie through one item.

A second area of future research is to approach the funding process of venture capitalists in a multidimensional way. By this, we mean that we should take into account other characteristics of the actors in the VC funding process instead of just the network ties. Although this paper provides useful insight into the role of networks in the funding process, it would be interesting to see how the level of importance of network ties is influenced by the characteristics of the actors involved. For example, it would be interesting to research how the level of importance of network ties is influenced, for example, by the strategic, economic and cultural characteristics of the third party referral source, the venture capitalist or the new venture. In this way, we would be better able to articulate the exact contingencies that influence the importance of network ties. Related to this, it would be interesting to determine if the network effects that are found in this paper are direct effects or whether networks play a more indirect role. For example, it could be that network ties do not have a direct effect on the funding decision, but that networks have a moderating effect on the perception of a new venture's strategic, economic or cultural capital.

To conclude, we propose one other direction for future research: the application of our approach to the acquisition of other resources. It would be very interesting to research whether the role of networks for acquiring knowledge or personnel is different compared to their role in the acquisition of financial resources. By doing so, we would be able to develop networking strategies for entrepreneurs for many types of resources.

REFERENCES

- Aldrich, H., & Zimmer, C. 1986. Entrepreneurship through Social Networks. In D. Sexton & R. Smiler (eds.), *Art and Science of Entrepreneurship*: 3-23. Cambridge: Ballinger Publishing Company.
- Aram, J. D. 1989. Attitudes and Behaviors of Informal Investors toward early-stage Investments, Technology-Based Ventures, and Co-investors. *Journal of Business Venturing*, 4(5): 333-347.
- Batjargal, B. 2007. Network Triads: Transitivity, Referral and Venture Capital Decisions in China and Russia. *Journal of International Business Studies*, 38(6): 998-1012.
- Batjargal, B., & Liu, M. 2004. Entrepreneurs' Access to Private Equity in China: The Role of Social Capital. *Organization Science*, 15(2): 159-172.
- Birley, S. 1985. The Role of Networks in the Entrepreneurial Process. *Journal of Business Venturing*, 1(1): 107-117.
- Burt, R. 1982. *Towards a Structural Theory of Action*. New York: The Free Press.
- Burt, R. 1992. *Structural Holes: The Social Structure of Competition*. Cambridge: Harvard University Press.
- Burt, R. 1997. The Contingent Value of Social Capital. *Administrative Science Quarterly*, 42(2): 339-365.
- Burt, R. 1999. Entrepreneurs, Distrust and Third Parties. In L. Thompson, J. Levine & D. Messick (Eds.), *Shared Cognition in Organizations: The Management of Knowledge*: 213-243. Hillsdale: Lawrence Erlbaum Associates.
- Burt, R. 2000. The Network Structure of Social Capital. In R. Sutton & B. Staw (Eds.), *Research in Organizational Behaviour*: 345-423. Greenwich: JAI Press.
- Burt, R. 2005. *Brokerage and Closure: An Introduction to Social Capital*. Oxford: Oxford University Press.
- Burton, M., Sorensen, J., & Beckman, C.M. 2002. Coming from Good Stock: Career Histories and New Venture Formation. *Social Structure and Organizations Revisited*, 19: 229-262.
- Chang, S. J. 2004. Venture Capital Financing, Strategic Alliances, and the Initial Public Offerings of Internet Startups. *Journal of Business Venturing*, 19(5): 721-741.
- Coleman, J. 1972. Systems of Social Exchange. *Journal of Mathematical Sociology*, 2: 145-163.
- Coleman, J. 1988. Social Capital in the Creation of Human Capital. *American Journal of Sociology*, 94(Supplement): 95-120.
- Coleman, J. 1990. *Foundations of Social Theory*. Cambridge: Harvard University Press.
- Deutsch, Y., & Ross, T. 2003. You Are Known by the Directors You Keep: Reputable Directors as a Signalling Mechanism for Young Firms. *Management Science*, 49(8): 1003-1017.
- Elfring, T., & Hulsink, W. 2003. Networks in Entrepreneurship: The Case of High-technology Firms. *Small Business Economics*, 21(4): 409-422.
- Fried, V., & Hisrich, R. 1994. Towards a Model of Venture Capital Investment Decision Making. *Financial management*, 23(3): 28-37.
- Granovetter, M. 1973. The Strength of Weak Ties. *American Journal of Sociology*, 78(6): 1360-1380.
- Groen, A. 2000. Marketing and Performance of Firms: Networking or Efficient Working?

Tijdschrift voor Bedrijfskunde.

- Groen, A. 2005. Knowledge Intensive Entrepreneurship in Networks: Towards a Multilevel Approach. *Journal of Enterprising Culture*, 13(1): 69-88.
- Gupta, A., & Sapienza, H. 1992. Determinants of Venture Capital Firms' Preferences Regarding the Industry Diversity and Geographic Scope of Their Investments. *Journal of Business Venturing*, 7(5): 347-363.
- Hall, J., & Hofer, C. 1993. Venture Capitalists' Decision Criteria in New Venture Evaluation. *Journal of Business Venturing*, 8(1): 25-42.
- Higgins, M., & Gulati, R. 2003. Getting Off to a Good Start: The Effects of Upper Echelon Affiliations on Underwriter Prestige. *Organization Science*, 14(3): 244-263.
- Hite, J., & Hesterly, W. 2001. The Evolution of Firm Networks: from Emerge to Early Growth of the Firm. *Strategic Management Journal*, 22(3): 275-286.
- Hoang, H., & Antoncic, B. 2003. Network-Based Research in Entrepreneurship: A Critical Review. *Journal of Business Venturing*, 18(2): 165-187.
- Jenssen, J. 2001. Social Networks, Resources and Entrepreneurship. *The International Journal of Entrepreneurship and Innovation*, 2(2): 103-109.
- Jugel, S. 2001. *Der Leistungsstand Deutscher Beteiligungsgesellschaften*. Fachhochschule Wiesbaden zusammen mit Baumgartner & Partner, Nachrichten, Wiesbaden.
- Khaire, M. 2005. *Great Oaks from Little Acorns Grow: Strategies for New Venture Growth*. Columbia University, 1-52.
- Fiet, J. O. 1995. Reliance Upon Informants in the Venture Capital Industry. *Journal of Business Venturing*, 10(3): 195-223.
- Lockett, A., Ucbasaran, D., & Butler, J. 2006. Opening Up the Investor-Investee Dyad: Syndicates, Teams, and Networks. *Entrepreneurship Theory and Practice*, 30(2): 117-130.
- MacMillan, I. C., Zemann, L., & Subbanarasimha, P. 1987. Criteria Distinguishing Successful from Unsuccessful Ventures in the Venture Screening Process. *Journal of Business Venturing*, 2(2): 123-137.
- Maula, M. 2001. *Corporate Venture Capital and the Value Added for Technology Based Ventures*. Espoo, Helsinki University of Technology.
- Maula, M., Autio, E., & 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): 3-21.
- Nonaka, I., & Takeuchi, H. 1995. *The Knowledge Creating Company: How Japanese Companies Create the Dynamics of Innovation*. Oxford University Press: Oxford.
- Polanyi, M. 1966. *The Tacit Dimension*. Doubleday & Co.
- Reuber, A., & Fischer, E. 2005. The Company You Keep: How Young Firms in Different Competitive Contexts Signal Reputation through Their Customers. *Entrepreneurship Theory and Practice*, 29(1): 57-78.
- Shane, S. 2000. Prior Knowledge and the Discovery of Entrepreneurial Opportunities. *Organization Science*, 11(4): 448-469.
- Shane, S., & Cable, D. 2002. Network Ties, Reputation, and the Financing of new Ventures. *Management Science*, 48(3): 364-381.
- Shane, S., & Stuart, T. 2002. Organizational Endowments and the Performance of University Start-ups. *Management Science*, 48(1): 154-170.

- Singh, R. 2000. *Entrepreneurial Opportunity Recognition Through Social Networks*. New York: Garland.
- Stinchcombe, A. 1965. Social Structure and Organizations. In J. March (Ed.), *Handbook of Organization*: 142-193. Chicago: Rand McNally.
- Stuart, T., Hoang, H., & Hybels, R. 1999. Interorganizational Endorsements and the Performance of Entrepreneurial Ventures. *Administrative Science Quarterly*, 44(2): 315-349.
- Tyebjee, T. T., & Bruno, A. V. 1984. Venture Capital: Investor and Investee Perspectives. *Technovation*, 2(3): 185-208.
- Uzzi, B. 1997. Social Structure and Competition in Interfirm Networks: The Paradox of Embeddedness. *Administrative Science Quarterly*, 42(1): 35-67.
- Uzzi, B. 1999. Embeddedness in the Making of Financial Capital: How Social Relations and Networks benefit Firms Seeking Financing. *American Sociological Review*, 64(4): 481-505.
- Vater, D. 2002. *Die Qualität Deutscher Private Equity Unternehmen – Optimierungsmöglichkeiten bei der Vergabe von Beteiligungskapital*. Wiesbaden.
- Wells, W. 1974. *Venture Capital Decision Making*. Dissertation, Carnegie Mellon University, Pittsburgh.
- Wright, M., & Robbie, K. 1998. Venture Capital and Private Equity: A Review and Synthesis. *Journal of Business Finance & Accounting*, 25(5&6): 521-570.
- Zacharakis, A., & Meyer, G. 1998. A Lack of Insight: Do Venture Capitalists Really understand Their Own Decision Process? *Journal of Business Venturing*, 13(1): 57-76.
- Zhao, L., & Aram, J. D. 1995. Networking and Growth of Young Technology-Intensive Ventures in China. *Journal of Business Venturing*, 10(5): 349-370.

CHAPTER 3

THE ROLE OF SOCIAL NETWORKS IN FINANCING TECHNOLOGY-BASED VENTURES: AN EMPIRICAL EXPLORATION

JORIS HEUVEN
University of Twente
NIKOS
Capitool 15
Enschede, The Netherlands, 7500 AE
Tel: (+31) 53 - 4895355
Fax: (+31) 53 – 4892159
E-mail: j.m.j.heuven@utwente.nl

AARD GROEN
University of Twente
NIKOS

ABSTRACT

In this paper, the focus is on the role of networks in both identifying and accessing financial resource providers by technology-based ventures. The aim of this paper is to test if one-dimensional network approaches can fully explain the effectiveness of certain network configurations in identifying and accessing financial resource providers. In doing so, hypotheses are shaped based on one-dimensional network approaches and a hypothesis based on a multidimensional alternative: the 'Entrepreneurship in Networks' (EiN) model. Subsequently, we explore these hypotheses by conducting case studies in four technology-based ventures. The findings show that for the identification of financial opportunities/resource providers a positional network rich in structural holes seems to be favourable for new ventures. In a relational sense, when new ventures directly access financial resource providers, weak ties are most effective. When new ventures use a referral to access a financial resource provider, referrals from referral sources who are strongly tied to the venture appear to be most effective. Furthermore, the results show that the effectiveness of direct access to the financial source compared with the use of referrals is largely contingent on the strategic, economic and cultural characteristics of the new venture, the financial resource provider and the referral source. Ventures started by people with more industry and business experience are better able to access financial resource providers directly. In addition, the findings show that in accessing financial resource providers, new ventures that have entrepreneurs with little business experience benefit from referrals. Also, the characteristics of the referral source play an important role since one of the findings is that referrals from business-oriented people seem to be more effective than referrals from technology-oriented people. Subsequently, it appears that referrals are more effective for higher investments facing more risks, typically private equity investments. Since the effectiveness of particular network characteristics is, to an important extent, contingent on the strategic, economic and cultural characteristics of the actors involved, we claim that in order to come to a more complete understanding of networks, a multidimensional approach as proposed in the EiN model is a promising direction for future research.

INTRODUCTION

When funding their technology-based ventures, entrepreneurs often face many problems. When starting up, these ventures often lack a track record and an extensive network. Therefore, they have problems identifying and connecting to financial resource providers. The specific characteristics of this type of venture further complicate the funding process. Because of the uncertainty surrounding technology-based ventures regarding, for example, the market, the technology and the organization, financial resource providers are often reluctant to provide resources to these types of ventures (Stinchcombe, 1965).

Several mechanisms can be helpful to new ventures in getting funded under these conditions. In this paper, the focus is on one of these specific mechanisms: the role of social networks. On the one hand, networks can be helpful to new ventures when identifying and accessing financial resource providers. Added to this, networks are also helpful in decreasing the uncertainty and asymmetry of information as perceived by external financial resource providers. In the past few past decades, research on these social networks

mechanisms has taken flight in the field of entrepreneurship studies. Many researchers have, for example, focused on the effectiveness of networks in both identifying opportunities and acquiring resources. Closer to the topic of this paper, the role of social networks is also proven to play an important role in the new-venture funding process.

Many questions regarding the role of networks in new-venture funding still remain unanswered. Our claim in this paper is that this is a result of the fact that most researchers apply a one-dimensional approach to networks. Researchers show relations between certain network characteristics and their effect on the acquisition of knowledge or on the acquisition of financial resources. Our argument is that stating these relationships without explicitly theorizing on the actor contingencies that influence the effectiveness of certain network configurations will not result in a complete understanding of the role that networks play in entrepreneurship (Higgins & Gulati, 2006; Leenders & Gabbay, 1999; Oh, Chung, & Labianca, 2004; Shane & Stuart, 2002). In this paper, we answer a fundamental question in network literature: if one-dimensional approaches alone can fully understand and explain the role played by networks in entrepreneurship or if a multidimensional approach is more promising.

In addition to the contribution to the one-dimensional vs. multidimensional discussion in social network literature, a contribution is also made to network literature by taking into account some additional specifications. First, we acknowledge that when a new venture accesses financial resource providers, it has two options. On the one hand, it can directly access financial resource providers. On the other hand, it can also use network partners as a referral source in getting connected to providers of financial resources. In particular, the role of referrals to get access to resource providers is something that has received little attention in the literature (Batjargal, 2007). We also focus on the role that actual network configurations play for new ventures in both identifying and accessing financial resource providers. In many studies, especially those studies that focus on the referral role of the network, the (positive) effect of networks is often implicitly assumed without studying the actual network ties between the referral source and the new venture (e.g., Burton, Sorensen, & Beckman, 2002; Deutsch & Ross, 2003). Finally, a more complete understanding of the role of networks is provided because we also focus on multiple events in the early-stage funding process (Hoang & Antoncic, 2003). By doing so, we provide a better understanding of the effectiveness of certain network configurations and contingencies in the various stages of the funding process. In this paper, the specific focus is on the very early stages of new-venture funding, something that has received little attention in previous studies. Those mostly focus on the later stages of the funding decision.

In addition to contributions to the literature, the paper will have practical implications as well. When a more systematic understanding of networks is provided under multiple contingencies and at multiple stages of the funding process, we will be better able to give tailor-made advice to new-venture entrepreneurs. Related to this, the paper will also have implications for financial resource providers and people that play a referral role in starting new ventures (e.g., incubators and business consultants).

This paper starts with a short review of the literature on the role of networks in entrepreneurship and in the acquisition of financial resources. Second, hypotheses are shaped on the identification and access to financial resource providers by new ventures

based on one-dimensional network theory. Subsequently, an alternative for one-dimensional approaches is provided: the multidimensional EiN model. Based on this model, an additional hypothesis is shaped on the identification and access to financial resource providers by new ventures. We then test the one-dimensional and multidimensional network hypotheses by conducting case studies in four technology-based ventures. By testing these hypotheses, we hope to contribute to a better understanding of the value of one-dimensional compared with multidimensional network approaches in the study of the acquisition of financial resources and the study of entrepreneurship in a more general sense.

REVIEW OF THE LITERATURE

In previous studies on entrepreneurship, researchers put a great deal of effort into researching the effects of network ties on the behaviour of both individuals and organizations (e.g., Aldrich & Zimmer, 1986; Birley, 1985; Burt, 1982, 1992, 1997, 1999, 2000, 2005; Coleman, 1972, 1988, 1990; Davidsson & Honig, 2003; Granovetter, 1973, 1985, 1992; Gulati, 1998; Honig, 1998; Nahapiet & Ghoshal, 1998; Powell, 1990; Powell & Smith-Doerr, 2005; Rowley, Behrens, & Krackhardt, 2000; Stinchcombe, 1965; Uzzi, 1997, 1999; Zhao & Aram, 1995). Past research has provided mixed results in defining optimal network structures and relations. Researchers who specifically focus on venture networks claim that these mixed results are caused by the fact that the optimal structural and relational characteristics of the new-venture network are contingent on the specific organizational process (Elfring & Hulsink, 2003), the life cycle stage a new venture is in (Hite & Hesterly, 2001) and the type of technology that is being commercialized (Groen, 1994, 2000, 2005). Related to the topic of this paper, researchers have focused on the role and importance of networks in the acquisition of a wide range of resources (Jenssen, 2001; Jenssen & Koenig, 2002; Larson, 1992; Starr & MacMillan, 1990; Uzzi, 1997, 1999; Wilson & Appiah-Kubi, 2002; Zhang, Wong, & Soh, 2003). For example, the results of Jenssen and Koenig (2002) indicate that weak ties are important channels for information, while strong ties are important for motivation issues and that a mix of strong and weak ties gives access to financing.

Closer to the subject of this paper, examples of research can be found that focus on the role of networks in financing. In the literature, two roles played by networks in financing new ventures can be identified: (1) network contacts can directly provide information and resources to a new venture; and (2) network contacts can contribute to the acquisition of financial resources by acting as a referral source by helping new ventures to connect to resource providers. Regarding the direct access to financial resource providers, Chang (2004) shows that more successful new ventures have bigger networks and have ties to prominent venture capitalists and partners. One step closer to the topic of this paper, researchers have focused on the specific strength of ties that are most effective in acquiring financial resources by new ventures. For example, Jenssen (2001) found that strong ties are most effective for the acquisition of financial resources. This result was confirmed by Batjargal (2007) and Batjargal and Liu (2004) in the context of venture capital (VC). On the other hand, Uzzi (1999) found that financial resources are best acquired through a mixture of weak and strong ties.

In addition to the direct provision of financial resources, network partners can also play a referral role for new ventures. In previous studies, a lot of support is provided for this positive referral/signalling effect of networks on the entrepreneurial process (e.g., Burton et al., 2002; Deutsch & Ross, 2003; Khaire, 2005; Lockett, Ucbasaran, & Butler, 2006). More specific to the context of financing, Shane and Cable (2002) and Shane and Stuart (2002) have shown that not only direct ties but also indirect ties to investors increase the chance of the venture to get funded. In order to better understand the referral mechanisms that make referrals more effective, researchers have focused on the specific characteristics of these referrals. For example, referrals seem to be more effective when the referral source is more prominent (e.g., Maula, 2001; Stuart, Hoang, & Hybels, 1999), when they are perceived to have expertise (e.g., Baum, Calabrese, & Silverman, 2000; Reuber & Fischer, 2005) and when they have a financial stake in the new venture (e.g., Megginson & Weiss, 1991). In this paper, we are specifically interested in the network characteristics that make referrals more effective. In our review of the literature, we found that very few studies explicitly focus on structural and relational network configurations that lead to optimal referral effects. Some of the few studies that do so are the ones of Batjargal (2007) and Batjargal and Liu (2004). In these studies, support was found for the premise that strong ties between the new venture, venture capitalist and the referral source have favourable effects for the venture in getting funded.

When analyzing the network literature, some important questions come to mind. Most important, researchers often adopt network theory as a one-dimensional theory that can alone explain empirical phenomena. One could question if network theory can do so. Related to this, researchers do look for other factors that play a role next to network configurations; however choosing these contingencies often happens in an ad hoc sense without explicitly theorizing on the question of why these factors have to be looked for. Also, researchers often do not distinguish between the two network effects that can be identified, and if they do so, they do not focus on the actual network characteristics that make these effects most influential. For example, the positive signalling effect of prominent partners is often researched without explicitly focusing on, for example, the strength of ties between the referral source and the new venture. Finally, an additional shortcoming in studies on network in entrepreneurship is often the static approach to networks.

In this paper, we test to determine if a one-dimensional network approach alone can provide a full understanding of the new-venture financing process, or if a multidimensional approach that recognizes the full spectrum of dimensions/factors at stake is better suited to do so. We also make two additional specifications regarding the role of networks in the financing process, following the shortcomings in the literature: (1) we acknowledge that the network can play two roles - a network partner of a new venture can directly provide financing resources to the venture or can act as a referral to other financial resource providers; (2) we acknowledge that the role of networks might differ over time and that a distinction is made between two financing events in this paper. The first event occurs when a new venture identifies different financial opportunities and resource providers. The second event occurs when a new venture accesses the financial resource provider (or the other way around).

A ONE-DIMENSIONAL NETWORK APPROACH

Burt vs. Coleman

The aim of this paper is to research if a one-dimensional network approach can fully explain the effectiveness of networks in financing new ventures. Since past research has provided mixed results on the effectiveness of structural and relational network configurations in (financial) resource acquisition (Batjargal, 2007; Jenssen, 2001; Uzzi, 1999), we turn to one of the central discussions in one-dimensional network approaches. This is the discussion between Burt and Coleman, who both have different views on the mechanisms that foster an optimal *structural network* configuration. On the one hand, there is Burt (1982, 1992, 1997, 1999, 2000, 2005) who claims that optimal network value is created in certain positional network configurations. The ‘structural holes argument’ of Burt claims that a certain actor can create value by brokering connections between segments that would otherwise be unconnected. This type of network provides unique information and control-benefits to that actor. On the other hand, Coleman (1972, 1988, and 1990) claims that network value is not created through structural holes but through dense networks and redundant ties. These network configurations improve the reliability of information because the same information can reach an actor from different sides, therefore creating value. Because dense and redundant networks increase the trust and reliability of the information within the network, actors in networks are more committed to doing a good job. For both Burt and Coleman, the assumption is that the time and money of actors is limited. Therefore, actors have to make choices in configuring their networks. The *relational network* dimension refers to the effectiveness of weak vs. strong ties to new ventures (Granovetter, 1985, Uzzi, 1997, 1999). Weak ties are claimed to be more effective for the acquisition of new information, whereas strong ties seem to be more effective in generating trust between actors.⁴ In the next section, hypotheses on the effectiveness of weak vs. strong ties and structural hole vs. cohesive network configurations are constructed. Hypotheses are also shaped on multiple events in the financing process.

One Dimensional Network Hypotheses

In the first step of the financing process, the new venture identifies financial resource providers. For the purpose of this paper, we theorize on identifying financial resource providers that are not already connected to the new venture. Burt argues that new ventures with networks rich in structural holes are better able to identify a variety of financial resource providers. The many structural holes will function as a diverse pool for information about financial opportunities. In Coleman’s rationale, trust and reliability play a more prominent role. Coleman argues that the quality of information is higher in densely connected networks since the penalty for false and incomplete information is higher. Coleman argues that new ventures in densely connected networks are therefore better able to identify financial resource providers. Since Burt stresses the value of diversity of

⁴ For the purpose of this paper the relational weak tie argument is considered to be part of the Burt logic whereas the strong tie argument is considered to be part of the Coleman logic.

information, and Coleman the importance of reliability of information, the following contradicting hypotheses can be shaped.

Hypothesis 1a (Burt). New ventures having networks rich in structural holes are better able to identify various financial options and financial resource providers.

Hypothesis 1b (Coleman). New ventures in cohesive networks are better able to identify various financial options and financial resource providers.

After having identified the financial options and resource providers, the new venture has to get access to them. In doing so, we claim that this can be done in two ways: directly or through a referral. When a new venture accesses a financial resource provider directly, Burt claims that an existing tie between the new venture and the financial resource provider is not needed. Burt argues that in these cases, the information function of the network is more important than the trust function. To fulfil this information function, Burt argues that weak ties are most effective in providing information about financial resource providers to the new venture. Since a new venture has limited resources, having many weak ties would be the optimal strategy to get access to a diversity of information on financial opportunities. Coleman argues that the trust function of the network is very important for direct access. Therefore, he argues that existing strong ties to the financial resource providers are necessary when accessing these actors for a financial request. In addition, Coleman stresses the effectiveness of strong ties in providing information on financial issues to the company, since he claims that the information provided by strong ties is more trustworthy than that provided by weak ties. These rationales lead us to the following set of hypotheses.

Hypothesis 2a (Burt). For new ventures that directly access financial resource providers, weak ties will be favourable.

Hypothesis 2b (Coleman). For new ventures that directly access financial resource providers, strong ties will be favourable.

A venture can also use a referral to access a financial resource provider. A referral source, in this context, is defined as an independent individual who is explicitly involved in connecting the venture to the financial resource provider. Following the pure logic of Burt, access to financial resource providers through a referral, will be most effective through weak ties. Burt argues that with the assumption that time and resources are scarce, a network with weak ties that spans structural holes will be most effective. Coleman disagrees with Burt on the 'strength of tie' argument. Since Coleman stresses the importance of trust and commitment, he assumes that strongly tied referral sources are more helpful in accessing financial sources. Partners with strong ties will be more committed and will be more willing to put their names at stake for the new venture. In addition to the commitment of strong ties, Brown and Reingen (1987) found that strong ties are more often activated as a referral source as well. The study of Batjargal (2007) supports the 'strong tie' claim of Coleman, showing the effectiveness of a strong tie between referrers and the new venture for a referral. It is striking that Burt, in one of his studies, argues that it is not effective for low-status/illegitimate actors to broker their own networks. For these actors, it is more effective to "borrow" the social capital of their network partners. In that case, strong tie network partners are activated to help in getting access to

unconnected, prominent partners. However, for the purpose for this study, we will test the opposing views of Burt and Coleman. Therefore the next hypotheses are:

Hypothesis 3a (Burt). When new ventures use referrals to access financial resource providers, the referral will be more effective if the new venture and the referral source are weakly tied.

Hypothesis 3b (Coleman). When new ventures use referrals to access financial resource providers, the referral will be more effective if the new venture and the referral source are strongly tied.

In the previous section, we shaped hypotheses on the effectiveness of certain network characteristics following the logic of Burt vs. Coleman. First, hypotheses on the optimal positional network characteristics for identifying financial resource providers and opportunities were shaped. Next, relational network hypotheses were shaped concerning the two different ways of getting access to financial resource providers.

THE ENTREPRENEURSHIP IN NETWORKS MODEL: A MULTIDIMENSIONAL ALTERNATIVE

In the previous chapter, one-dimensional network hypotheses were shaped. The assumption underlying a one-dimensional approach is that network theory alone can explain the complex reality. As already addressed in the introduction, and as can be derived from our review of the literature, many studies show that the effectiveness of network configurations is heavily dependent on contingencies. Therefore, a theoretical approach that facilitates a systematic analysis of these potential contingencies is needed. Our claim is that the EiN model is a model well suited for this task.

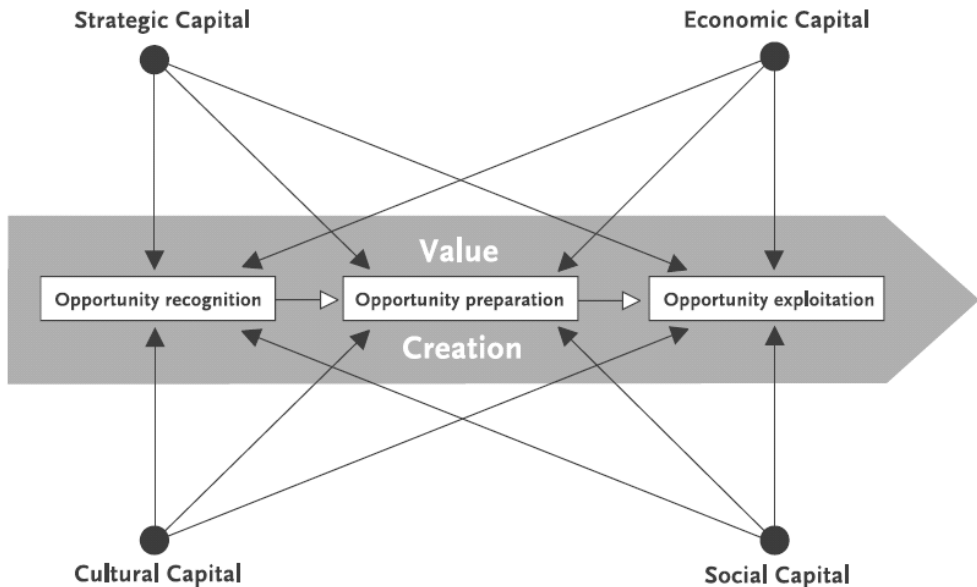
The Entrepreneurship in Networks Model: A Multidimensional Approach

In this section, we explain the multidimensional model that is presented as an alternative for one-dimensional network approaches in network literature. This model is the ‘Entrepreneurship in Networks’ (EiN) model. This model is based on social systems theory (e.g., Groen, 1994, 2000, 2003, 2005; Groen, Wakkee & De Weerd-Nederhof, 2008; Parsons, 1964, 1977) and is designed specifically in order to study entrepreneurial processes. An overview of the EiN model is provided in Figure 1. Even though we do not describe the model in detail in this paper, it is important to note that a categorization of the types of capital and contingencies is used, based on this model. The types of capital that influence the performance and influence of the actors involved in entrepreneurship are based on the basic definition of a social system as defined by Parsons (1964). Originally, a social system was defined by Parsons as follows:

“. . . a social system consists in a plurality of individual actors interacting with each other in a situation which has at least a physical or environmental aspect, actors who are motivated in terms of a tendency to the “optimization of gratification” and whose relations to their situations, including each other, are defined and mediated in terms of culturally-structured and shared symbols” (Parsons, 1964, pp. 5–6).

Four mechanisms are embedded in this definition: (1) interaction between actors; (2) striving for goal attainment; (3) optimization of processes; and (4) maintenance of patterns of culturally-structured and shared symbols. Each of these mechanisms is related to a specific “capital need” that has to be fulfilled by the actors involved in entrepreneurship in order to perform better or to be influential, leading to four generic types of capital requirement. ‘Striving for goal attainment’ (mechanism 2) deals with striving for strategic goals and is labelled as *strategic capital*. Strategic capital also refers legitimacy and reputation issues surrounding entrepreneurship. ‘Optimization of processes’ (mechanism 3) refers to the efficient organization of the entrepreneurial processes and is quite directly related to money as the basic resource, i.e., *economic capital*. ‘Pattern maintenance and institutionalization of shared symbols’ (mechanism 4), is embodied in *cultural capital*, and can be found in the organizations’ values, knowledge, skills, experience, and technology. Finally, ‘Interactions between actors’ (mechanism 1) is related to *social network capital*. The principal assumption of the EiN model is that actors involved in entrepreneurship and will need sufficient ‘capital’ for the venture to be sustainable over time. This implies that new-venture entrepreneurs need to have, or have access to, sufficient strategic, economic, cultural and social capital to establish a viable enterprise.

Figure 1: The Entrepreneurship in Networks Model



In the context of this paper, it is not only hypothesized that these four types of capital play a role for the central actor in entrepreneurship, the entrepreneur, but also for the actors that are involved in the process of entrepreneurship. In the context of this paper, it is therefore hypothesized that the influence of direct and referral network effects is dependent on the strategic, economic, cultural and social capital characteristics of the entrepreneurial team, the referral source and financial resource provider.

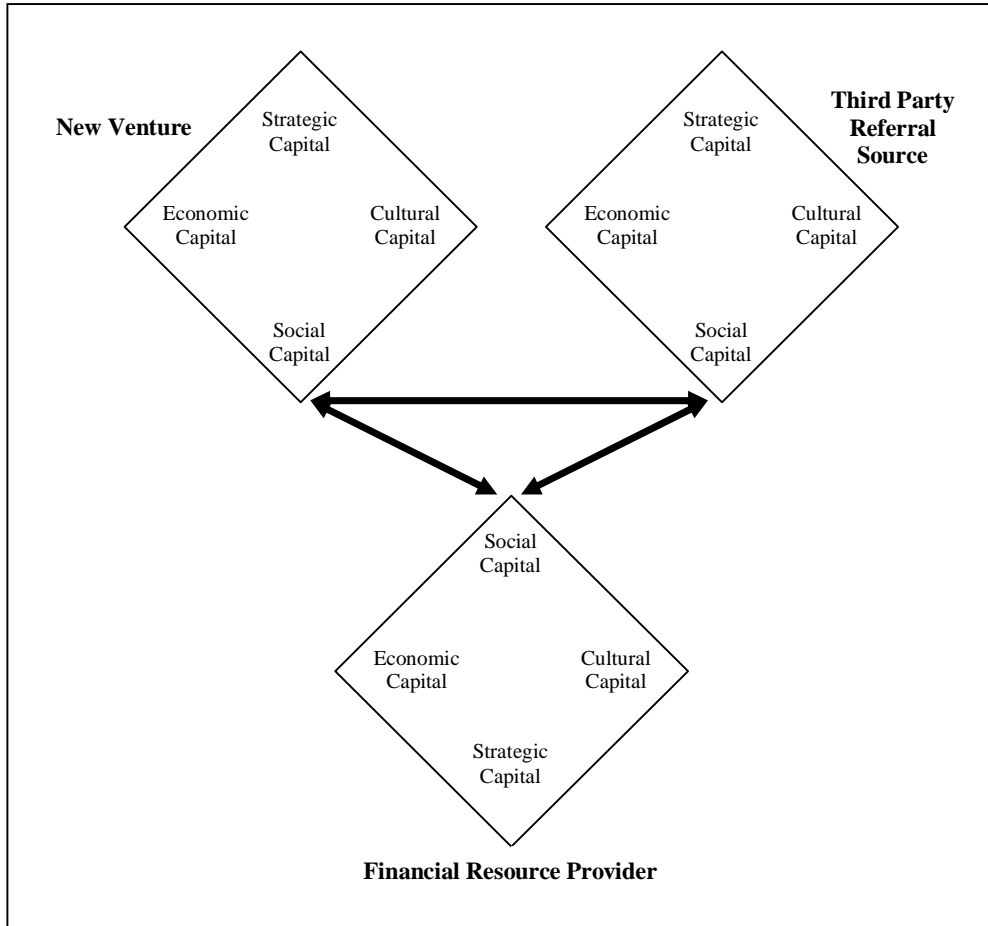
Our Multidimensional Research Framework

There are several reasons why the EiN model is well suited to the study of the role of networks in the financing process. First, the EiN model can be applied in a deductive sense; for example, the EiN dimensions provide a base for theorizing on the contingencies that determine the effectiveness of certain network configurations and how these factors interact. In Figure 2, we present our research framework by combining the EiN model with a triangle made up of the new venture, the provider of financial resources and the other network partner (referral). By doing so, both the effect of both the direct and the referral network can be studied. Each of the three actors brings its own types of capital into action through the social capital dimension. The principal claim is that the network is a crucial factor in identifying and accessing financial resource providers; however, the effectiveness of certain network configurations is contingent on the strategic, economic and cultural capital of the new venture, the financial resource provider and the referral source. An additional advantage of the EiN model is that it recognizes social capital as being a central concept in the social system. Therefore, it is possible to integrate network theory into the model. In the next sections, some examples of factors that can influence the effectiveness of certain network configurations are provided in order to create some insight in the way the EiN model can be used.

First, as can be deduced from the EiN model, there are several factors about the new venture that determine the effectiveness of network configurations, as hypothesized in hypotheses 1 to 3. For example, in a strategic sense, both the reputation and the goal-orientation of the new venture are factors that can influence the effectiveness of network configurations. In an economic sense, the amount of money that a new venture needs could be important. Finally, the business and technological experience of the entrepreneur, his knowledge level and his willingness to take risks are important cultural factors that could play a role in his network use.

Second, the different types of capital of the financial resource provider also determine the usefulness of network configurations. In a strategic sense, the goals of the financial resource provider can play an important role. The ‘time horizon’ for an investment and the return required for investments are important factors that can influence the effectiveness of networks in financing. In an economic sense, the amount available for investment is one of the important factors. Finally, the experience of an investor and the added value of the financial resource provider will influence the effectiveness of network configurations in a cultural sense.

In one of the previous sections, the use of referrals in accessing financing was already introduced. Therefore, we also claim that next to the social capital factors, the other types of capital of the referral source are also important for effective referrals according to the EiN model. For example, the effectiveness of a referral can be dependent on the reputation/status of the referral source (strategic capital). We also expect that the effectiveness of referrals will be influenced by the cultural capital of the referral source. In a practical sense, we expect that there is a difference between referrals from technology-oriented people and business-oriented people. We have now introduced some examples of factors that can influence the effective use of networks in identifying and accessing financial resource providers. However, these factors do not exist in isolation.

Figure 2: Research Framework

In the previous sections, the EiN model was introduced and it was explained how it can be used to study the process of acquiring financial resources. In addition, some examples of factors that influence the role of networks in this process were provided. In order to test this multidimensional model as compared to the one-dimensional approach in the previous section, this chapter ends by shaping an additional multidimensional hypothesis based on the EiN model.

Hypothesis 4. The effectiveness of network configurations in identifying and accessing financial resource providers is contingent on the strategic, economic and cultural capital of the actors involved.

METHOD AND DATA

In the previous sections, several hypotheses were constructed that allow us to test the value of one-dimensional vs. multi-dimensional network approaches. In this chapter, we explain how these hypotheses are explored empirically. The application of network theory to the new-venture financing process is in a relatively early stage. Therefore, there is still much to be learned about the effectiveness of certain network configurations. Therefore, case study research is a valuable first step in exploring the hypotheses (Yin, 1994). These case studies will provide more understanding of the mechanisms and rationales that play a role in new-venture funding and also, which network characteristics are the most effective in getting financing. The case studies will also provide a base for a future quantitative study.

Sample

There were several criteria in selecting the cases. In general, the new ventures we focused on can be labelled as technology-based ventures. In terms of the EiN model, companies were selected that shared some common characteristics. In a strategic sense, they all started from technology that could be applied in different markets. The ventures all faced market uncertainty in determining the best markets for their technology. In an economic sense, they all needed a substantial amount of capital from the start in order to finance their development processes. In a cultural sense, the companies faced technological uncertainty in the sense that they were uncertain if their basic technologies could be applied in their product ideas. Cases were also selected that are based in The Netherlands. In this study we have a special interest in the first years after start-up. For this paper, a total of four cases were studied. In Table 1, a brief overview is provided of the four types of capital in the start-up situation of the four ventures; later in this section, more extensive descriptions of the cases is provided.

Measurement

Secondary sources. In order to get a more complete understanding of the EiN dimensions that determine the effectiveness of certain network configurations, a wide range of data on the new venture and the actors involved in getting financial resources had to be collected. In order to do so, multiple data sources were available. Table 2 provides an overview of the various data sources that were used in collecting the data. A first step in constructing the case studies was an exploration of the companies' websites and other online sources. Additionally, TOP files⁵ were available for two companies. These files were an additional source with which to construct a first picture of the new venture in the early stage.

⁵ TOP is an entrepreneurship support scheme of the university. The TOP files contain multiple versions of business plans over time, minutes of meeting with business coaches and notes of these business coaches.

Table 1: Description of Ventures at Starting Date

	Variable	Case A	Case B	Case C	Case D
Strategic capital	Reputation of entrepreneur(s)	-	+	-	+
	Growth ambition	+	-	+	+
Economic capital	Financial need	++	+	+	+/-
	Ability to access financing	+/-	+	+/-	+
Cultural capital	Number of entrepreneurs	2	2	1	1
	Education level of the entrepreneur(s)	+	+	+	+
	Technological experience entrepreneur(s)	+	+	+	+
	Business experience entrepreneur(s)	-	+	-	+
Social capital	SH/Closure (Founding date)	Closure	SH	Closure	SH
	SH/Closure (2006)	SH	SH	Closure	SH
	Technology partners	+	+	+	+
	Market partners	-	+	-	+

SH=Structural holes

Monitor Technostarters. The companies were asked to fill in the Monitor Technostarters, which is constructed based on the EiN model. Using this monitor helped us to get a great deal of data and a complete overview of the principal elements that play a role in the company, as derived from our fundamental, theoretical model. In order to measure strategic capital, questions are asked about an entrepreneur's motivation to start a business and his goals and priorities for the company. Economic capital is measured by questions on financial needs, ownership stakes, turnover, profit and the need and the use for/of external financing. Cultural capital is measured by asking questions about the entrepreneurs' education level, education field, experience with entrepreneurship and experience in their companies' market(s) before starting the company. In addition, questions are asked about the current organization of the companies, measured by number of employees, education level of employees and functional specialization of employees, patents, knowledge and formal systems within the company. An extensive part of the Monitor Technostarters is devoted to network questions. The monitor focuses particularly on the contacts the company has in different functional areas and for which problems these contacts are used. The monitor therefore provides us with a good overview of the dimensions of the EiN model that were introduced in the previous chapter.

Table 2: Available Data Sources

	Case A	Case B	Case C	Case D
Monitor Technostarters	X	X	X	X
Interview	X	X	X	X
Short questionnaire	X	X	X	X
TOP file	X	-	X	-
Company website	X	X	X	X
Other online sources	X	X	X	X

X = Data source available

- = Data source not available

Interviews. In addition to the previous data sources, the entrepreneurs were interviewed in order to be able to ask specific questions about the (direct and referral) role that networks play in financing their businesses. As well as the focus on the new venture, the interviews were also conducted to verify the information on financial resource providers and their most important network partners. Although the Monitor Technostarters focuses on the network contacts of the new venture, little explicit attention is paid to the specific positional and relational network configurations of the company. Therefore, additional information was needed on the networks of the new venture for the identification and access to financial resources. For example, the entrepreneurs were asked when and how they identified and accessed their financial resource providers. We also asked them to indicate whether there was a referral involved in getting the venture connected to a specific resource provider and (if so) who this referral was.

Questionnaire. After the interview, the entrepreneurs were asked to fill in a short questionnaire to score their positional network structure and the strength of relationships they had to people they mentioned during the interview. The focus of this paper is on the effectiveness of structural and relational network configurations in financing technology-based ventures. Since we intend to extend the findings of this paper to a larger data set, we choose to use existing measures that are used to measure these network characteristics. First, this allowed us to score the multiple network characteristics, and second this will help us to reflect on these network measures. For the *positional part* of the network, the network tool of McEvily and Zaheer (1999; Scholten, 2006) was used. This tool asks entrepreneurs to mention five or less people they turn to for advice on entrepreneurship and financial issues and if these people are related to each other. This tool was extended by asking the entrepreneurs to score how well these people know each other on a five-point scale. For the measurement of the *relational network characteristics* between actors, the assessment of ‘tie strength’ as proposed by Granovetter (1973; Scholten, 2006) was used. This measurement gives an indication of the strength of ties by asking questions on the intimacy, frequency and length of the contact. In this case study, we also tried to test the value of these three variables on the acquisition of financial capital. For example, it could be that, for example, intimacy is much more effective than, for example, length of the relationship.

The assessment of the relevance of the different variables will enable us to select the most relevant variables for a quantitative study later on. Before we turn to the results, we first provide short descriptions of the four cases.

Description of the Cases

Case A. Case A is a chip manufacturer founded in 1999. The two young entrepreneurs both have a background in technology and recognized the opportunity to start a business in the final stages of doing their PhDs in technology. Their experience in business was marginal. Therefore, in the early stages, the company received support from the university's business development program. A short time after start-up, this help was not longer needed because the entrepreneurs quickly developed their skills and won several new-business prizes for innovation. Currently, the company has twenty-five employees. The entrepreneurs see growth as their most important goal for their company. They want to reach this goal by innovative products and by implementing their own vision.

At the start, the positional network could be described as a clique network. The network of the company was mainly focused on technology and less on the market. However, the entrepreneurs were very eager to develop their network and, in this, they were helped by the university's business development department. When this support was no longer needed, the entrepreneurs were able to expand their network in various directions on their own. Next to their developed network skills, the winning of several prizes helped them to gain a good reputation in the market. Therefore, accessing new partners themselves became more effective. In the current situation, the network could be labelled as a network 'rich in structural holes'.

The financial need of the company is high. For financing, the company uses a variety of sources. One source (the participation company) already had a weak connection to the company before start-up. The bank, government grants and a personal loan were accessed by the entrepreneurs themselves. The university and the informal investor were connected through the use of referrals. For financing information, the entrepreneurs go to their informal investor, the participation company and the bank.

Case B. Case B is a micro system and MEMS company, founded in 2001 by two entrepreneurs with extensive technological and business experience. Therefore, before starting, the entrepreneurs had already a large network in the relevant market. Their networks and reputations had an important impact on the development of their company. Currently, the company has grown to about twenty employees. Growth is not the most important goal of the company. The entrepreneurs see innovativeness and independence as most important in running their business.

In theoretical terms, the positional network of case B can be described as a 'structural hole network' from the start. Because of their experience and reputation, the entrepreneurs had already an extensive network in place and were able to connect directly to new partners without help from referral sources. The entrepreneurs were and are very active in visiting conferences and trade shows. They see this as an intentional strategy to expand their network.

The company has five different types of financial source. Another company that invested in B and the university were already connected to the entrepreneur before he started. Government grants and the informal investor were accessed by the entrepreneur himself without help from a referral. Only in accessing the participation company, did the company have some help from a research institute business developer. The entrepreneurs do not consult external information sources for financing because they claim that sufficient financial expertise is present within the company.

Case C. Case C is a company specialized in producing micro drops. The company was founded in 2004 as a spin-off of three companies. The company is run by one entrepreneur who had little business experiences and a moderate technological background at the start. For the development of the company, the entrepreneur relied heavily and still relies on the parent companies. Currently, the company has three employees. The entrepreneur sees an increase in profit as the company's most important goal for the future.

The network of C can be described as a closure network at the start. The company is a spin-off of three companies and is still heavily dependent on these companies in developing its networks. In contrast to case B, the entrepreneur of company C states that he does not visit many conferences and trade shows since it takes a lot of time. Although the size of the network has grown over time, the network of C can still be labelled as a closure network, since the network is still very redundant.

In accessing financial resource providers, the network is/was very dependent on referrals. Referrals played a role in obtaining all financing except the government grants. However, for the three other companies that invested in the idea and for accessing the bank, referrals played a very important role.

Case D. Case D is a company in wireless networks, founded in 2004 by an entrepreneur with moderate business experience and extensive technological experience. The entrepreneur had an extensive network from the start and had a great deal of experience in applying for government grants due to his function as a project manager at a university. Therefore he was able to finance his company solely on private investments and government grants. Currently, the company has two employees; the aim of the entrepreneur is to grow quickly in the coming years.

Similar to case B, the network of D can be described as rich in structural holes from the start. The entrepreneur has extensive experience in working for a university where he was responsible for writing and executing many project proposals. In doing this work, he gathered extensive contacts within universities and businesses, because getting funding is often dependent on having a variety of partners cooperating in the project. When starting the business, the entrepreneur used the network he had developed when working for the university. Also, the name and reputation he gained in doing this work helped him to get direct access to new partners.

The financing of company D is quite a rare case. Because the entrepreneur had a lot of experience in applying for government grants, he was able to fully finance his company by government grants (in addition to a personal investment). The entrepreneur does not consult external information sources for financing, because the company has the knowledge of applying for government grants within the company and currently has no need for

additional money.

In this chapter, the method used to test the hypotheses was explained. Added to that we explained which data sources we used to collect the data. Subsequently, short descriptions of the companies that were studied were provided to get some insight in their characteristics. In the next section, we present the results of the one-dimensional and multidimensional network hypotheses as shaped around the financing events of the new ventures.

RESULTS

One-dimensional Network Hypotheses

In this section, the findings resulting from the case studies are discussed. The findings in the case studies are summarized in Table 1 and in Tables 3 -12. Tables 3 -10 can be found in the Appendix. Based on these results, the findings per hypothesis as constructed in a previous section of this paper are discussed.

Hypothesis 1a (Burt). New ventures with networks rich in structural holes are better able to identify various financial options and financial resource providers.

Hypothesis 1b (Coleman). New ventures in cohesive networks are better able to identify various financial options and financial resource providers.

Before we focus on the most effective relational network configurations for financing, we first focus on the positional network characteristics of the four cases. First, the network of case A could be labelled as a small closure network at start-up. The entrepreneurs of A had few contacts in place before starting the company. Therefore A was very dependent on their few contacts for network development in the early days. The entrepreneurs of A were very focused on expanding their network from the start, in both business and technology and were successful in doing so. In a theoretical sense, case A developed to having a network rich in structural holes. Case C started from a similar situation to A. The network of case C could be labelled as small, homogeneous and interconnected from the start. Where A was able to expand its network quite rapidly, C is still very dependent on its initial contacts (the three shareholders) for network development. Table 7 shows how C still relies on a few strongly-tied contacts for information. In theoretical terms, C could still be labelled as having a closure type of network. From a network perspective, the networks of B and D can be considered as being quite similar. Their networks at the start of their businesses could be described as bigger and more diverse (many business and technology partners) when compared to the other two new ventures. In a theoretical sense, we would label their networks as 'structural hole' networks from the start in comparison to the other two new ventures.

When looking at the financial structure of A, one can see that they use six different sources of financing, a diverse set of financial sources. For the identification of financial opportunities, the entrepreneurs turn to a variety of actors. Also, A was able to identify and access financial actors beyond its initial network at the time of start-up. Case C is very dependent on its three shareholders from the start and this is still the case regarding access to finance. When analyzing the financial structure of case C, it is clear that its financing is

still quite homogeneous. The entrepreneur indicates that he wants to grow fast; however, apart from a bank loan and government grants, he was not able to identify or access financial sources other than the financing from the parent companies. Because of its closed network, C had difficulties identifying and accessing financial resources beyond its initial network or the use of referrals. When looking at the financial structure of case B, we see five different, quite diverse types of funding. Case D has only one source of external financing; this is not because they were not able to identify other financial opportunities but because the entrepreneur does not want others. The entrepreneur in case D is experienced in getting government grants and was and is able to finance his company completely with grants even though other parties wanted to invest. The results also show that B and D were able to identify and access many financial resource providers beyond their existing contacts.

In conclusion, the results indicate that for the identification of financial opportunities, spanning structural holes is more effective. In conclusion, we take the number of different financial sources as an indicator for the ability to identify financial opportunities. Those cases (A and B) spanning structural holes have more diverse financing (except case D, but this had another reason) than case C, which could be labelled as having a closed network. Also, those ventures that have or develop networks rich in structural holes are better able to identify financial opportunities beyond the network contacts that were already in place when starting the venture and were less dependent on referrals in getting connected to financial resource providers. *Therefore it can be concluded that for this process, hypothesis 1a has more explanatory value than hypothesis 1b.*

Hypothesis 2a (Burt). For new ventures that directly access financial resource providers, weak ties will be favourable.

Hypothesis 2b (Coleman). For new ventures that directly access financial resource providers, strong ties will be favourable.

We will now discuss the findings regarding direct access to financial resource providers. Ventures acquired direct access to financial resource providers in two ways. On the one hand, the ventures got access to providers they already knew and on the other hand, they accessed providers they did not know beforehand. Table 11 shows that in seven of the eleven cases of direct access, the financial resource providers did not know the entrepreneurs before they were contacted by the entrepreneurs with a financial request. This means that, in most of the direct access cases, an existing or strong tie to the financial resource provider was not needed to access these financial actors. These findings indicate that for direct access to financial resource providers, the claims of Burt have more explanatory power than the claims of Coleman. When the trust function of a referral or an existing strong network tie is not important, the venture is better off with networks that consist of many weak ties instead of fewer stronger ties. In line with the findings of Hypothesis 1, weak ties contribute to a more diverse information pool for entrepreneurs and help the entrepreneurs in identifying a more diverse set of potential financial resource providers.

In summary, in seven of the eleven cases of direct access, the venture was able to access the financial resource directly without any previous network tie. This means that the trust

function of the network is less important. In such cases, a network with many weak ties is beneficial due to the more diverse set of information available for the venture. When a venture accesses an existing network tie with a financial request, a weak tie between the venture and the resource provider will be sufficient to get access. *These results show support for the benefits of weak ties when accessing financial resource providers directly, hereby providing support for Hypothesis 2a.*

Hypothesis 3a (Burt). When new ventures use referrals to access financial resource providers, the referral will be more effective when the new venture and the referral source are weakly tied.

Hypothesis 3b (Coleman). When new ventures use referrals to access financial resource providers, the referral will be more effective when the new venture and the referral source are strongly tied.

The last set of hypotheses concerns the most effective type of ties for accessing financial resource providers through referrals. The results show that cases A and C, were, to a larger extent, dependent on referrals than cases B and D. During the case studies, we identified six events in which a referral was used to access a financial resource provider. From these six events, five events took place in cases A and C. When we focus on the specific network ties that are most effective for accessing financial resource providers through referrals, we find some interesting results. The contacts to these referrals were scored as somehow/very intimate and were quite frequent (once per week or once per month). The length of a relationship seems to play a minor role for a referral source. Therefore, when a referral is used to access a financial resource provider, stronger ties between the venture and the referral source seem to be more favourable for accessing financial resource providers than weaker ties.

In summary, when ventures use a referral to access financial resource providers, strong ties between the venture and the referral appear to be the most effective. This result shows support for the benefits of strong ties when accessing a financial resources provider through the use of a referral, *hereby providing support for Hypothesis 3b.*

Table 11: Referrals and Getting Access to Financial Resource Providers

	Finance Source	Referral as the Source of Contact?	New Venture- Referral Source Tie (Strength at Time of Referral)			Referral Importance
			Contact Intimacy	Contact Frequency	Contact Length in Years	
Case A	Informal investor	Participation company	Somehow	Monthly	>3	+
	University	BD officer university	Somehow	Half-yearly	1	+
	Participation company	No Existing tie	**	**	**	**
	Bank	No Direct access	**	**	**	**
	GG	No Direct access	**	**	**	**
	Personal loan	No Direct access	**	**	**	**
Case B	Participation company	BD officer university	Very well	Weekly	>10	+
	Other company	No Existing tie	**	**	**	**
	University	No Existing tie	**	**	**	**
	Informal investors	No Direct access	**	**	**	**
	GG	No Direct access	**	**	**	**
	Case C	Parent company	Parent company	Somehow	Weekly	1
Parent company		Parent company	Somehow	Monthly	7	++
Bank		Parent company	Very well	Weekly	1	0/+
Parent company		No Existing tie	**	**	**	++
GG		No Direct access	**	**	**	**
Case D		GG	No Direct access	**	**	**

Existing tie= The entrepreneurs(s) knew this financial source before starting the venture
 Direct access= The entrepreneur(s) did not know the financial source and contacted it directly

In the previous sections, we focused on the optimal network configurations for the identification of, and access to, financial resource providers. However many questions regarding these findings still remain. For example, (1) why do certain venture have closed or structural hole types of networks, and (2) when are ventures able to get access to financial sources directly and under which conditions do they (have to) rely on referrals? The next section focuses on the EiN hypothesis and thus provides a more complete understanding of these issues.

Entrepreneurship in Networks Model Hypothesis

Hypothesis 4. The effectiveness of certain network configurations in financing new ventures is contingent on the strategic, economic and cultural capital of the actors involved.

Structural network characteristics dependent on the strategic, economic and cultural capital of the actors involved. The results indicate that structural holes are favourable for the identification of financial opportunities. However, not all new ventures have networks rich in structural holes since the positional network of the new venture is heavily dependent on its specific characteristics. The entrepreneurs in cases B and D both had substantial functional working experience in the market where they started their company. This working experience brought the entrepreneurs several important advantages when compared to the other two new ventures. Because they had worked in the market for a long time, they were able to increase their strategic capital in the sense of building up a reputation. New ventures, by definition, do not have a track record, so in such cases, the personal track record and reputation of the entrepreneur can be a valuable tool to overcome uncertainty. Second, their experience in the market and business increased their cultural capital because it increased their knowledge and skills. Third, their experience increased their social capital because it afforded them wide range of contacts in both market and technology. This last effect explains why cases B and D had networks rich in structural holes from start.

Cases A and C both had a positional network that could be labelled as a closure type of network. The lack of experience in business before starting their companies meant that they had few contacts in place. Differences can be identified between how A and C developed their networks after start-up. The entrepreneurs of Case A were very active in expanding their network and identified the need to do so. In developing their network, the winning of several entrepreneurship and technology prizes was very helpful since it connected them to many people in the market. Added to the social capital effect of winning these prizes, the prizes also increased their status (strategic capital) in the market and this was helpful in expanding their networks. These events, together with the social skills (cultural capital) of the entrepreneurs, helped them to develop their network into a structural hole type of network. C, on the other hand, was less active in expanding its network. Since C was initially started as a spin-off of three companies, it relied, to a large extent, on its founding companies for network development. In the current situation, this is still the case so its network can still be described as a closure type of network. The results indicate that cases A and C can be considered as being similar at the start regarding multiple network

dimensions and cases B and D can be considered as being similar as well. In Table 12, the characteristics of A and C vs. B and D at start-up are summarized.

Table 12: Characteristics A+C vs. B+D at Start-Up

	Variables	A+C	B+D
Strategic capital	Market reputation of entrepreneur(s)	-	+
	Growth ambition	++	+/-
Economic capital	Financial need	+/++	+/-
	Ability to access financing directly	+/-	+
	Dependence on referrals	+	-
Cultural capital	Education level of the entrepreneur(s)	+	+
	Technology experience entrepreneur(s)	+	+
	Business experience entrepreneur(s)	-	+
Social capital	SH/Closure (founding date)	Closure	SH
	Technology partners	+	+
	Market partners	-	+

SH=Structural holes

Direct access contingent on the strategic, economic and cultural capital of the actors involved. The results show that weak ties are favourable for new ventures that directly access financial resource providers. However, the multiple characteristics of the actors involved influence the ability to access financial resource providers directly. The results show that cases B and D were less dependent on referrals for getting access to financial resource providers than were A and (even more so) C. Only in the case of B did a referral play a role, although the referral was not perceived as very important by the entrepreneur. Both cases B and D had experience in business which increased their capitals in terms of the EiN model. As already discussed in the previous sections, the experience of both B and D in business and in the market increased their strategic, cultural and social capital. Because the capital attributes of B and D were better developed (compared to A and C), there was less need for these companies to use referrals to access economic capital providers. In other words, it seems that B and D already built sufficient trust with the economic capital providers to access them directly.

When analyzing the four cases, it can be concluded that the characteristics of the new venture are not solely determined by the ability to directly access financial resources. Also, the characteristics of the financial resource provider are important here. First, strategic factors are important. For example, for financial resource providers aiming at a low-risk strategy, referrals are less important. Also for accessing financial resource providers with

social goals, like government grants, referrals are less important. In an economic capital sense, direct access is effective when the invested amounts are low. Finally, direct access seems to be effective when the complexity of knowledge required for the investor in the investment is low (cultural capital).

Effectiveness of referrals contingent on the strategic, economic and cultural capital of the actors involved. The specific characteristics of A (in the beginning) and C made direct access to certain types financial resource providers somewhat problematic. In terms of the EiN model, their technological knowledge (cultural capital) was the main source for these two cases at start-up. The lack of a track record, a reputation in the market (strategic capital) and knowledge about business and the marketplace (cultural capital) made A and C dependent on network partners to provide them with access to financial resource providers. Since A and C had relatively low amounts of the various capital attributes when starting up, they had to rely to a larger extent on network partners to create trust with financial resource providers.

As we already expected when introducing our research framework, the characteristics of the new venture are not the only factors that determine the effectiveness of using referrals in accessing financial resource providers. The specific characteristics of the financial resource providers and referral sources also determine, to a great extent, the effectiveness of referrals. The characteristics of the financial resource provider that require referrals to be accessed are quite different from the characteristics that are effective for direct access. In a strategic sense, the results show that referrals are more important when accessing financial resource providers of higher-risk investments, typically private equity investments. For example, referrals seem to be more important to access informal investors, other companies and participation companies than to access a bank or a government grant. Second, in terms of economic capital, referrals seem to be more important when the amounts invested are higher. In a cultural capital sense, referrals are more important when the knowledge required for the investor is more complex when considering an investment. This last finding also supports the theoretical claim that referrals play a more important role in technology-based ventures.

Another interesting finding is that the effectiveness of a referral seems to be dependent on the characteristics of the partner that acts as a referral source. When analyzing the results, we found that in a cultural capital sense, in all cases, business- and market-oriented people acted as a referral source. Although university research institutes and professors were often mentioned as a prominent partner, none of these scientific partners acted as a referral source in getting financing. Therefore it seems that referrals of business- and market-oriented people are more effective for getting financing.

The results of Hypotheses 1 to 3 show that network theory can only explain the identification and access to financial resources to a limited extent. The results show that structural holes are always favourable in identifying the various financing opportunities. Subsequently, the results show that weak ties are favourable for direct access to financial resource providers and strong tie referrals are more effective for indirect access. However, the question remains of how these one-dimensional network findings improve our understanding of the underlying mechanisms and factors that play a role. By also proposing and testing a multidimensional network hypothesis, the findings show that the ability of a

new venture to directly access a financial resource provider is heavily contingent on the (multidimensional) characteristics of the new venture and the financial resource provider. Also, the effectiveness of a referral in getting access to financial resource providers is heavily contingent on the characteristics of the new venture, the financial resource provider and the referral partner. *These findings therefore show support for Hypothesis 4.*

CONCLUSIONS, CONTRIBUTIONS AND IMPLICATIONS

Past research has provided mixed findings on the role that networks play in financing technology-based ventures (Batjargal, 2007; Jenssen, 2001; Uzzi, 1999). Our claim is that this is the result of the fact that past research mostly takes a one-dimensional approach to networks. Therefore, important contingencies and interactions that determine the effectiveness of certain network configurations are often overlooked. In this paper, we tested whether a one-dimensional network approach alone can fully explain empirical phenomena or whether a multidimensional alternative is better suited for the task. For the one-dimensional approach, we focused on the principal discussion in network theory between Burt and Coleman (e.g., Burt, 2000, 2005; Coleman, 1988, 1990). For our multidimensional network approach, the EiN model was applied (e.g., Groen, 1994, 2000, 2003, 2005; Groen et al., 2008; Parsons, 1964, 1977). By comparing a one-dimensional network approach to the EiN model, our multidimensional alternative, we were able to test the value of the two network approaches.

In doing so, several one-dimensional and multidimensional network hypotheses were shaped and tested for identifying and accessing financial resource providers by new ventures. In a positional sense, we found that networks rich in structural holes are favourable for identifying financial opportunities for new-venture entrepreneurs with various experience levels. New ventures with networks rich in structural holes tend to have more diverse financial structures and are better able to acquire funding beyond their initial network when at start-up. Therefore, we claim that a network rich in structural holes helps a new venture to better identify the various financial opportunities and resource providers than a closure type of network structure. For new ventures that directly access financial resource providers, the information function of a network is most important. The results indicate that weak ties are the most effective in fulfilling this function. For new ventures that are dependent on referrals to access financial resource providers, our results show that strong-tie referrals are more effective. In Table 13, we provide an overview of the findings.

These network findings seem to be straightforward; however a new venture directly accessing financial resource providers has to have certain characteristics that enable it to do so. Since these new ventures do not use their networks to build trust with the financial resource providers, the other dimensions of the EiN model have to fulfil this trust-building function. For example, the results show that entrepreneurs with experience in the market and in business are better able to access financial resource providers directly. Also, the characteristics of the financial resource providers determine the effectiveness of accessing them directly. The results show that direct access is more effective when accessing financial resource providers that focus on lower risk levels and those that invest relatively small amounts of money. Also, direct access seems to be more effective for financial decisions that require the investor to have less complex knowledge. The use of referrals is

most effective for new ventures that have low amounts of capital on the different dimensions of the EiN model. They do not have the legitimacy to access the financial resource provider directly and are dependent on their network partners to do so. Following our multidimensional network approach, we also expected that the effectiveness of network configurations is dependent on the characteristics of the referral source. This was confirmed since the findings indicate that referrals of business-oriented people seem to be more effective than the referrals of technology-oriented people.

Table 13: Hypotheses/Results

Hypothesis 1a (Burt). New ventures having networks rich in structural holes are better able to identify various financial options and financial resource providers.	S
Hypothesis 1b (Coleman). New ventures in cohesive networks are better able to identify various financial options and financial resource providers.	NS
Hypothesis 2a (Burt). For new ventures that directly access financial resource providers having weak ties will be favourable.	S
Hypothesis 2b (Coleman). For new ventures that directly access financial resource providers having strong ties will be favourable.	NS
Hypothesis 3a (Burt). When new ventures use referrals to access financial resource providers, the referral will be more effective when the new venture and the referral source are weakly tied.	NS
Hypothesis 3b (Coleman). When new ventures use referrals to access financial resource providers, the referral will be more effective when the new venture and the referral source are strongly tied.	S
Hypothesis 4. The effectiveness of certain network configurations in financing new ventures is contingent on the strategic, economic and cultural capital of the actors involved.	S

S= Supported

NS=Not supported

The above conclusions have some implications for theory. First, within the one-dimensional network paradigm, having weak ties is often related to having structural holes, whereas having strong ties is often associated to having a closure type of network (e.g., Burt, 2000, 2005; Coleman, 1988, 1990; Mehra, Dixon, Brass, & Robertson, 2006). The results show that the relation between positional and relational network characteristic is independent. For

example, new ventures with little industry experience seem to profit from a network rich in structural holes combined with strong ties. In a broader sense, it was found that one-dimensional network approaches cannot solely create a full understanding of the new-venture financing process. The results show that the effectiveness of relational network characteristics is, to a large extent, contingent on the strategic, economic and cultural capital of the actors involved in the financing events (e.g., Groen, 1994, 2005; Groen et al., 2008). Therefore, multidimensional network research following the EiN model is a promising direction for future research. Subsequently, an addition is made to the literature by providing more insight into the role of explicit referrals in the venture funding process. We made a division between ‘direct access to financial resource providers’ and ‘access through the use of a referral’. The referral role of networks has received little attention in previous research (e.g., Batjargal, 2007; Batjargal & Liu, 2004; Lockett et al., 2006). The findings contribute to knowledge about these referral mechanisms since we explore which network ties are most the effective to activate for a referral. On top of this, we contribute to a better understanding of the actor contingencies that influence the effectiveness of referral mechanisms. We also show in this paper how the effectiveness of networks is dependent on the stage of the financing process, hereby stressing the importance of a clear delineation of processes when studying the role of networks. With our focus on the very early stages of venture funding, we contribute to the literature because it is these early stages that have received little attention in previous studies.

Next to the literature on networks, the paper also contributes to literature and practice regarding referrals and signalling. First, we are better able to give tailor-made support for new-venture entrepreneurs, because our findings show how the funding of new ventures is contingent on the specific characteristics of the EiN model. For example, we have provided more understanding of the characteristics that make referrals more effective. Based on this, we will be better able to advise entrepreneurs on the type of referrals to use to access financial resource providers.

DIRECTIONS FOR FUTURE RESEARCH

This paper provides some interesting directions for future research. First, a quantitative study on our research subject following the multidimensional EiN model would be an interesting direction in order to statistically back up the case study findings. Also, it would be interesting to research how the multiple dimensions of the EiN model interact. Secondly, the study shows the positive role of prior functional business experience to the acquisition of financial resources. In future research, it would therefore be interesting to find out exactly why this is the case. Following the EiN model, it would be fruitful to find out whether the effect of prior functional experience is, for example, mediated by strategic, economic, cultural or social factors. Third, it would be an interesting addition to also study the perspective of the investor. This would provide more insight into the most effective network configurations from their perspective. For example, it would be possible to study the strength of the ties between a referral source and a financial resource provider and its effect on the financing decision. Additionally, when combining this with the result of the study from a new-venture perspective, it would be possible to study the effects of all kinds of interactions. For example, we could study interactions between the strength of ties between a new venture and a financial resource provider, a new venture and a referral

source and between a financial resource provider and referral source. Another interesting direction for future research is extending the role of networks with simply being connected to a prominent partner without using the connection as an explicit referral. This paper mainly focused on the role of explicit referrals in accessing financing. However, previous studies indicate that simply being connected to prominent partners can also have a strong influence on financial resource providers in the actual financing decision. Therefore, future studies could also focus more on this network mechanism. In addition, we focused in this paper on the role of networks in identifying and accessing financial resource providers. An additional direction for future research would be to also focus on the actual investment decision after connection is made with the financial resource provider. To conclude, focusing on other resources using the EiN model would be an additional direction for future research. Since we focused on the accessing of financial resource providers, future research could also focus on the different network effects as identified in this paper for accessing, for example, strategic capital or human capital.

REFERENCES

- Aldrich, H., & Zimmer, C. 1986. Entrepreneurship through Social Networks. In D. Sexton & R. Smiler (eds.), *Art and Science of Entrepreneurship*: 3-23. Cambridge: Ballinger Publishing Company.
- Batjargal, B. 2007. Network Triads: Transitivity, Referral and Venture Capital Decisions in China and Russia. *Journal of International Business Studies*, 38(6): 998-1012.
- Batjargal, B., & Liu, M. 2004. Entrepreneurs' Access to Private Equity in China: The Role of Social Capital. *Organization Science*, 15(2): 159-172.
- Baum, J., Calabrese, T., & Silverman, B. 2000. Don't go it Alone: Alliance Network Composition and Startups' Performance in Canadian Biotechnology. *Strategic Management Journal*, 21(3): 267-294.
- Birley, S. 1985. The Role of Networks in the Entrepreneurial Process. *Journal of Business Venturing*, 1(1): 107-117.
- Brown, J., & Reingen, P. 1987. Social Ties and Word-of-Mouth Referral Behaviour. *Journal of Consumer Research*, 14: 350-362.
- Burt, R. 1982. *Towards a Structural Theory of Action*. New York: The Free Press.
- Burt, R. 1992. *Structural Holes: The Social Structure of Competition*. Cambridge: Harvard University Press.
- Burt, R. 1997. The Contingent Value of Social Capital. *Administrative Science Quarterly*, 42(2): 339-365.
- Burt, R. 1999. Entrepreneurs, Distrust and Third Parties. In L. Thompson, J. Levine & D. Messick (Eds.), *Shared Cognition in Organizations: The Management of Knowledge*: 213-243. Hillsdale: Lawrence Erlbaum Associates.
- Burt, R. 2000. The Network Structure of Social Capital. In R. Sutton & B. Staw (Eds.), *Research in Organizational Behaviour*: 345-423. Greenwich: JAI Press.
- Burt, R. 2005. *Brokerage and Closure: An Introduction to Social Capital*. Oxford: Oxford University Press.
- Burton, M., Sorensen, J., & Beckman, C. 2002. Coming from Good Stock: Career Histories and New Venture Formation *Social Structure and Organizations Revisited*, 19: 229-262.
- Chang, S. J. 2004. Venture Capital Financing, Strategic Alliances, and the Initial Public Offerings of Internet Startups. *Journal of Business Venturing*, 19(5): 721-741.
- Coleman, J. 1972. Systems of Social Exchange. *Journal of Mathematical Sociology*, 2: 145-163.
- Coleman, J. 1988. Social Capital in the Creation of Human Capital. *American Journal of Sociology*, 94(Supplement): 95-120.
- Coleman, J. 1990. *Foundations of Social Theory*. Cambridge: Harvard University Press.
- Davidsson, P., & Honig, B. 2003. The Role of Social and Human Capital among Nascent Entrepreneurs. *Journal of Business Venturing*, 18(3): 301-331.
- Deutsch, Y., & Ross, T. 2003. You Are Known by the Directors You Keep: Reputable Directors as a Signalling Mechanism for Young Firms. *Management Science*, 49(8): 1003-1017.
- Elfring, T., & Hulsink, W. 2003. Networks in Entrepreneurship: The Case of High-technology Firms. *Small Business Economics*, 21(4): 409-422.
- Granovetter, M. 1973. The Strength of Weak Ties. *American Journal of Sociology*, 78(6):

- 1360-1380.
- Granovetter, M. 1985. Economic Action and Social Structure: The Problem of Embeddedness. *American Journal of Sociology*, 91(3): 481-510.
- Granovetter, M. 1992. Economic Action and Social Structure: The Problem of Embeddedness. In M. Granovetter & R. Swedberg (Eds.), *The Sociology of Economic Life*: 60-74. Boulder: Westview Press.
- Groen, A. 1994. *Milieu en MKB, Kennis en Kennissen, Milieuinnovatie in de Grafische Industrie: Modelmatig verklaard*. University of Groningen, Groningen.
- Groen, A. 2000. Marketing and Performance of Firms: Networking or Efficient Working? *Tijdschrift voor Bedrijfskunde*.
- Groen, A. 2003. *Knowledge Intensive Entrepreneurship in Networks: a Social System approach*. Academy of Management Conference, Seattle.
- Groen, A. 2005. Knowledge Intensive Entrepreneurship in Networks: Towards a Multilevel Approach. *Journal of Enterprising Culture*, 13(1): 69-88.
- Groen, A., Wakkee, I., & De Weerd-Nederhof. 2008. Managing Tensions in a High-tech Start-up. *International Small Business Journal*, 26(1): 57-81.
- Gulati, R. 1998. Alliances and Networks. *Strategic Management Journal*, 19(4): 293-317.
- Higgins, M., & Gulati, R. 2006. Stacking the Deck: The Effects of Top Management Backgrounds on Investor Decisions. *Strategic Management Journal*, 27(1): 1-25.
- Hite, J., & Hesterly, W. 2001. The Evolution of Firm Networks: from Emerge to Early Growth of the Firm. *Strategic Management Journal*, 22(3): 275-286.
- Hoang, H., & Antoncic, B. 2003. Network-based research in entrepreneurship: A critical review. *Journal of Business Venturing*, 18(2):165-187.
- Honig, B. 1998. What Determines Success? Examining the Human, Financial, and Social Capital of Jamaican Microentrepreneurs. *Journal of Business Venturing*, 13(5): 371-394.
- Jenssen, J. 2001. Social Networks, Resources and Entrepreneurship. *The International Journal of Entrepreneurship and Innovation*, 2(2): 103-109.
- Jenssen, J., & Koenig, H. 2002. The Effect of Social Networks on Resource Access and Business Start-ups. *European Planning Studies*, 10(8): 1039-1046.
- Khaire, M. 2005. *Great Oaks from Little Acorns Grow: Strategies for New Venture Growth*. Columbia University, 1-52.
- Larson, A. 1992. Network Dyads in Entrepreneurial Settings: a Study of Governance of Exchange Relationships. *Administrative Science Quarterly*, 37(1): 76-104.
- Leenders, R., & Gabbay, S. 1999. *Corporate Social Capital and Liability*. Boston: Kluwer Academic Publishers.
- Lockett, A., Ucbasaran, D., & Butler, J. 2006. Opening Up the Investor–Investee Dyad: Syndicates, Teams, and Networks. *Entrepreneurship Theory and Practice*, 30(2): 117-130.
- Maula, M. 2001. *Corporate Venture Capital and the Value Added for Technology Based Ventures*. Helsinki University of Technology, Espoo.
- McEvily, B., & Zaheer, A. 1999. Bridging Ties: A Source of Firm Heterogeneity in Competitive Capabilities. *Strategic Management Journal*, 20(12): 1133 - 1156.
- Meggison, W., & Weiss, K. 1991. Venture Capitalist Certification in Initial Public Offerings. *The Journal of Finance*, 46(3): 879-903.

- Mehra, A., Dixon, A., Brass, D., & Robertson, B. 2006. The Social Networks Ties of Group Leaders: Implications for Group Performance and Leadership Reputation. *Organization Science*, 17(1): 64-79.
- Nahapiet, N., & Ghoshal, S. 1998. Social Capital, Intellectual Capital, and the Organizational Advantage. *Academy of Management Review*, 23(2): 242-266.
- Oh, H., Chung, M., & Labianca, G. 2004. Group Social Capital and Group Effectiveness: The Role of Informal Socializing Ties. *Academy of Management Journal*, 47(6): 860-875.
- Parsons, T. 1964. *The Social System*. New York: The Free Press.
- Parsons, T. 1977. *Social Systems and the Evolution of Action Theory*. New York: The Free Press.
- Powell, W. 1990. Neither Market Nor Hierarchy: Network Forms of Organization. *Research in Organizational Behaviour*, 12: 295-336.
- Powell, W., & Smith-Doerr, L. 2005. Networks and Economic Life. In N. Smelser, & R. Swedberg (Eds.), *The Handbook of Economic Sociology, Second Edition*: 379-402. Princeton: Russell Sage Foundation/Princeton University Press.
- Reuber, A., & Fischer, E. 2005. The Company You Keep: How Young Firms in Different Competitive Contexts Signal Reputation through Their Customers. *Entrepreneurship Theory and Practice*, 29(1): 57-78.
- Rowley, T., Behrens, D., & Krackhardt, D. 2000. Redundant Governance Structures: An Analysis of Structural and Relational Embeddedness in the Steel and Semiconductor Industries. *Strategic Management Journal*, 21(3): 369-386.
- Scholten, V. 2006. *The Early Growth of Academic Spin-offs*. University of Wageningen.
- Shane, S., & Cable, D. 2002. Network Ties, Reputation, and the Financing of new Ventures. *Management Science*, 48(3): 364-381.
- Shane, S., & Stuart, T. 2002. Organizational Endowments and the Performance of University Start-ups. *Management Science*, 48(1): 154-170.
- Starr, J., & MacMillan, I. 1990. Resource Cooptation via Social Contracting: Resource Acquisition Strategies for New Ventures. *Strategic Management Journal*, 11(Special Issue): 79-92.
- Stinchcombe, A. 1965. Social Structure and Organizations. In J. March (Ed.), *Handbook of Organization*: 142-193. Chicago: Rand McNally.
- Stuart, T., Hoang, H., & Hybels, R. 1999. Interorganizational Endorsements and the Performance of Entrepreneurial Ventures. *Administrative Science Quarterly*, 44(2): 315-349.
- Uzzi, B. 1997. Social Structure and Competition in Interfirm Networks: The Paradox of Embeddedness. *Administrative Science Quarterly*, 42(1): 35-67.
- Uzzi, B. 1999. Embeddedness in the Making of Financial Capital: How Social Relations and Networks benefit Firms Seeking Financing. *American Sociological Review*, 64(4): 481-505.
- Wilson, H., & Appiah-Kubi, K. 2002. Resource Leveraging via Networks by High-Technology Entrepreneurial Firms. *The Journal of High Technology Management Research*, 13(1): 45-62.
- Yin, R. 1994. *Case Study Research, Design and Methods*. London: Sage Publications.
- Zhang, J., Wong, P., & Soh, P. 2003. *Network Ties, Prior Knowledge and Resource Acquisition by High Tech Entrepreneurs*. Academy of Management Proceedings,

1-6.

Zhao, L., & Aram, J. D. 1995. Networking and Growth of Young Technology-Intensive Ventures in China. *Journal of Business Venturing*, 10(5): 349-370.

APPENDIX

Table 3: Main Information Sources Case A

	New Venture- Information Source Tie (Strength in 2006)		
	Contact Intimacy	Contact Frequency	Contact Length in Years
Other entrepreneur	Very well	Weekly	6
Informal investor	Very well	Weekly	5
BD university	Very well	Monthly	5
Participation company	Somehow	Monthly	> 10
Bank	Very little	Quarterly	7

Table 4: Interconnectivity Information Sources Case A

	Other entrepreneur	Informal investor	BD university	Participation company	Bank
Other entrepreneur	XX	-	-	3	-
Informal investor	XX	XX	2	5	1
BD university	XX	XX	XX	5	-
Participation company	XX	XX	XX	XX	3
Bank	XX	XX	XX	XX	XX

XX = Not applicable

- = No relation

1-5 = Assessment of the strength of tie by the entrepreneur

Table 5: Main Information Sources Case B

New Venture- Information Source Tie (Strength in 2006)			
	Contact Intimacy	Contact Frequency	Contact Length in Years
MT	Very well	Weekly	5-10
Board!	Very well	Monthly	5-20
Shareholders!	Somehow	Monthly	4-20

Table 6: Interconnectivity Information Sources Case B

	MT	Board!	Shareholders!
MT	XX	3	3
Board!	XX	XX	3
Shareholders!	XX	XX	XX

XX= Not applicable

- = No relation

1-5 = Assessment of the strength of tie by the entrepreneur

Table 7: Main Information Sources Case C

	New Venture- Information Source Tie (Strength in 2006)		
	Contact Intimacy	Contact Frequency	Contact Length in Years
Wife	Very well	Weekly	15
Other entrepreneur	Very well	Weekly	2
Other entrepreneur	Somehow	Weekly	2

Table 8: Interconnectivity Information Sources Case C

	Wife	Other entrepreneur	Other entrepreneur
Wife	XX	-	-
Other entrepreneur	XX	XX	5
Other entrepreneur	XX	XX	XX

XX= Not applicable

- = No relation

1-5 = Assessment of the strength of tie by the entrepreneur

Table 9: Main Information Sources Case D

	New Venture- Information Source Tie (Strength in 2006)		
	Contact Intimacy	Contact Frequency	Contact Length in Years
Employee	Very well	Weekly	4
University researcher	Very well	2 Monthly	10
Manager at other company	Very well	Monthly	12
Manager at other company	Somehow	Monthly	4
Manager at other company	Somehow	Monthly	3

Table 10: Interconnectivity Information Sources Case D

	Employee	University researcher	Manager at other company	Manager at other company	Manager at other company
Employee	XX	-	5	-	1
University researcher	XX	XX	1	5	-
Manager at other company	XX	XX	XX	1	-
Manager at other company	XX	XX	XX	XX	-
Manager at other company	XX	XX	XX	XX	XX

XX= Not applicable

- = No relation

1-5 = Assessment of the strength of tie by the entrepreneur

CHAPTER 4

VENTURE CAPITAL FUNDING FOR TECHNOLOGY-BASED VENTURES: DISENTANGLING THE EFFECTS OF AN ENTREPRENEURIAL TEAM'S START-UP AND FUNCTIONAL EXPERIENCE

JORIS HEUVEN
University of Twente
NIKOS
Capitool 15
Enschede, The Netherlands, 7500 AE
Tel: (+31) 53 - 4895355
Fax : (+31) 53 – 4892159
E-mail: j.m.j.heuven@utwente.nl

AARD GROEN
University of Twente
NIKOS

ABSTRACT

Previous studies have shown that more experienced entrepreneurial teams have less difficulty in acquiring venture capital (VC) funding. In this paper we are specifically interested in the effects of two types of experience on the venture capitalist's investment decision, namely the start-up experience and the functional experience of the entrepreneurial team. Using the 'Entrepreneurship in Networks' (EiN) model, we do not only hypothesize the direct effect of prior start-up experience and functional business experience on the venture capitalist's funding decision; we also study to what extent these relations are mediated by the effects of strategic capital and social capital. By doing so, we are better able to disentangle the multiple effects that prior experience can have in venture funding. Based on a sample of 138 VC funding decisions regarding early-stage technology-based ventures, we found that both the start-up experience and the functional experience of the team have a strong, positive, and direct effect on the venture capitalist's funding decision. However, the mediating effects of strategic capital and social capital differ for the two types of experience. Entrepreneurial teams with more extensive start-up experience have higher reputations (strategic capital) but not significantly stronger ties to the venture capitalists (social capital). Entrepreneurial teams with more functional business experience do have higher reputations as well, but in addition to this, they also have stronger ties to the venture capitalists. For the funding decision, only the mediating effect of social capital (as measured by the strength of tie to the venture capitalist) has a significant impact on the venture capitalist's funding decision. The effect of strategic capital (as measured by reputation) does not have an influence on the VC funding decision. These findings contribute to the development of the EiN model, the literature on the role of prior experience in entrepreneurship and the literature on VC decision-making.

INTRODUCTION

Many studies show how the prior experience of the entrepreneurs positively impacts the entrepreneurial process. For example, Shane (2000) shows how prior experience contributes to the ability of entrepreneurs to spot new opportunities. Besides opportunity recognition, prior research also shows that more experienced entrepreneurs have better access to resources (e.g., Campbell, 1992; Shepherd, Douglas, & Shanley, 2000). Finally, researchers have shown that prior experience also has a positive effect on entrepreneurial outcomes, since ventures started by more experienced entrepreneurs have higher survival and growth rates (e.g., Delmar & Shane, 2006).

In previous research, the impact of multiple types of experience on the entrepreneurial process was examined. The variables applied frequently are "years of industry experience" and "number of ventures started before". In this paper, the focus is on the start-up and functional experience of the members of the entrepreneurial team. More specifically, the focus is on the effects of prior start-up experience and functional business experience in acquiring VC funding by technology-based ventures. The claim that experienced teams will be better able to acquire VC funding is evident; however in this paper, we go one step further. The aim is to disentangle the total effect of a team's start-up and functional experience in the VC funding process into multiple effects. This allows us to be more precise about the benefits that these two types of experience bring to the table when

applying for VC funding. In this paper, not only the direct effects of prior start-up and functional business experience on the venture capitalist's funding decision are studied but also the extent to which these relations are mediated by other factors.

By doing this, a contribution is made to human capital literature because a more complete understanding is reached on the multiple effects that start-up experience and functional business experience can have for entrepreneurial teams. Also, a contribution is made to the literature because of the focus on two specific types of experience: start-up and functional experience. Especially this last type of experience has received little attention in previous literature as identified, as well, by Delmar and Shane (2006). Finally, this paper contributes to the literature on VC decision-making. Although previous studies have found that more experienced entrepreneurial teams are more often funded (e.g., Hall & Hofer, 1993; Zacharakis & Meyer, 2000), it is still unclear exactly why this is the case. Is this only because more experienced teams are better skilled or have more knowledge, or are there also other effects of prior start-up experience and business experience that contribute to a positive funding decision?

By disentangling the effects of prior experience into multiple dimensions, the findings could have substantial practical implications as well. A more systematic understanding of the specific effects of prior experience in the VC funding process will make entrepreneurial teams better able to manage these effects, which will increase the probability of getting funded. Related to this, when we know more precisely what venture capitalists value in entrepreneurial teams, we will be better able to support and train entrepreneurial teams in applying for VC funding.

In the next section, the EiN model is introduced. The EiN model is a model that is designed in order to study entrepreneurial processes. Based on this model, we deduce several potential mediating effects between start-up experience and functional business experience on the venture capitalist's funding decision. Subsequently, we will review the literature and shape hypotheses regarding the multiple effects of start-up experience and functional business experience on the funding decision. After the theory section, the method- and data-collection strategy is explained and subsequently the results are presented. We conclude this paper by discussing the implications of this study to the literature and providing suggestions for future research.

THEORY AND HYPOTHESES

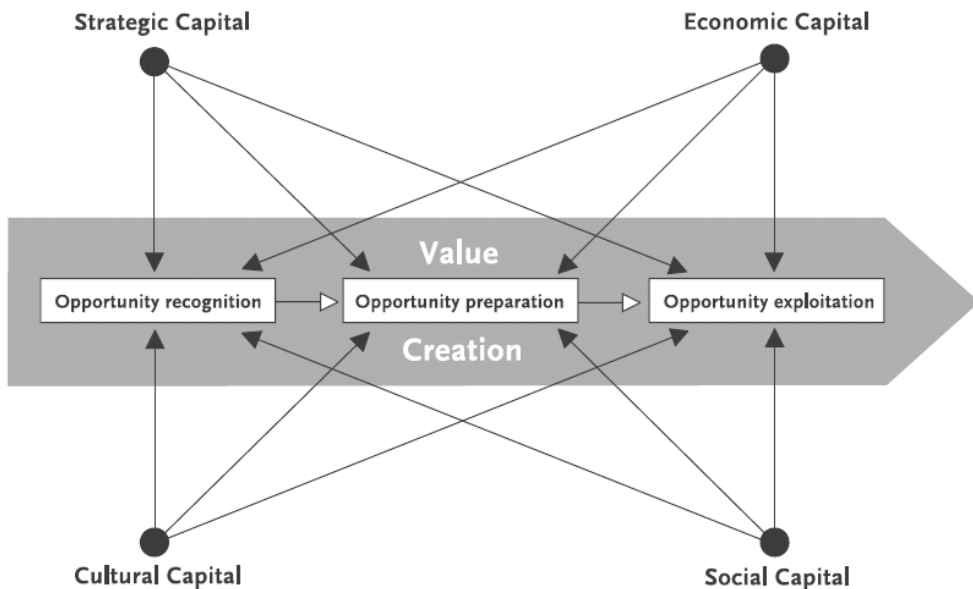
The Entrepreneurship in Networks Model: Disentangling Experience into Multiple Dimensions

Before we elaborate on the more specific topic of this paper, we first explain the core model that is used in this paper order to study entrepreneurial processes: the 'Entrepreneurship in Networks' (EiN) model. This model is based on social systems theory (e.g., Groen, 1994, 2005; Groen, de Weerd-Nederhof, & Kerksen-van Drongelen, 2002; Groen, Wakkee & De Weerd-Nederhof, 2008; Parsons, 1964, 1977) and is designed specifically in order to study entrepreneurial processes. An overview of the EiN model is provided in Figure 1. Even though we do not explain this model in detail in this paper, it is important to note that based on this model, a categorization of the types of capital relevant to the prior start-up

experience and functional experience of entrepreneurial teams is deduced. These dimensions are based on the basic definition of a social system as defined by Parsons (1964).

“... a social system consists in a plurality of individual actors interacting with each other in a situation which has at least a physical or environmental aspect, actors who are motivated in terms of a tendency to the “optimization of gratification” and whose relation to their situations, including each other, is defined and mediated in terms of culturally structured and shared symbols” (Parsons, 1964, pp. 5–6).

Figure 1: The Entrepreneurship in Networks Model



Four mechanisms are embedded in this definition: (1) interaction between actors; (2) striving for goal attainment; (3) optimization of processes; and (4) maintenance of patterns of culturally structured and shared symbols. Each of these mechanisms is related to a specific capital attribute of the actors involved. ‘Striving for goal attainment’ (mechanism 2) deals with strategic goals and the position strived for, and is labelled as *strategic capital*. Strategic capital also refers legitimacy and reputation issues surrounding the organization. ‘Optimization of processes’ (mechanism 3) refers to the efficient organization of entrepreneurial processes and is quite straightforwardly related to money as the basic resource, i.e., *economic capital*. ‘Pattern maintenance and institutionalization of shared symbols’ (mechanism 4), are embodied in *cultural capital*, as they can be found in an organization’s values, knowledge, skills, experience, and technology. Finally, ‘Interactions between actors’ (mechanism 1), is related to the *social network capital*. The central assumption of the EiN model is that enterprises will need sufficient ‘capital’ to be sustainable over time. This implies that entrepreneurial teams need to have or have access to sufficient strategic, economic, cultural and social capital to establish a viable enterprise.

In each interaction between actors, the four types of capital play a role. In terms of the EiN model, we are interested, in this paper, in the question of how the cultural capital (start-up experience and functional business experience) of the entrepreneurial team contributes to the acquisition of economic capital (VC funding). Based on the EiN model, it can be deduced that the total effect of functional business experience at start-up could be mediated by a strategic capital and a social capital effect. For example it could be that venture capitalists do not invest in experienced entrepreneurial teams only because of their knowledge and skills, but also because of their reputation (strategic capital) or because of their existing ties to the venture capitalist (social capital).

Prior Experience and its Impact on the Entrepreneurial Process

Before hypotheses are shaped regarding the multiple effects of prior experience in funding new ventures, literature that focuses on the role of prior experience in the broader context of entrepreneurship is reviewed. In current literature many researchers have focused on the benefits of prior experience of entrepreneurial teams to the starting of new ventures. In this section, we first review studies that focus on the benefits of three types of experience to the entrepreneurial process. These three types of experience, studied in the past, are industry experience, start-up experience and functional experience. The first type of experience, industry experience, has had substantial attention from researchers. Researchers have studied the effects of industry experience on both the survival and growth of new ventures. For example, researchers have found evidence that individual entrepreneurs with more industry experience have a higher chance of new-venture survival (e.g., Bates & Servon, 2000; Bosma, van Praag, Thurik, & de Wit, 2004; Brüderl, Preisendörfer, & Ziegler, 1992; Cooper, Gimeno-Gascon, & Woo, 1994). Added to this, Colombo and Grilli (2005) found that ventures that are started by teams with more industry experience have higher growth rates.

The second type of experience that is studied extensively in the literature is start-up experience. First, evidence is found that individuals, who have started companies in the past, are more likely to do so in the future (Shane & Khurana, 2003). Added to this, Cooper, Woo, and Dunkelberg (1989) found that ventures of entrepreneurs that have owned a business in the past have bigger start-up sizes. Subsequently, when experienced entrepreneurial teams start a new venture, researchers have found that they have a higher chance of survival (Delmar & Shane, 2004; Taylor, 1999). One step further, it has been shown that start-up experience also contributes to the performance of a new venture. For example, evidence is found that ventures founded by experienced entrepreneur(ial team)s have higher sales figures (Delmar & Shane, 2006; Dyke, Fischer, & Reuber, 1992) and grow faster (Colombo & Grilli, 2005).

A third type of experience that has attracted the interest of researchers in entrepreneurship is functional experience. Many researchers have acknowledged that the industry and start-up experience of firm founders do not provide information on the actual content and quality of the activities conducted by these entrepreneurs in their previous activities (e.g., Delmar & Shane, 2006). Functional experience is therefore an interesting area of research and has been researched by many, who often relate functional experience to some kind of performance measure. In line with the literature on industry and start-up experience,

functional experience has been found to have a positive effect on entrepreneurial entry. For example, Kim, Aldrich and Keister (2006) found that managerial experience is positively associated with entrepreneurial entry to a significant extent. Besides the fact that people with a more extensive functional background start businesses more often, they also have a higher chance of survival (Bosma et al., 2004; Brüderl et al., 1992; Walsh, Kirchoff, & Boylan, 1996). In addition to contributing to entrepreneurial entry and survival, functional experience also has a positive effect on new-venture growth and profits. For example, Chandler (1996) researched how the past experience of a founder affects the success of new ventures. He found that this is especially true when there is similarity between the task environment of the new venture and the task environment in his or her previous job. Colombo and Grilli (2005) found, in their study, that it is the technical working experience of entrepreneurial teams as opposed to their commercial working experience that determines the growth of new ventures.

In conclusion, it can be stated that there is substantial support for the benefits of the multiple types of experience to entrepreneurial entry, survival, profits and growth. Therefore, we go one step further in this paper and research what it is exactly about experience that makes it so beneficial to the entrepreneurial process. Researchers often relate experience to some kind of performance measure without exactly specifying the effects of the experience that could explain this relationship. In this paper, the focus is on the start-up experience and functional business experience of start-up teams and how this contributes to their ability to acquire VC. We also research, using the EiN model, to what extent the relations between these two types of experience and acquisition of VC funding is mediated by a team's strategic capital (as measured by reputation) and a team's social capital (as measured by the tie between the team and the venture capitalist). We also take a clear team perspective in this paper. In the literature discussed above, no clear distinction is made between ventures that are started by individual entrepreneurs and ventures that are started by a team. However, since entrepreneurial teams are more relevant in the context of VC, as opposed to ventures started by individual entrepreneurs, we chose to take the entrepreneurial team as a unit of analysis. This is in line with previous studies of prior experience in the context of VC (e.g., Beckman, Burton, & O'Reilly, 2007; Burton, Sorensen, & Beckman, 2002; Higgins & Gulati, 2003, 2006). Therefore, in the hypotheses section, we mainly build on the findings in VC literature that focus on the team level.

Prior Experience and its Effect on Economic Capital Acquisition

In the following sections, hypotheses are shaped on the multiple effects of prior experience in the specific context of funding technology-based ventures. The hypotheses are constructed based on the literature that specifically focuses on the role of prior start-up experience and functional experience in the acquisition of financial resources. The first relationship we hypothesize is the direct relationship between prior start-up experience and the acquisition of VC funding. This relationship is often explained by the higher levels of skills and knowledge of more experienced teams. For example, Reuber and Fischer (1994), in their study, show how the direct relation between multiple types of experience and the performance of a firm is mediated by the expertise acquired during these experiences by the entrepreneur. In the context of VC, Wright, Robbie and Ennew (1998) looked at the specific skills of more experienced entrepreneurs and found that venture capitalists prefer to

invest in experienced entrepreneurs because they have a better “commercial awareness”. Start-up experience and its related skills and knowledge are, in turn, beneficial to the process of getting funded by venture capitalists (Clark, 2008). The studies above were conducted taking the individual entrepreneur as a unit of analysis. However we expect that this knowledge and skill rationale can be applied to ventures started by entrepreneurial teams as well. At this entrepreneurial team level, multiple researchers have found evidence that venture capitalists prefer to invest in entrepreneurs that have started businesses in the past (e.g., Beckman et al., 2007; Cohen & Dean, 2005; Franke, Gruber, Harhoff, & Henkel, 2006; Zhang, 2007).

Researchers that focus on VC decision-criteria also show how the prior functional experience of entrepreneurial teams is an important decision-criterion in VC decisions (Beckman et al., 2007; Burton et al., 2002; Hall & Hofer, 1993; MacMillan et al., 1987). This positive relation between prior functional experience of the entrepreneurial team and VC funding decision is also often explained by referring to the higher level of skills and capabilities that these teams possess (MacMillan, Siegel, & Narasimha, 1985; MacMillan, Zemann, & Subbanarasimha, 1987; Muzyka, Birley, & Leleux, 1996; Reuber & Fischer, 1994; Tyebjee & Bruno, 1984; Zacharakis & Meyer, 2000). Based on the EiN model and the findings summarized in this section, we therefore expect that the cultural capital, as measured by the start-up experience and the functional experience of the entrepreneurial team, is positively related to the team’s ability to acquire VC funding. Therefore Hypotheses 1a and 1b are as follows:

Hypothesis 1a. Entrepreneurial teams with more start-up experience will have a higher probability of getting VC funding.

Hypothesis 1b. Entrepreneurial teams with more business experience will have a higher probability of getting VC funding.

The Mediating Effect of Strategic Capital

As already stated in the previous section, the positive effects of experience are primarily explained by referring to the higher level of skills, capabilities and knowledge of more experienced teams. As can be deduced from the EiN model, it can be expected that the influence of knowledge, skills and capabilities effect (all characteristics that could be labelled as cultural capital) are not the only effects that could explain the positive effects of prior experience to the entrepreneurial process. Strategic capital can be identified as a second explanation of the positive effect of experience. Strategic capital refers to a new venture’s prominence, reputation and power position. Our expectation is that this strategic capital effect mediates the direct relations between prior start-up and functional experience and the venture capitalist’s funding decision.

Previous research provides evidence that the reputation and prominence effect of prior start-up experience has a substantial impact on the future ventures of these experienced entrepreneurs. For example, Westhead, Ucbasaran and Wright (2005) studied serial and portfolio entrepreneurs and asked them to rate twelve assets resulting from their prior experiences. They found that the building of a reputation was the most important asset resulting from prior experience as perceived by serial entrepreneurs. This reputation asset

was ranked second by portfolio entrepreneurs. These findings show how important this reputation effect of start-up experience is in the perception of entrepreneurs. This mechanism was confirmed by Petkova (2006). In her dissertation, she found that new ventures started by entrepreneurial teams that have start-up experience have higher reputations. More importantly, she also found that this reputation significantly contributes to a venture's performance.

The mediating effect of strategic capital also plays an important role for the second type of experience that is studied in this paper: functional experience. Not only start-up experience seems to benefit reputation. A reputation can also be built when working for a company you do not own yourself. For example, Burton et al. (2002) suggest that the structural positions of prior employers have a substantial impact on the ability of entrepreneurial teams to acquire resources. The prominence following these prior employers provides benefits to the reputation of the entrepreneurs, reducing the uncertainty surrounding new ventures as perceived by external stakeholders. In the specific context of venture financing, Burton et al. (2002) find that entrepreneurial teams with higher prominence based on these prior employment positions are more likely to obtain financing. Higgins and Gulati (2003, 2006) have confirmed these results and also show how prior working experience contributes to an increase in prominence and how this prominence affects investor decisions.

Based on these findings and the EiN model, we expect (1) that teams that have more start-up experience and functional business experience will have higher reputations. We also expect (2) that this reputation effect in itself could also have a direct effect on a venture capitalist's funding decision. Therefore Hypotheses 2a, 2b and 2c are:

Hypothesis 2a. Entrepreneurial teams with more start-up experience will have higher reputations.

Hypothesis 2b. Entrepreneurial teams with more functional business experience will have higher reputations.

Hypothesis 2c. Entrepreneurial teams with higher reputations will have a higher probability of getting funded.

The Mediating Effect of Social Capital

To conclude this hypotheses section, one additional explanation of the positive effect of start-up experience and functional experience in VC funding decisions is identified. This additional effect is the social capital effect and is also deduced from the EiN model. In addition to the direct relation between prior experience (cultural capital) and the venture funding decision and the mediating effect of strategic capital, this is the final dimension that could mediate the direct relation between team experience and the venture capitalist's funding decision.

In past decades, there have been many studies that have focused on the benefits of social capital to the entrepreneurial process (for a review see Hoang & Antoncic, 2003). An interesting study in the context of start-up experience and VC funding is conducted by Zhang (2007). He found that entrepreneurial teams consisting of individuals that have

started VC-backed ventures have better connections to VC firms and that these connections, in turn, are beneficial to the funding process. His results show that entrepreneurs that have these connections from previous ventures raise more VC and acquire it more quickly.

Researchers who focus on the functional experience of start-up teams find similar results. For example, many researchers show how functional experience links the team to a network of employees, suppliers, investors and customers (e.g., Campbell, 1992). This implies that functionally experienced entrepreneurial teams have richer and more extensive networks in place when they start their ventures. Secondly, researchers have shown how these diverse networks are, in turn, beneficial to the venture capitalist's funding decision. Beckman et al. (2007) showed, for example, how these diverse affiliations of entrepreneurial teams have a positive impact on the acquisition of VC. The importance of these networks to the acquisition of VC is also shown by Shane and Cable (2002) and Shane and Stuart (2002) who found that direct and indirect ties between entrepreneurial teams and seed-stage investors influence the screening of ventures to be funded through a mechanism of information transfer.

One step further, Batjargal (2007) and Batjargal and Liu (2004) focus on the actual network 'tie strengths' that are most effective for the acquisition of VC. In their research, they focus, in depth, on referral mechanisms and find support for their premise that new-venture teams will have a higher probability of acquiring VC funding when the ties between the entrepreneurial team, the referral source and the venture capitalist are strong. In this study, the focus is only on the dyadic tie between the entrepreneurial team and the venture capitalist. Based on these findings, we expect (1) that entrepreneurial teams with more start-up experience and functional business experience will more often have existing strong connections to the venture capitalists and that (2) the existence of these strong connections contributes positively to a venture capitalist's funding decision. Therefore, the hypotheses regarding the mediating effects of social capital are as follows:

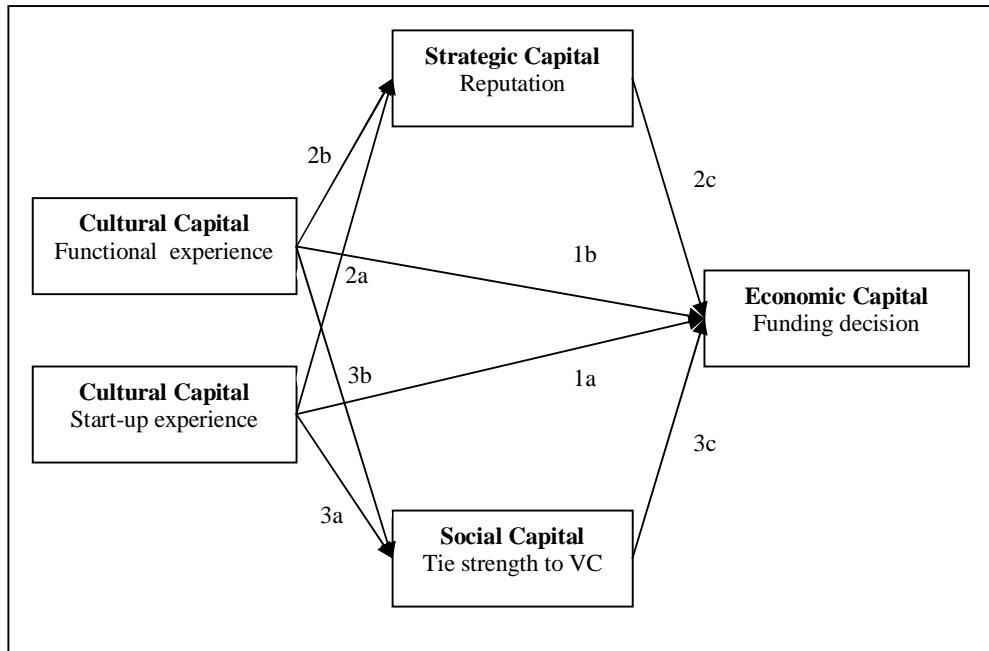
Hypothesis 3a. Entrepreneurial teams with more start-up experience will have stronger ties to venture capitalists.

Hypothesis 3b. Entrepreneurial teams with more functional business experience will have stronger ties to venture capitalists.

Hypothesis 3c. Entrepreneurial teams that have strong ties to venture capitalists will have a higher probability of getting funded.

In Figure 2, the relations we hypothesized in the previous sections regarding the multiple effects of start-up and functional experience on the acquisition of VC funding are summarized.

Figure 2: Research Model and Hypotheses



METHOD AND DATA

Sample

In order to test the hypotheses, data was collected by conducting 57 interviews with VC firms in The Netherlands and Sweden. We chose to interview venture capitalists in two (similar) countries since the population of early-stage venture capitalists in each of these two countries was too small to reach sufficient response levels. An additional criterion was that the venture capitalists invest in technology-based ventures. These venture capitalists were identified by constructing a database of venture capitalists based on the information from the national VC associations of The Netherlands and Sweden. Subsequently, VC industry experts were consulted in both countries to check whether the venture capitalists still existed and whether the venture capitalists really invest in early-stage technology-based ventures. Following this method, a total population of 102 early-stage VC funds in The Netherlands and Sweden was identified. By conducting interviews with 57 of them, more than 50% of the population was covered. We also compared the characteristics of the interviewed VC funds to the funds that were not interviewed. We checked whether these two groups differ regarding, for example, location, the sources of their funds, their investment focus and the number of deals they had made. We did not find differences between the interviewed funds and the funds that were not interviewed. Based on this finding, and the fact that more than 50% of the population was interviewed, we can conclude that our sample of VC funds is a good representation of the population. We interviewed investment managers that were responsible for the daily selection and

screening of new deals. The length of the interviews varied between 1,5 and 2 hours. The interviews were structured and data was checked with publicly-available sources.

We collected data on both funded and unfunded entrepreneurial teams. To begin with, the venture capitalists were asked to provide the most recent example of a funded entrepreneurial team. After this, we also asked them to provide the most recent example of an unfunded proposition in which the characteristics of the team were the main reason not to invest in the venture. In this way, we made sure that there were no other reasons that lead to the decision not to invest (such as, market, strategic fit, or location). For both the funded and unfunded entrepreneurial teams, the venture capitalists were asked to come up with examples in which they had, at least, one meeting with the entrepreneurial team. The reason for this is that it is precisely in this first meeting that the characteristics of the entrepreneurial team become important in the VC decision-making process (Heuven, 2008). Before this stage, the team characteristics are less important because a good business plan or a referral can help the entrepreneurial team to get a first meeting, even when the venture capitalist does not have any information about the actual members of the team. There is also a practical reason for this, because when venture capitalists have not met with the team, it is harder for them to give answers to the specific questions on characteristics of the entrepreneurial team. In total, this yielded in-depth information on 138 deals that were considered for funding.

Measurement

Since the unit of analysis was the level of the entrepreneurial team, we treated the entrepreneurial team as one homogeneous group. The *dependent variable* is concerned with the *economic capital* effects of the venture capitalist's decision and was measured as a dummy variable indicating whether the proposition was funded or not. Where possible, existing scales were used to measure the *independent variables*; for several types of capital, we developed new scales ourselves. For *cultural capital*, both a measurement for start-up experience and a measurement for functional business experience were used. Start-up experience was measured by the number of previous ventures started by the team members. Business experience was measured by four items that measured the functional experience of the entrepreneurial team before meeting the venture capitalist regarding the proposition. These four items consisted of seven-point Likert scales indicating the background of the entrepreneurial team as a whole in, respectively: strategy, financing and marketing/sales and management ($\alpha = .92$). Because of our limited sample size, we did not create a latent construct for functional business experience. Instead, we used the average score of these four items in the analysis to gain degrees of freedom. The *strategic capital* of the new venture was measured by reputation. Reputation was measured as the number of Internet search engine hits of the entrepreneurial team members at the date of the approach to the venture capitalist with the proposition. When there were more entrepreneurs starting a venture, the scores for the individual reputations of the team members were summarized. A search engine that allowed us to see how many hits the entrepreneur(s) had at a certain date in the past was used. In the analysis, we used the Log transformed values of the reputation scores. This measurement of reputation by media appearance was adapted from Petkova (2006). This approach could have some limitations. For example, someone can have many search engine hits because of things irrelevant to entrepreneurship. It could also

be that someone has many hits but that these hits contain a lot of negative information on the entrepreneurs. In this case, an entrepreneur can have a high reputation but for the wrong reasons. In order to overcome this we checked, the first 50 hits of each team member's name to see whether these hits contained clear negative information on the team member. In the data, we did not find any team member for whom the hits contained clear negative information. Added to this, our measurement of reputation is also supported by the work of Petkova (2006). In her study, she looked not only at the number of media appearances, but also at media tenor. She found that the number of media appearances had a significant positive effect on venture performance. Media tenor, which looked at the positive/negative content of these media appearances, did not have any significant effect on venture performance. This shows that the number of media appearances is a better predictor of venture performance than media tenor in our study. We expect, therefore, that for our study, this variable is also a good indicator for reputation. Finally, *social capital* was measured by the entrepreneurial team's existing tie to the venture capitalist at the date of the approach to the venture capitalist with the proposition. This tie was measured using two items. These two items were adapted from Granovetter (1973; Scholten, 2006). They measured both the affinity and frequency of contact between the venture capitalist and the entrepreneurial team. For affinity, the venture capitalists were asked how well they knew the team members when they were contacted for the first time with the proposition. The answer to this question was scored in four boxes: (1) not at all (2) very little (3) somehow, and (4) very well. Frequency of contact was measured through four boxes: (1) never spoken before (2) once a year (3) once a month, and (4) once a week. Subsequently, the scores on these items (0 - 3) were combined to create one ordinal 'tie strength' variable.

Descriptive Statistics and Analysis

The data were analyzed using structural equations modelling. LISREL was used in order to be able to disentangle the multiple effects of experience in obtaining VC funding. In Tables 1 and 2 some brief descriptives of the data are provided. Because several variables in this study violated the assumption of normality, we decided to run the LISREL analysis based on an asymptotic covariance matrix⁶. We also chose to apply 'weighted least squares' as the estimation method. The advantage of this method is that this method makes no assumptions concerning the distribution of the observed variables.

⁶ In order to check the robustness of our results, we also ran the LIREL analysis based on a polyserial correlation matrix. Regarding the actual testing of hypothesis, the use of a polyserial correlation matrix would have made no difference when compared to the results presented in this paper. This result shows support for the robustness of the models we found based on the asymptotic covariance matrix (Bollen, 1989).

Table 1: Descriptives of Team Characteristics

	N	Min	Max	Mean	S. D.
X1: Functional business experience	138	1	7	4.254	1.706
X2: Number of ventures started	138	0	4	.700	1.021
X3: Reputation	138	0	3.29	.824	.971
X4: Tie strength to the VC	138	0	6	.768	1.701

Table 2: Correlations between Variables

	X2	X3	X4	X5
X1: Functional business experience	.403**	.301**	.290**	.797**
X2: Number of ventures started	1	.354**	.212*	.501**
X3: Reputation		1	.267**	.294**
X4: Tie strength to the VC			1	.378**
X5: Funding decision				1

* p< .05 (two-tailed)

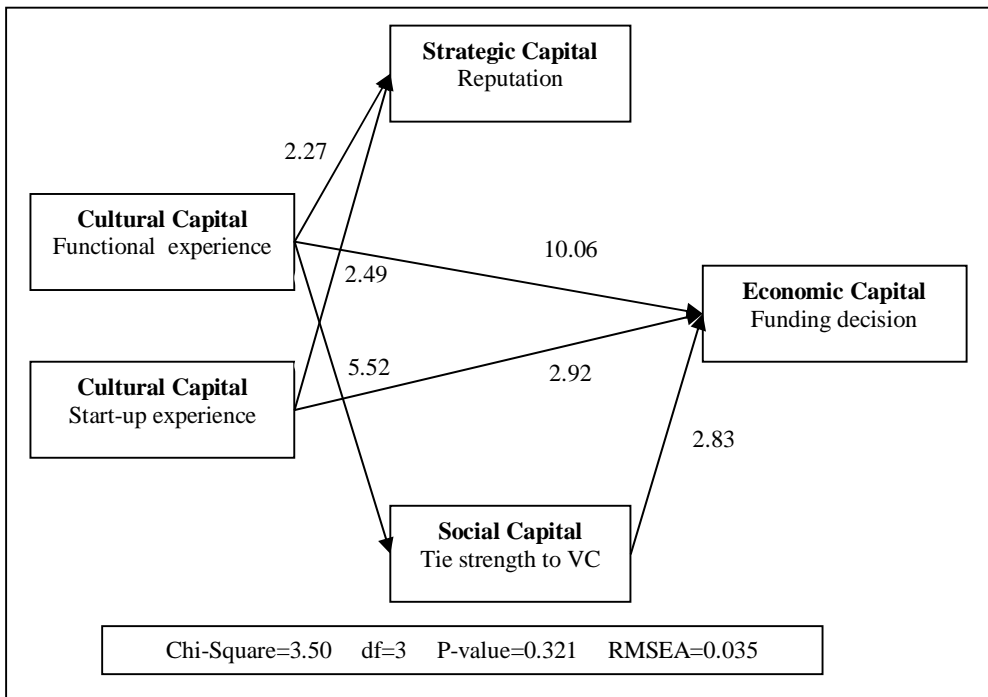
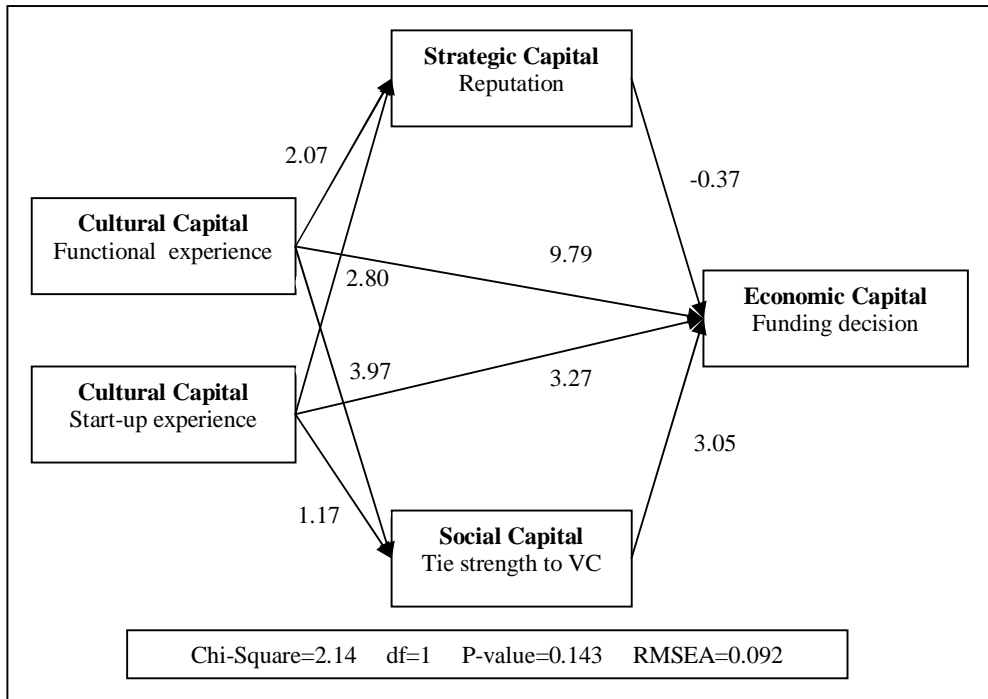
** p< .01 (two-tailed)

RESULTS

Before the individual parameters are discussed, we first assess the ‘Goodness of Fit’ of the LISREL model as a whole. First of all, the model as proposed in the hypotheses section was tested. The resulting model is a model that does not fit the data very well. For one thing, the Chi Square has a value of 2.14 with a corresponding p-value of 0.14. Additionally, the RMSEA has a value of 0.09, which also provides support for a misfit between the model and the data. In Figure 3, the model that resulted from running the full model as proposed in the hypotheses section is summarized. The numbers in the model are the t-values of the hypothesized relations.

In order to improve the model fit, the relations that were insignificant were deleted. Therefore the insignificant hypothesized relation between start-up experience and tie strength and the relation between reputation and funding-decision were deleted. The resulting model is presented in Figure 4. The model has a Chi Square of 3.50 with a corresponding P-value of 0.32. In addition, the RSMEA has a value of 0.035 and the RMR a value of 0.06. The GFI has a value of 1.00. These statistics show that the modified model fits the data well. The modified model had an R^2 of 0.69 meaning that 69% of variance in the funding decisions regarding characteristics of entrepreneurial teams is explained by the model. In the next paragraphs, we discuss the individual relations in our model in order to test our hypotheses.

Figure 3 & 4: Model before and after Modification, T-Values



Start-Up and Functional Experience and the Venture Capitalist's Funding Decision

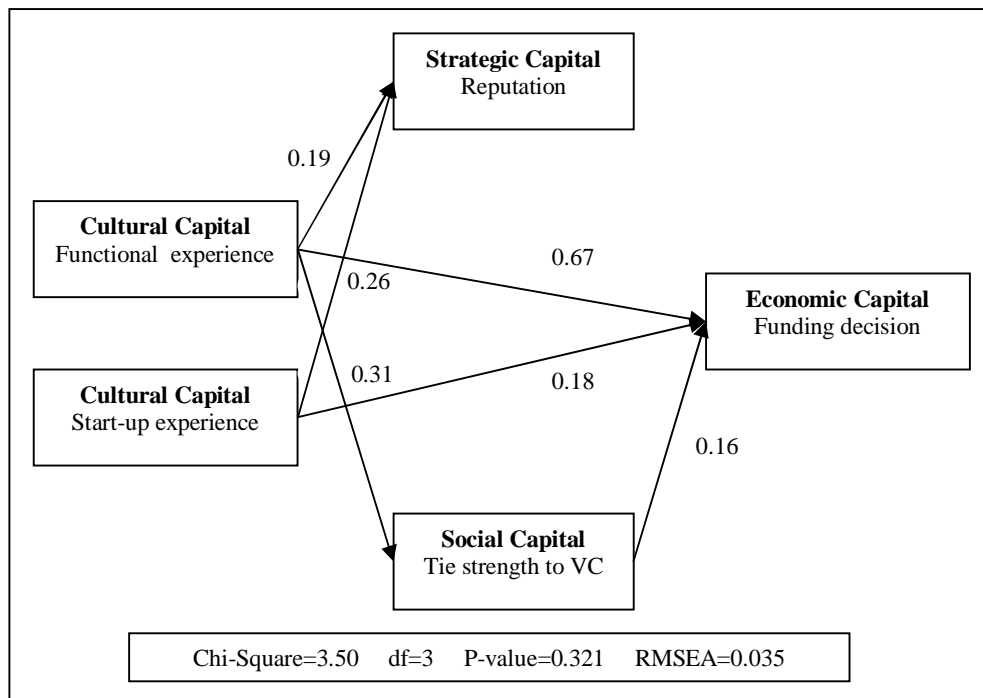
The first set of hypotheses is concerned with the direct effect of functional experience and start-up experience on the funding decision. *The results show support for Hypothesis 1a.* The relation between start-up experience and the funding decision is highly significant ($p < .01$) and in the direction hypothesized. This means that those entrepreneurial teams that started companies in the past have a significant higher probability of getting VC funding. *Hypothesis 1b is confirmed* as well. Again the relation is in the direction hypothesized and highly significant ($p < .001$). By looking at the standardized solution, the effect sizes of start-up and functional experience on the funding decision can be compared. The standardized results of the adapted model are provided in Figure 5. When comparing the size of the effect of start-up and functional experience, we can see that the effects size of functional experience is about 3.5 times bigger than the effect size of start-up experience. This means that functional experience is a stronger predictor for the funding decision than start-up experience. Thus, both Hypotheses 1a and 1b were confirmed.

Mediating Effect of Strategic Capital

In Hypothesis 2a, we expected that those entrepreneurial teams with start-up experience would have higher reputations. The results show a highly significant positive effect of start-up experience on reputation ($p < .025$). This means that *Hypothesis 2a is confirmed*. For entrepreneurial teams with more functional experience, a higher reputation was hypothesized in Hypothesis 2b. In the model, a significant effect of functional experience on reputation was found ($p < .05$), meaning that *Hypothesis 2b is confirmed* as well. When comparing the coefficients in the standardized solution between start-up experience and reputation and between functional experience and reputation, it can be concluded that start-up experience is a stronger predictor for reputation than functional experience (.26 against .19).

In Hypothesis 2c, we expected that those teams that have more strategic capital as measured by reputation will have a higher probability of getting VC funding. Figure 3 shows that the hypothesized relation between reputation and the funding decision is insignificant. Therefore *Hypothesis 2c is not supported*. Although the relation is insignificant, it is remarkable to see that the direction of the relation is in the opposite direction to Hypothesis 2c. This indicates that it might even have a negative impact on the funding decision when a team consists of members with high reputations.

Figure 5: Model after Modification, Standardized Results



Mediating Effect of Social Capital

Based on the EiN model, we deduced that one additional dimension could play a mediating role in the relation between experience and the funding decision, namely the ‘social capital’ dimension. In Hypothesis 3a, we expected that entrepreneurial teams with more start-up experience would have a stronger tie to the venture capitalist that they approach for funding. As can be seen in Figure 3, the relation was in the direction hypothesized but not significant. Therefore, *Hypothesis 3a was not supported*. For entrepreneurial teams with more functional experience, we also expected that they would have stronger ties to the venture capitalist when they approach him for funding. The relation between these variables is in the direction hypothesized and is highly significant ($p < .001$), so it can be concluded that *Hypothesis 3b is confirmed* by the model. When comparing the indirect effect of functional experience to the direct effect of functional experience, we see that the effect size of the direct effect is much higher than that of the indirect effect. This implies that the magnitude of the mediating network tie is quite small compared to the direct effect of functional experience on the funding decision.

In the last hypothesis (3c), we expected that those entrepreneurial teams that have stronger ties to the venture capitalist would have a higher probability of receiving funding. The results show that the relation that was hypothesized is again in the direction that was expected and highly significant ($p < .01$). Therefore we can conclude that *Hypothesis 3c is confirmed* as well. When comparing the standardized effect sizes of start-up experience,

functional experience and strength of tie to the venture capitalist, we can conclude that the network tie between the entrepreneurial team and the venture capitalist is a quite strong predictor of the funding decision as well. We already discussed that the standardized effect of functional experience is 3.5 times larger than the standardized effect of start-up experience. When comparing the standardized effect on the funding decision of a team's start-up experience to the standardized effect of the network tie, we see that the effect sizes are quite similar (.18 against .16).

CONCLUSIONS, CONTRIBUTIONS AND IMPLICATIONS

In this paper we tested how two specific types of cultural capital, namely the start-up experience and functional business experience of entrepreneurial teams, influence the venture capitalist's funding decision. We did this by disentangling the effects of these types of experience into three types of sub-effects that were deduced from the EiN model. These three types of effects are (1) a cultural capital effect as measured by prior start-up and functional experience (2) a strategic capital effect as measured by the team's reputation, and (3) a social capital effect as measured by the team's tie to the venture capitalist. To study these effects, data was collected on 138 VC funding decisions in both The Netherlands and Sweden. We found that both start-up experience and functional experience have a strong direct positive effect on the venture capitalist's funding decision. However, the two types of experience are mediated by a strategic capital and social capital effect in different ways.

The findings contribute to the literature in several ways. First of all, the findings provide some implications for the EiN model in the context of VC financing (e.g., Groen, 1994, 2005; Groen et al., 2002, 2008). We hypothesized that three types of entrepreneurial team characteristics influence the venture capitalist's funding decision: strategic, cultural and social characteristics. The findings show that the strategic dimension, as measured by the team's reputation, does not have a significant impact on the funding decision. We should therefore research more extensively the conditions under which certain dimensions of the EiN model are most influential, in order to better adapt it to specific situations.

A second way in which an addition is made to the literature is the focus on start-up experience and functional experience. In current research, several approaches to experience are applied. The variables applied most frequently are 'years of industry experience' and 'number of ventures started previously'. In this paper, we focused on the start-up experience and functional background of the team members. This last type of experience is identified particularly by Delmar and Shane (2006) as a type of experience that has received little attention in the literature. Added to this, a contribution is made to the literature by disentangling the multiple effects of a team's prior start-up experience and functional business experience on the funding decisions of venture capitalists. By disentangling the total effects of start-up experience and functional experience into multiple dimensions, a more detailed understanding is achieved of the benefits of experience to the acquisition of VC funding. For example, the results show that the direct effects of start-up experience and functional experience on the venture capitalist's funding decision are highly significant. When looking at the mediating effects of reputation (strategic capital) and tie strength to the venture capitalist (social capital), the mediating effects differ for the two

types of experience. Regarding start-up experience, the results show that entrepreneurial teams with more start-up experience do have higher reputations but do not have significantly stronger ties to the venture capitalists compared to teams that lack this experience. For functional business experience, the results are slightly different. Entrepreneurial teams with more functional business experience do have higher reputations as well, but do also have stronger ties to the venture capitalists. In a further step, when we look at the impact of these mediating effects on the funding decision, it can be seen that the reputation (strategic capital) of an entrepreneurial team does not have an impact on the VC funding decision. For the social capital dimension, we see that a strong tie between the venture capitalist and the entrepreneurial team does contribute significantly to a positive funding decision.

Related to this, the study also contributes to the literature on VC decision-making. Although previous studies show that more experienced entrepreneurs have a higher likelihood of getting funded, it is not yet clear what exactly causes this relation (e.g., Beckman et al., 2007; Burton et al., 2002; Hall & Hofer, 1993; MacMillan et al., 1987). These relations are mainly studied without looking at mediating or moderating effects. The results show that the benefits of start-up experience in the VC funding process mainly lie in the cultural capital area (knowledge, skills). For 'prior functional business experience', the benefits are most prominent in cultural capital and social capital. Added to this, the results show which dimensions of the EiN model are perceived as most important to the venture capitalist's funding decision. It is interesting to note, in this context, that the strategic capital, as measured by a team's reputations, does not appear to play any role in the venture capitalist's funding decision. This strongly supports the notion that venture capitalists actually rely on their own judgment of the entrepreneurial team and that they do not care how well certain entrepreneurs are known in the wider context. This also explains the importance of the significant effect of social capital on the funding decision.

This study has substantial practical implications. Because we now know exactly what experience brings to the table and how the various types of EiN capital of the team contribute to a positive funding decision, we are better able to advice and train entrepreneurs looking for VC funding. For example, the findings show that the cultural dimension of prior experience is the most influential in the venture capitalist's decision. Compared to these effects, the social capital dimension plays a minor role. This means that when we want to help entrepreneurs in obtaining VC funding, improving their knowledge and skills might be a better strategy than giving them network support.

LIMITATIONS AND FUTURE RESEARCH

Although this study has made several contributions to both the literature and to practice, there are some weaknesses in this study. First of all, the sample we used is rather small. A bigger sample could have provided more analytical opportunities. Second, due to practical considerations, the data was only collected from a venture capitalist's perspective. In many cases, we were not able to triangulate their input with other sources. This was mainly caused by the fact that many venture capitalists did not want us to contact the actual entrepreneurial teams that were discussed during the interviews. Added to this, we took the entrepreneurial team as a unit of analysis and in collecting data, the teams were treated as

one homogeneous group. However, in the literature, evidence is also found that, for example, team heterogeneity is an important predictor for a venture's financial performance (Hayton & Zahra, 2005) and its ability to acquire financial resources (e.g., Zimmerman, 2008). In this study, we did not collect data on the level of the individual team members. Therefore, we were not able to look into heterogeneity issues as well. This can be regarded as a shortcoming of the study.

Although this paper has some interesting implications, we can also identify some interesting directions for future research based on these results. First of all, the question is raised as to whether the findings would be similar if we did not look at a team's start-up and functional experience alone, but also at its industry experience. For example, it could be that reputations are not important in a venture capitalist's funding decision when looking at start-up and functional experience, but that they do play a role when looking at other types of experience. Second, we could also look into the (side) effects of experience in other stages of the VC funding process. For example, we found that reputations do not matter in the venture capitalist's funding decision. Although reputation is not important in the actual decision, it could play an important role in, for example, arranging the first meeting with the venture capitalist. For example, when a venture capitalist already knows about an entrepreneur, he could be more willing to plan a meeting. An additional area for future research would be to see whether there are differences in the effects of start-up/functional experience, reputation and pre-existing network ties between various types of venture capitalists. For example, do all venture capitalists rely on their own judgment of an entrepreneur's cultural capital, or are there types of industries where venture capitalists rely on reputations and social ties more extensively in taking investment decisions? Added to this, it would be interesting to see how the experience, knowledge and reputation of the venture capitalist himself plays role. It would also be interesting to see whether the direct and mediating effects of a team's start-up and functional experience also influence decisions on the provision of other types of resources. For example, are the mediating effects of functional experience the same for decisions of potential employees when they consider working for the venture?

REFERENCES

- Bates, T., & Servon, L. 2000. Viewing Self-employment as a Response to Lack of Suitable Opportunities for Wage Work. *National Journal of Sociology*, 12(2): 23–53.
- Batjargal, B. 2007. Network Triads: Transitivity, Referral and Venture Capital Decisions in China and Russia. *Journal of International Business Studies*, 38(6): 998-1012.
- Batjargal, B., & Liu, M. 2004. Entrepreneurs' Access to Private Equity in China: The Role of Social Capital. *Organization Science*, 15(2): 159-172.
- Bollen, K. A. 1989. *Structural Equations with Latent Variables*. New York: Wiley.
- Bosma, N., Van Praag, M., Thurik, R. & de Wit, G. 2004. The Value of Human and Social Capital Investments for the Business Performance of Startups. *Small Business Economics*, 23(3): 227–240.
- Beckman, C., Burton, D., & O'Reilly, C. 2007. Early Teams: The Impact of Team Demography of VC Financing and Going Public. *Journal of Business Venturing*, 22(2): 147-173.
- Burton, M., Sorensen, J., & Beckman, C.M. 2002. Coming from Good Stock: Career Histories and New Venture Formation. *Social Structure and Organizations Revisited*, 19: 229-262.
- Brüderl, J., Preisdörfer, P., & Ziegler, R. 1992. Survival Chances of Newly Founded Business Organizations. *American Sociological Review*, 57(April): 227–242.
- Campbell, C. 1992. A Decision Theory Model for Entrepreneurial Acts. *Entrepreneurship Theory and Practice*, 17(1): 21–27.
- Chandler, G.N. 1996. Business Similarity as a Moderator of the Relationship between Pre-Ownership Experience and Venture Performance. *Entrepreneurship Theory and Practice*, 20(3): 51–65.
- Clark, C. 2008. The Impact of Entrepreneurs' Oral 'Pitch' Presentation Skills on Business Angels' Initial Screening of Investment Decisions. *Venture Capital*, 10(3): 257-279.
- Cohen, B.D., & Dean, T.J. 2005. Information Asymmetry and Investor Valuation of IPOs: Top Management Team Legitimacy as a Capital Market Signal. *Strategic Management Journal*, 26(7): 683–690.
- Colombo, M. G., & Grilli, L. 2005. Founders' Human Capital and the Growth of New Technology-Based Firms: A Competence-Based View. *Research Policy*, 34(6): 795-816.
- Cooper, A. C., Gimeno-Gascon, F. J., & Woo, C. Y. 1994. Initial Human and Financial Capital as Predictors of New Venture Performance. *Journal of Business Venturing*, 9(5): 371-395.
- Cooper, A.C., Woo, C.Y., & Dunkelberg, W.C. 1989. Entrepreneurship and the Initial Size of Firms. *Journal of Business Venturing*, 4(5): 317-332.
- Delmar, F., & Shane, S. 2004. Legitimizing First: Organizing Activities and the Survival of New Ventures. *Journal of Business Venturing*, 19(3): 385-410.
- Delmar, F., & Shane, S. 2006. Does Experience Matter? The Effect of Founding Team Experience on the Survival and Sales of Newly Founded Ventures. *Strategic Organization*, 4(3): 215-247.

- Dyke, L., Fischer, E., & Reuber, R. 1992. An Inter-Industry Examination of the Impact of Owner Experience on Firm Performance. *Journal of Small Business Management*, 30(4): 72-87.
- Franke, N., Gruber, M., Harhoff, D., & Henkel, J. 2006. What You are is What You like-- Similarity Biases in Venture Capitalists' Evaluations of Start-Up Teams. *Journal of Business Venturing*, 21(6): 802-826.
- Granovetter, M. 1973. The Strength of Weak Ties. *American Journal of Sociology*, 78(6): 1360-1380.
- Groen, A. 1994. *Milieu en MKB, Kennis en Kennissen, Milieuinnovatie in de Grafische Industrie: Modelmatig verklaard*. University of Groningen, Groningen.
- Groen, A. 2005. Knowledge Intensive Entrepreneurship in Networks: Towards a Multilevel Approach. *Journal of Enterprising Culture*, 13(1): 69-88.
- Groen, A., de Weerd-Nederhof, P., & Kerssens-van Drongelen, I. 2002. Creating and Justifying Research and Development Value: Scope, Scale, Skill and Social Networking in R&D. *Creativity and Innovation Management*, 11(1): 2-16.
- Groen, A., Wakkee, I., & De Weerd-Nederhof. 2008. Managing Tensions in a High-tech Start-up. *International Small Business Journal*, 26(1): 57-81.
- Hall, J., & Hofer, C. 1993. Venture Capitalists' Decision Criteria in New Venture Evaluation. *Journal of Business Venturing*, 8(1): 25-42.
- Hayton, J., & Zahra, S. 2005. Venture Team Human Capital and Absorptive Capacity in High Technology New Ventures. *International Journal of Technology Management*, 31(3/4): 256-274.
- Heuven, J. 2008. *Referrals in the Venture Capital Financing Process: Do Network Ties Matter?* Academy of Management Conference, Anaheim.
- Higgins, M., & Gulati, R. 2003. Getting Off to a Good Start: The Effects of Upper Echelon Affiliations on Underwriter Prestige. *Organization Science*, 14(3): 244-263.
- Higgins, M., & Gulati, R. 2006. Stacking the Deck: The Effects of Top Management Backgrounds on Investor Decisions. *Strategic Management Journal*, 27(1): 1-25.
- Hoang, H., & Antoncic, B. Network-Based Research in Entrepreneurship: A Critical Review. *Journal of Business Venturing*, 18(2): 165-187.
- Kim, P., Aldrich, H., & Keister, L. 2006. Access (not) Denied: The Impact of Financial, Human and Cultural Capital on Entrepreneurial Entry in the United States. *Small Business Economics*, 27(1): 5-22.
- MacMillan, I. C., Siegel, R., & Narasimha, P. N. S. 1985. Criteria Used by Venture Capitalists to Evaluate New Venture Proposals. *Journal of Business Venturing*, 1(1): 119-128.
- MacMillan, I. C., Zemann, L., & Subbanarasimha, P. 1987. Criteria Distinguishing Successful from Unsuccessful Ventures in the Venture Screening Process. *Journal of Business Venturing*, 2(2): 123-137.
- Muzyka, D., Birley, S., & Leleux, B. 1996. Trade-Offs in the Investment Decisions of European Venture Capitalists. *Journal of Business Venturing*, 11(4): 273-288.
- Parsons, T. 1964. *The Social System*. New York: The Free Press.
- Parsons, T. 1977. *Social Systems and the Evolution of Action Theory*. New York: The Free Press.
- Petkova, A. 2006. *Reputation Building by New Ventures: Three Essays on Processes and Performance*. Dissertation, University of Maryland.

- Reuber, R., & Fischer, E. 1994. Entrepreneurs' Experience, Expertise, and the Performance of Technology-Based Firms. *IEEE Transactions on Engineering Management*, 41(4): 365-374.
- Scholten, V. 2006. *The Early Growth of Academic Spin-offs*. University of Wageningen.
- Shane, S. 2000. Prior Experience and the Discovery of Entrepreneurial Opportunities. *Organization Science*, 11(4): 448-469.
- Shane, S., & Cable, D. 2002. Network Ties, Reputation, and the Financing of New Ventures. *Management Science*, 48(3): 364-381.
- Shane, S., & Khurana, R. 2003. Bringing Individuals back in: the Effects of Career Experience on New Firm Founding. *Industrial & Corporate Change*, 12(3): 519-543.
- Shane, S., & Stuart, T. 2002. Organizational Endowments and the Performance of University Start-ups. *Management Science*, 48(1): 154-170.
- Shepherd, D., Douglas, E., & Shanley, M. 2000. New Venture Survival: Ignorance, External Shocks and Risk Reduction Strategies. *Journal of Business Venturing*, 15(5-6): 393-410.
- Taylor, M. 1999. The Survival of the Fittest: An Analysis of Self-Employment Duration in Britain. *The Economic Journal*, 109: C140-C155.
- Tyebjee, T. T., & Bruno, A. V. 1984. Venture Capital: Investor and Investee Perspectives. *Technovation*, 2(3): 185-208.
- Walsh, S., Kirchoff, B., & Boylan, R. 1996. Founder Backgrounds and Entrepreneurial Success: Implications for Core Competence Strategy Application to New Ventures. *Frontiers of Entrepreneurship Research*: 146-154. Wellesley, MA: Babson College.
- Westhead, P, Ucbasaran, D., & Wright, M. 2005. Experience and Cognition: Do Novice, Serial and Portfolio Entrepreneurs Differ? *International Small Business Journal*, 23(1): 72-98.
- Wright, M., Robbie, K., & Ennew, C. 1997. Venture Capitalists and Serial Entrepreneurs. *Journal of Business Venturing*, 12(3): 227-249.
- Zacharakis, A., & Meyer, G. 1998. A Lack of Insight: Do Venture Capitalists Really understand Their Own Decision Process? *Journal of Business Venturing*, 13(1): 57-76.
- Zhang, J. 2007. *The Advantage of Experienced Start-Up Founders in Venture Capital Acquisition: Evidence from Serial Entrepreneurs*. IZA Discussion Paper.
- Zimmerman, M. 2008. The Influence of Top Management Team Heterogeneity on the Capital Raised through an Initial Public Offering. *Entrepreneurship Theory and Practice*, 32(3): 391-414.

CHAPTER 5

REFERRALS AND VENTURE CAPITAL DEAL FLOW: WHO DO VENTURE CAPITALISTS RELY ON?

JORIS HEUVEN
University of Twente
NIKOS
Capitool 15
Enschede, The Netherlands, 7500 AE
Tel: (+31) 53 - 4895355
Fax : (+31) 53 – 4892159
E-mail: j.m.j.heuven@utwente.nl

AARD GROEN
University of Twente
NIKOS

ABSTRACT

Early-stage technology-based ventures often have difficulties in acquiring the financial resources needed for growth. Technology-based ventures face a ‘liability of newness’ and therefore potential investors face a great deal of uncertainty when investing in this type of venture. Previous research has shown several strategies that ventures can pursue in order to overcome ‘the liability of newness’. In this study, the focus is on one of these strategies: the use of explicit third party referrals when connecting to venture capital (VC) firms. The role that referrals can play for new ventures has been widely acknowledged; however the specific characteristics that make one referral more successful than another have received little attention. Based on the ‘Entrepreneurship in Networks’ (EiN) model, a model to study entrepreneurial processes, four types of referral capital that could be influential in connecting new ventures to VC firms are deduced. These four types of capital are strategic, economic, cultural and social capital. Based on a sample of 84 referrals involved in early-stage VC deal flow, we find that two types of capital of the EiN model drive the success of the referral. First, the referral involved in deal flow is more successful when the referral source has a strong functional background in business (cultural capital). Second, venture capitalists rely heavily on referrals from people with whom they have strong ties (social capital). These findings have important implications for the development of the EiN model and the literature on social networks, signalling and VC.

INTRODUCTION

Because of ‘the liability of newness’ surrounding technology-based ventures, this type of new venture often has problems in acquiring the financial resources needed for growth. The uncertainty regarding, for example, the market, the technology and the team causes a reluctance on the part of resource providers to provide resources to the venture. In order to overcome this problem, there are many strategies a venture can pursue to decrease the uncertainty as perceived by resource providers. In this paper, the focus is on one of these strategies: the use of explicit third party referrals. The role of referrals is studied in the context of getting access to one particular type of financial resource providers: VC firms. Many researchers have stressed the importance of referrals in a venture capitalist’s deal flow. The literature reveals differences in the percentage of deals that come to venture capitalists by third party referral, varying between 46 and 65% (e.g., Jugel, 2001; Tyebjee & Bruno, 1984; Vater, 2002; Wells, 1974).

By focusing on the explicit referrals involved in VC deal flow, several contributions are made to the literature. First of all, a contribution is made to literature on the role of networks, more specifically third party referrals, in the resource acquisition process of new ventures. Thus, we respond to the call of Lockett, Ucbasaran and Butler (2006). In their review paper, they argue that in a VC context, the focus should not only be on the entrepreneurial team-venture capitalist dyad but also on the broader set of actors involved in the funding process. A contribution is also made to network literature since a multidimensional approach to the referral characteristics is applied, while current approaches usually take a one-dimensional approach by, for example, only focusing on the network characteristics regarding these referrals. These one-dimensional approaches often lead to fragmented findings (Batjargal, 2007; Batjargal & Liu, 2004; Janssen, 2001).

Related to this, a contribution is made to the literature on new-venture signalling. When entrepreneurs know more about the characteristics that make third party referrals most effective, they also know which parties they should use to signal quality and legitimacy to external stakeholders (Deutsch & Ross, 2003; Higgins & Gulati, 2003; Khaire, 2005; Reuber & Fischer, 2005). Finally, a contribution to the literature is made by our focus on the role of third parties in the VC funding process. As the previous paragraph already indicated, many researchers have acknowledged the importance of referrals to a venture capitalist's deal flow. However, the exact characteristics that make these referrals most successful have received little attention in the literature. In addition, we add to this literature because we focus on a very early stage of the VC funding process. Most VC studies take the investment decision of the venture capitalist as the dependent variable. Less attention has been paid to the deal flow stage of the VC investment process. This is a shortcoming in the literature because many entrepreneurs fail to get the attention of venture capitalists in this very early stage.

Next to the contributions to the literature, the findings could have practical implications as well. Based on the results, entrepreneurs will be better aware of the signalling value of a referrals and the type of referrals that are most successful in connecting entrepreneurs to VC funds. Added to this, the people who play a referral role in early-stage funding (e.g., incubators and business consultants) will be more aware of the characteristics that make their role most influential in the VC deal flow stage.

In the next section, the EiN model is introduced. The EiN model is the core model that is applied in this study in order to study entrepreneurial processes. Based on the EiN model, four types of referral capital that could be influential in VC deal flow are deduced. Subsequently, the literature is reviewed and hypotheses are shaped on the role of these types of referral capital in VC deal flow. After the theory section, the method and data collection strategy is explained. The results are then presented and the paper is concluded with a discussion on the implications of this study to the literature and the provision of some suggestions for future research.

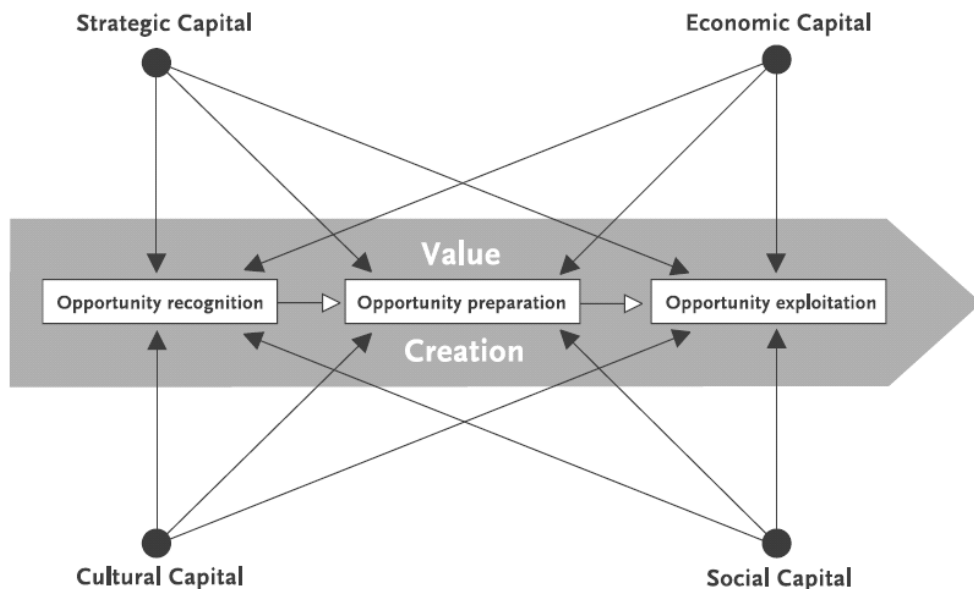
THEORY AND HYPOTHESES

The Entrepreneurship in Networks Model

In this section we explain the core model we use in order to study the role of referrals in deal flow: the 'Entrepreneurship in Networks' (EiN) model. This model is based on social systems theory (e.g., Groen, 1994, 2005; Groen, De Weerd-Nederhof & Kerssens-van Drongelen, 2002; Groen, Wakkee & De Weerd-Nederhof, 2008; Parsons, 1964, 1977) and is designed specifically in order to study entrepreneurial processes. An overview of the EiN model is provided in Figure 1. Even though we do not explain this model in detail in this paper, it is important to note that based on this model, a categorization of the types of capital is deduced. Based on these types of capital, more systematic profiles of the referrals involved in VC deal flow can be created, hereby overcoming the fragmented findings of past studies. The dimensions of the EiN model are based on the basic definition of a social system as defined by Parsons (1964).

“. . . a social system consists in a plurality of individual actors interacting with each other in a situation which has at least a physical or environmental aspect, actors who are motivated in terms of a tendency to the “optimization of gratification” and whose relation to their situations, including each other, is defined and mediated in terms of culturally structured and shared symbols” (Parsons, 1964, pp. 5–6).

Figure 1: The Entrepreneurship in Networks Model



Four mechanisms are embedded in this definition: (1) interaction between actors; (2) striving for goal attainment; (3) optimization of processes; and (4) maintenance of patterns of culturally structured and shared symbols. Each of these mechanisms is related to a specific capital of the actors involved. ‘Striving for goal attainment’ (mechanism 2) deals with strategic goals and positioning strived for and is labelled as *strategic capital*. Strategic capital also refers legitimacy and reputation issues surrounding the actor. ‘Optimization of processes’ (mechanism 3) refers to the efficient organization of entrepreneurial processes and is quite straightforwardly related to money as the basic resource, i.e., *economic capital*. ‘Pattern maintenance and institutionalization of shared symbols’ (mechanism 4), are embodied in *cultural capital*, as they can be found in an organization’s values, knowledge, skills, experience, and technology. Finally, ‘Interactions between actors’ (mechanism 1), is related to the *social network capital*. The central assumption of the EiN model is that actors involved in entrepreneurship will need sufficient ‘capital’ for the enterprise to be sustainable over time. This implies that new-venture entrepreneurs need to have, or have access to, sufficient strategic, economic, cultural and social capital to establish a viable enterprise.

In each interaction between actors, the four types of capital play a role. In the context of this paper, it is not only hypothesized that these four types of capital play a role for the

central actor in entrepreneurship, the entrepreneur, but also for the actors that are involved in the process of entrepreneurship. In terms of the EiN model, the focus is on the question of how the capital attributes of the referrals involved in VC deal flow contribute to the success of the referral. Based on the EiN model, we deduce that all four types of referral capital can play an important role in making the referral more influential. In the following sections, the literature that focuses on the role of third party affiliations in the context of financing will be reviewed. We discuss the literature that focuses on the effects of specific strategic, economic, cultural and social characteristics of the third party referrals. Subsequently hypotheses are shaped along the line of the EiN model regarding the success of certain characteristics of a referral in arranging a meeting with VC firms.

Hypotheses: The Entrepreneurship in Networks Model and Deal Flow Referrals

Because new ventures face ‘a liability of newness’, (potential) stakeholders of the new venture perceive a great deal of uncertainty regarding the venture. In these cases, the use of third party affiliations may be a good strategy to decrease the uncertainty caused by this ‘liability of newness’. In this paper, the main focus is on the role of explicit referrals in the VC deal flow process. In the following sections, the literature regarding this subject is reviewed along the dimensions of the EiN model. Based on this review, hypotheses are shaped

Strategic characteristics of third party referrals in financing. We look first at the evidence that focuses on the strategic capital characteristics of the referral. We look at evidence of the favourable effects of a referral source’s power, status and reputation. Most studies on financing focus on the Initial Public Offering (IPO) as a key event. For example, Stuart, Hoang and Hybels (1999) show how firms with prominent strategic alliance partners and organizational equity investors go to IPO faster and have higher valuations than firms that lack those connections. This finding was supported by Chang (2004). He also showed how the reputations of VC firms and strategic alliance partners lead to shorter times to IPO. Other research has focused on the favourable effects of certain types of affiliations. For example, in an examination of IPO’s, Stein and Bygrave (1990) show that companies backed by top underwriters and top VC firms have higher valuations and produce higher returns for their venture capitalists. Burton, Sorensen and Beckman (2002) focused on the role of the prominence of prior employees and show how this prominence is closely associated to the firm’s initial strategy and the probability of getting external financing. In conclusion, there is substantial evidence in the literature that shows how highly reputable affiliations play a favourable role in new-venture financing. Although no evidence that specifically focuses on the strategic characteristics of explicit referrals in VC deal flow was found, it can be expected that the positive effects of highly reputable third party affiliations to IPO are also applicable to explicit referrals in VC deal flow. Therefore the first hypothesis is:

Hypothesis 1. Referrals of highly reputable referral sources will be more successful in VC deal flow than less-reputable referral sources.

Economic characteristics of third party referrals in financing. The second type of characteristic we focus on in this paper is the economic capital characteristics of the referral

source involved in deal flow. In the context of this paper, this means whether the third party affiliation has a direct financial stake in the proposition. Previous studies on VC networks have shown, for example, the importance of syndication as a part of VC deal flow. In the context of this paper, it is expected, therefore, that referrals that come through a venture capitalist or an investor that already has a stake in the company will be more successful. This is confirmed by Janney and Folta (2006) who find that those ventures with more prominent investors are better able to attract subsequent financing. Indirectly, this claim is also confirmed by Shane and Stuart (2002) and Shane and Cable (2002) who have shown that new ventures that have direct and indirect relationships with venture investors are more likely to attract venture funding and are less likely to fail. In the previous section, we already showed many other examples of this positive signalling effect by investors in the new venture (Chang, 2004; Stein & Bygrave, 1999; Stuart et al., 1999). Besides the fact that a referral source can have an ownership-stake in the new venture, it can also have a short term economic interest when a proposition gets funded. For example, many consultants and corporate finance brokers work on a fee basis and get paid when a proposition gets funded. Regarding the economic characteristics of the referral involved in VC deal flow, the hypotheses are therefore as follows:

Hypothesis 2. The referral will be more successful when the referral source has an ownership-stake in the proposition.

Hypothesis 3. The referral will be more successful when the referral source has a short-term financial interest in getting the proposition funded.

Cultural characteristics of third party referrals in financing. In addition to the strategic and economic characteristics, a third type of characteristic that can play a role in the success of a referral in deal flow can be identified: the cultural capital characteristics of referrals. By this we mean the knowledge, skills and experience of the referral source involved. There are very few studies that have explicitly taken into account these cultural characteristics when studying referrals in the context of new-venture financing. This area has been overlooked, because many researchers have implicitly claimed that referrals are especially valuable in those areas in which a referral is perceived to have expertise (Baum, Calabrese, & Silverman, 2000; Goode, 1978, Reuber & Fischer, 2005; Stuart et al., 1999). One of the few studies that do focus on cultural characteristics of the referrals involved in financing is the study of Hustedde and Pulver (1992). They find evidence that the advice- and referral-role of public agencies and university-related organizations are associated with a failure to acquire capital. On the other hand, they found that attorneys have a positive effect in referrals to non-VC sources of financing. In line with these findings, it can be expected that the functional background of the referral involved in deal flow plays an important role in the success of the referral. In the context of technology-based new venture, we expect that both the business background and the technology background of the referral source will contribute to the success of a referral in deal flow. Therefore, the hypotheses on the cultural characteristics of the referrals involved in deal flow are as follows:

Hypothesis 4. The referral will be more successful when the referral source has a strong functional background in business.

Hypothesis 5. The referral will be more successful when the referral source has a strong functional background in technology.

Social characteristics of third party referrals in financing. The last type of referral characteristic that is taken into account in this study is the social capital of the referral source. In the context of our question, we focus on the question as to whether the venture capitalist has a pre-existing tie to the referral source involved in deal flow. The importance of networks in the acquisition of financing has been widely reported. For example, Shane and Cable (2002) show the effects of direct and indirect ties between entrepreneurs and seed-stage investors on venture finance decisions. Their results show that these ties influence the screening and selection of ventures to be funded through a process of information transfer. Shane and Stuart (2002) show that those new ventures that have direct and indirect relationships with venture investors are more likely to receive venture funding and are less likely to fail. To take this one step further, researchers have also looked into the ‘tie strengths’ of networks that are most effective in acquiring funding. For example, Janssen (2001) found that new ventures usually secure financing through the use of strong ties. Related to these findings, Batjargal (2007) and Batjargal and Liu (2004) specifically focused on the role of referrals in acquiring VC funding. Their results showed how the referral-venture capitalist tie, referral-entrepreneur tie, and the interpersonal trust between the referral source and venture capitalist have positive effects on third party referrals and the investment decisions of venture capitalists. He also found that it has positive effects when the aforementioned ties are strong. Based on these findings, the hypothesis regarding the social characteristics of referrals involved in deal flow is:

Hypothesis 6. The referral will be more successful when the referral source is strongly tied to the venture capitalist.

Figure 2 summarizes the hypotheses regarding the influence of the four types of capital on the success of referrals in VC deal flow. Subsequently, Table 1 shows how the variables in the hypotheses are deduced from the four types of capital of the EiN model. It also shows how the various types of EiN capital are related to the fundamental mechanism of a social system as discussed in the beginning of this chapter.

Figure 2: Hypotheses on Referral Source Characteristics and their Success

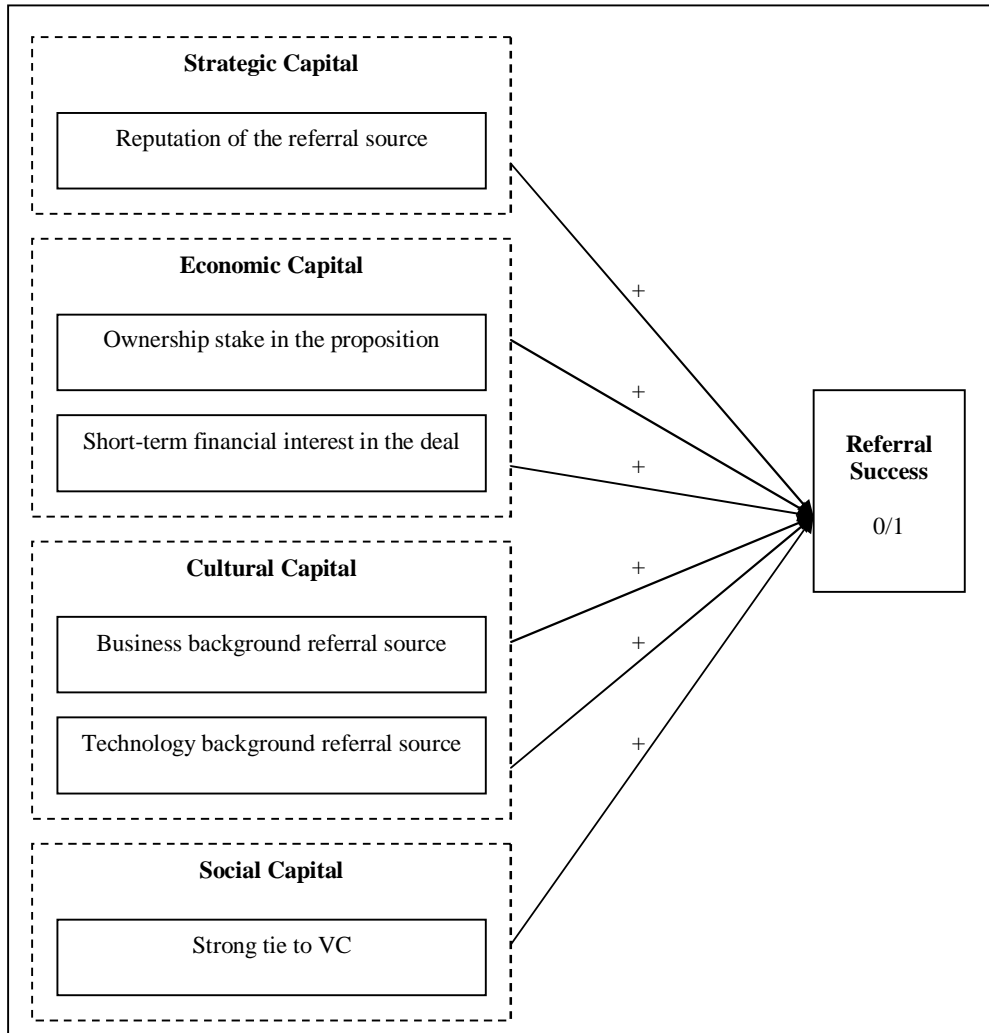


Table 1: Overview of Social System Mechanisms, EiN Capital and Referral Source Characteristics

Social System Mechanism	Related EiN Capital	Relevant Referral Source Characteristic in VC Deal Flow
Striving for goal attainment	Strategic capital	Reputation
Optimization of processes	Economic capital	Ownership stake in proposition Other financial interest in deal
Pattern maintenance	Cultural capital	Business background Technology background
Interaction between actors	Social capital	Tie to the VC

METHOD AND DATA

Sample

Data to answer the research question was collected through conducting structured interviews with 57 early-stage VC firms in The Netherlands and Sweden. We chose to interview venture capitalists in two (similar) countries since the population of early-stage venture capitalists in each of these two countries was too small to reach a sufficient response level. An additional criterion was that the venture capitalists invest in new ventures active in high-technology areas. These venture capitalists were identified by constructing a database of venture capitalists based on the information from the national VC associations of The Netherlands and Sweden. Subsequently, VC industry experts were consulted in both countries to check whether the venture capitalists still existed and whether the venture capitalists really invest in early-stage technology-based ventures. Following this method, a total population of 102 early-stage VC funds in The Netherlands and Sweden was identified. By conducting interviews with 57, of them more than 50% of the population was covered. The characteristics of the interviewed VC funds were also compared to the funds that were not interviewed. We checked whether these two groups differ regarding, for example location, the sources of their funds, their investment focus and the number of deals they had done. By doing this no differences were found between the interviewed funds and the funds that were not interviewed. Based on this finding and the fact that more than 50% of the population was interviewed, it can be concluded that our sample of VC funds is a good representation of the population. We interviewed investment managers that were responsible for the daily selection and screening of new deals. The length of the interviews varied between 1,5 and 2 hours. After the interviews, where possible, the data collected during the interviews was checked with publicly available sources.

During the interview, the investment manager was asked to provide the most recent example of a funded decision in which there was a referral involved in making the initial connection to the entrepreneurial team. The referral was regarded as successful when the involvement of the referral led to a meeting of the entrepreneurs with the VC fund. On the other hand, the venture capitalists were also asked provide the most recent unsuccessful example of a referral. An unsuccessful referral is defined as a referral that caused the venture capitalist to not meet with the entrepreneurs. For these unsuccessful referrals, the venture capitalists were asked to come up with examples in which the characteristics of the referral source were a reason not to meet with the entrepreneurial team. In this way, we made sure that it was not other reasons that lead to rejection (such as, market, strategic fit or location). Therefore, we are able to identify those referral characteristics that are most influential to venture capitalists when deciding to meet with an entrepreneurial team. In total, 84 propositions that were offered to early-stage venture capitalists by explicit referrals were identified during the interviews.

Measurement

The dependent variable in this study was a dummy indicating whether the referral lead to a first meeting with the venture capitalist. Where possible, existing scales were used to measure the independent variables; for several types of capital, new scales were developed. *Strategic capital* of the referral was measured through reputation. Reputation was measured as the number of Internet search engine hits at the date of the approach to the venture capitalist with the proposition. A search engine was used that allowed us the see how many hits the referral source had at a certain date in the past. Added to this, we also checked the number of media appearances a referral source had in the biggest national financial newspaper. We expected that in the context of VC deal flow, it is not only important that a referral source is known in a general sense, but also that it is known more specifically in financial business community. Both the number of search engine hits and the number of media hits in the national newspaper were Log transformed. Subsequently, these scores were normalized. For the final reputation score for a given referral source, the average of these two normalized scores was used. The measurement of reputation by media appearance was adapted from Petkova (2006). We understand that this approach has some limitations. For example, someone can have many search engine hits because of things irrelevant to the expertise of the referral source. Added to this, it is possible that someone has many hits but that these hits contain a lot of negative information on the deal flow referral source. In this case, the referral source can have a high reputation but for the wrong reasons. In order to overcome this, the first 50 hits of each referral were checked to see whether they contained clear negative information on the referral source. In the data, we did not encounter any referral source from whom the hits contained clear negative information. The measurement of reputation is also supported by the work of Petkova (2006). In her study, in the new-venture context, she looked not only at the number of media appearances, but as well at media tenor. She found that the number of media appearances had a significant positive effect on the performance of the venture. Media tenor, which looked at the positive/negative content of these media appearances, did not have any significant effect on the performance of the venture. This shows that the number of media appearances is a better predictor of the performance of a venture than media tenor in our study. We expected

that for referral sources involved in new-venture financing, a similar ‘reputation logic’ might hold. *Economic capital* was measured through two dummies indicating if the referral has (1) an ownership-stake in the proposition or (2) a short term financial interest in getting the proposition funded. When other VC funds came to the venture capitalist with a syndication request, these venture capitalists were treated as having an ownership-stake in the proposition⁷. *Cultural capital* was measured by the functional business background (four items on a seven-point scale, measuring the referral source’s background in marketing/sales, strategy, management and financing, $\alpha = .836$) and the functional technological background (three items on a seven-point scale and measuring the referral source’s background in technological research, product development and engineering, $\alpha = .928$). The cultural capital items were scored on seven-point Likert scales and in order to improve interpretation, the mean of these Likert scores was used in the logistic regression. *Social capital* was measured by two variables: contact frequency between the referral source and the venture capitalist (never spoken before, once a year, once a month, once a week) and affinity between referral and venture capitalist (not at all, very little, somehow, very well). These two items were adapted from Granovetter (1973; Scholten, 2006). Both variables were coded from 0 - 3 and were summarized in order to create one ‘tie strength’ variable.

Although the sample size did not allow us to control for multiple venture capitalist characteristics all at once, we did control for several VC characteristics one by one. For example we controlled for the venture capitalist’s size, experience, market focus, technological focus and the sources of funds. We also controlled for the deal flow quantity that the venture capitalist receives every year. None of these control variables had a significant impact on the size and direction of the results. We did not control for other characteristics of the proposition or sources of deal flow information because we sampled on the characteristics of the referral source as a reason not to meet the entrepreneurial team. We did add a dummy in the analysis indicating the *country* in which the venture capitalist was interviewed.

Descriptive Statistics and Analysis

In order to test the hypotheses, a logistic regression technique was used. In Tables 2 and 3, some brief descriptive statistics of the independent variables are provided. Although ‘logistic regression’ has less stringent requirements regarding a linear relation between the independent and dependent variables, normality and homoscedasticity, we did check the independent variables for (multi)collinearity. Initially, the correlation matrix of the independent variables was explored. When doing so, four correlations between the independent variables were higher than 0.5, which could indicate collinearity problems. Subsequently, the tolerance values for the independent variables were calculated. Tolerance values range between 0.637 and 0.884, indicating that a substantial portion of the variability of each independent variable is not explained by the other independent variables, and not showing support for substantial multicollinearity between the independent variables.

⁷ We also ran our analysis with separate dummies for “syndication request” and “other ownership stake in the proposition”, however this did not affect our results in any way.

Table 2: Descriptives of the Characteristics of the Referral Sources

	N	Min	Max	Mean	S. D.
X1: Reputation	84	0	.94	.228	0.273
X2: Ownership-stake in de proposition	84	0	1	.417	.496
X3: Short-term financial interest in deal	84	0	1	.202	.404
X4: Business background	84	1.5	7	4.848	1.285
X5: Technological background	84	1	7	2.905	1.831
X6: Strength of tie to the VC	84	0	6	3.762	2.063
X7: Country	84	0	1	.441	.499

Table 3: Correlations between Variables

	X2	X3	X4	X5	X6	X8	X7
X1: Reputation	.042	-.372	.150	-.152	-.144	.187	-.286
X2: Ownership-stake in proposition	1	-.579	.475	.333	.474	.303	.273
X3: Short-term financial interest deal		1	-.159	-.512	-.443	-.432	-.052
X4: Business background			1	.283	.437	.614	.231
X5: Technological background				1	.302	.365	.174
X6: Strength of tie to the VC					1	.671	.131
X8: Referral success						1	.001
X7: Country							1

RESULTS

Before we discuss the findings, we first provide some statistics regarding VC deal flow in our data set. First of all, the average total deal flow of the venture capitalists in the data set was 239, ranging between 15 and 800 propositions a year. Added to this, we found that on average, 46% of the total deal flow comes to venture capitalists by referral. Added to this, 55% of the venture capitalists in our sample indicated that they mainly rely on referrals to become aware of new deals. These statistics clearly show how referrals play a dominant role in the venture capitalist's deal flow. The data also show that venture capitalists, on average, meet with 92 propositions a year. This means that venture capitalists only meet with about 38% of the entrepreneurial teams from their total deal flow. This means that the process of arranging a meeting with a venture capitalist is quite competitive. In this paper, we research which referral characteristics are the most beneficial to new ventures in surviving this first competitive step in getting funded by a venture capitalist.

In Table 4, the results of the logistic regression are shown. The ‘goodness-of-fit’ diagnostics of the estimated model all show support for a well-fitting model. The -2 Log Likelihood improves significantly compared to the base model. Added to this, the Hosmer and Lemeshow test shows that there is no significant difference between the actual dependent variables and the predicted dependent variables based on our model. Finally, the Pseudo R² measures show that a substantial amount of variation is explained by the logistic regression model.

Table 4: Logistic Regression Model Predicting the Successfulness of a Referral

	B	S.E.	Sig.
X1: Reputation (Strategic)	2.200	1.649	.182
X2: Ownership stake in de proposition (Eco.)	.853	.790	.280
X3: Short-term financial interest in deal (Eco.)	.416	.901	.644
X4: Business background (Cultural)	.743	.297	.012
X5: Technology background (Cultural)	.200	.206	.333
X6: Strength of tie to the VC (Social)	.628	.201	.002
X7: Country	.478	.722	.508
Constant	-6.763	2.014	.001
-2 Log Likelihood= 63.3			
p = .000			
Hosmer and Lemeshow Test = .568			
		Nagelkerke R ² = .527	
		Cox & Snell R ² = .371	

First of all, the result of the logistic regression model shows *no support for Hypothesis 1*. It was hypothesized that referrals of highly reputable sources would be more successful the referrals of sources with low reputations. Reputation (being part of strategic capital) was measured by the media appearance of the referral source at the time of referring a proposition to the venture capitalist. The results show that when we take into account the economic, cultural and social capital of the referral source, there is no sign of a direct effect of reputation on making a referral more successful in the context of VC financing.

Moving on to economic capital characteristics of the referral source that could potentially make the referral more influential in deal flow, *no support was found for Hypothesis 2*. The results show that venture capitalists do not value referrals of people that have an economic stake in the proposition over referrals that do not have a stake in the proposition. Added to this, *no support was found for Hypothesis 3*, indicating that a short-term interest in closing a VC deal (for example, receiving a fee based on getting a proposition funded) does not have an influence on the success of a referral. These both findings show that there is no direct economic capital effect in the success of referrals when taking into account the other capital attributes of the referral source.

In Hypotheses 4 and 5, it was hypothesized that it are the cultural capital characteristics of the referral source that make the referral more successful in VC deal flow. As an indicator of cultural capital, the functional background of the referral source involved in deal flow was used. *The results show support for Hypothesis 4* ($B = .743$ Sig. = $.012$), meaning that venture capitalists value referrals from people with a strong functional background in business over people that lack such backgrounds. *We found no support for Hypothesis 5* and this implies that the functional technological background of a referral source does not influence the success of the referral.

To conclude, a relation between the social capital of the referral and the success of a referral was hypothesized in Hypothesis 6. *Hypothesis 6* ($B = .628$ Sig. = $.002$) was supported in the logistic regression model. This means that the stronger the tie between the venture capitalist and the referral source, the more successful the referral will be, even when controlled for the influence of the other types of capital of the referral source.

CONCLUSIONS, CONTRIBUTIONS AND IMPLICATIONS

In this study, our purpose was to disentangle the characteristics that make third party referrals successful in VC deal flow. Based on the EiN model, four types of referral capital that could affect the influence of a certain referral were deduced. We examined the effects of the four types of referral capital in the context of VC deal flow. In doing so, we conducted structured interviews with 57 VC funds in The Netherlands and Sweden, leading to a sample of 84 referrals involved in VC deal flow. The findings show that the cultural and social capital dimensions of the EiN model are very important in explaining the success of a particular referral. Venture capitalists value referrals from people with a strong functional background in business and from people with whom they have strong network ties. No support was found that the strategic capital and the economic capital of the referral have a significant influence in the success of referrals in deal flow.

This study contributes to the literature in several ways. First of all, we add to network literature since we focus on the mechanism of how existing network ties can be used to access (unconnected) third parties and their resources (Batjargal, 2007; Shane & Stuart, 2002; Stuart et al., 1999). This mechanism has received little attention in previous research. Secondly, we add to network literature by applying a multidimensional approach to networks. The results show, for example, that it is not only a strong tie to the venture capitalist that explains the success of a network referral; it also has to do with the extent to which the referral has a strong business background.

Second, we show how the EiN model can be applied to the specific context of VC deal flow. Added to this, the findings have some implications for the development of the EiN model. As can be deduced from the model, we hypothesized that the four types of capital of the referral source determine the success of a specific referral involved in deal flow. Since the results show that only the cultural and the social capital of the referral source have a direct impact on the success of the referral, we may have to rethink the relations between the four dimensions. Although the strategic and economic characteristics of the referral source do not have a direct role in explaining the success of a referral, it could be that they play a more indirect role. For example, they could influence the success of referrals in an indirect way through a moderating effect on the types of capital that do have a direct effect.

We also contribute to an additional area of literature: the literature on signalling in new ventures by using and affiliating to third parties. Although previous studies show how third parties can be beneficial to new ventures, there is still a lack of understanding of the exact characteristics that make third parties influential in signalling for new ventures. In a practical sense, the results can improve the support of entrepreneurs in selecting the right referral sources when they want to apply for VC funding. The results clearly indicate that venture capitalists prefer to rely on referrals from actors with extensive functional business backgrounds and to whom they have strong ties. This is contrary to a lot of previous studies, which have also shown the favourable signalling effects of prominent partners (strategic capital) and the positive signalling effects of shareholders (economic capital) in the new venture. In this study, we controlled for the cultural and social capital of the referral, and found that findings of previous studies regarding prominence of referral sources and investor signalling are not confirmed in this study.

Additionally, this study provides more insight into the early stages of the new-venture financing process. There is a lack of studies focusing on micro processes in venture financing (Wright & Robbie 1998). Where previous studies focus mainly on IPO, this study focuses on the very beginning of the financing cycle, i.e., getting access to early-stage VC funds (a stage mostly ignored by VC researchers). Therefore we have provided more insight into the role of referrals in this very early stage of VC funding, a stage where many entrepreneurs fail.

Finally, a contribution is made to the literature on VC decision-making, a literature that still lacks a focus on the social context of investment decisions. Research on VC and VC decision-criteria often assume a rational actor that collects information, balances it and takes a decision. In research, the social context in which a venture capitalist takes his decision is often overlooked (Lockett et al., 2006; Maula, 2001). Although some researchers in VC decision-making have taken into account third party referrals as a dummy in their studies, there is still a lack of understanding of the effectiveness of certain characteristics of these third parties. By focusing, in depth, on the characteristics of referrals involved in VC deal flow, we contribute to a more complete understanding of the role of referrals in the VC funding process.

In addition to the contributions to the literature, this paper also has some practical implications for entrepreneur(ial team)s that use intermediaries to get access to VC funds. This paper also provides practical insights for people that fulfil this referral role in new-venture financing, such as, incubators, corporate finance houses and business development officers. An important insight in this respect is that a strong business background of the referral source and a strong tie between the referral source and the VC fund are most effective in getting access to VC funds.

LIMITATIONS AND FUTURE RESEARCH

This study faces several limitations. First of all, the limited sample size did not allow us to look for additional variables that could influence the results of the model. For example, we did not look for the other characteristics of the proposition and for other sources of VC information in the deal flow stage. Added to this, the study was limited to two countries that are socially similar. Therefore we do not know whether the characteristics of successful

referral sources in deal flow are similar in countries with very different macro characteristics.

This paper gives rise to some interesting questions for future research. First of all, it would be interesting to research whether the characteristics of successful referrals are dependent on other characteristics of the deal. For example, are these characteristics dependent on, for example, the amount of money applied for or the market that the proposition focuses on? Added to this, it would be interesting to see how the characteristics of a successful referral are dependent on the characteristics of the actors involved in deal flow. For example, are the characteristics of a successful referral source dependent on specific characteristics of the entrepreneurial team? It would also be interesting to determine whether the characteristics of a successful referral are dependent on the stage of the VC investment process. For example, are the same characteristics that make a referral source successful in deal flow also the most effective in the due diligence process or are other characteristics more important in that stage? In addition to the application of the model to other stages of the financing process, it would also be interesting to apply the EiN model to the acquisition of other types of resources. For example, are the referral source characteristics that are effective for the acquisition of financing the same as the referral source characteristics that are effective for the acquisition of new employees?

REFERENCES

- Batjargal, B. 2007. Network Triads: Transitivity, Referral and Venture Capital Decisions in China and Russia. *Journal of International Business Studies*, 38(6): 998-1012.
- Batjargal, B., & Liu, M. 2004. Entrepreneurs' Access to Private Equity in China: The Role of Social Capital. *Organization Science*, 15(2): 159-172.
- Baum, J., Calabrese, T., & Silverman, B. 2000. Don't go it Alone: Alliance Network Composition and Startups' Performance in Canadian Biotechnology. *Strategic Management Journal*, 21(3): 267-294.
- Burton, M., Sorensen, J., & Beckman, C. 2002. Coming from Good Stock: Career Histories and New Venture Formation. *Social Structure and Organizations Revisited*, 19: 229-262.
- Chang, S. J. 2004. Venture Capital Financing, Strategic Alliances, and the Initial Public Offerings of Internet Start-Ups. *Journal of Business Venturing*, 19(5): 721-741.
- Deutsch, Y., & Ross, T. 2003. You Are Known by the Directors You Keep: Reputable Directors as a Signalling Mechanism for Young Firms. *Management Science*, 49(8): 1003-1017.
- Goode, W. 1978. *The Celebration of Heroes: Prestige as a Social Control System*. Berkeley: University of California Press.
- Granovetter, M. 1973. The Strength of Weak Ties. *American Journal of Sociology*, 78(6): 1360-1380.
- Groen, A. 1994. *Milieu en MKB, Kennis en Kennissen, Milieuinnovatie in de Grafische Industrie: Modelmatig Verklaard*. University of Groningen, Groningen.
- Groen, A. 2005. Knowledge Intensive Entrepreneurship in Networks: Towards a Multilevel Approach. *Journal of Enterprising Culture*, 13(1): 69-88.
- Groen, A., de Weerd-Nederhof, P., & Kerssens-van Drongelen, I. 2002. Creating and Justifying Research and Development Value: Scope, Scale, Skill and Social Networking in R&D. *Creativity and Innovation Management*, 11(1): 2-16.
- Groen, A., Wakkee, I., & De Weerd-Nederhof. 2008. Managing Tensions in a High-tech Start-up. *International Small Business Journal*, 26(1): 57-81.
- Higgins, M., & Gulati, R. 2003. Getting Off to a Good Start: The Effects of Upper Echelon Affiliations on Underwriter Prestige. *Organization Science*, 14(3): 244-263.
- Hustedde, R., & Pulver, G. 1992. Factors Affecting Equity Capital Acquisition: The Demand Side. *Journal of Business Venturing*, 7(5): 363-374.
- Janney, J., & Folta, T. 2006. Moderating Effects of Investor Experience on the Signalling Value of Private Equity Placements, *Journal of Business Venturing*, 21(1): 27-44.
- Jenssen, J. 2001. Social Networks, Resources and Entrepreneurship. *The International Journal of Entrepreneurship and Innovation*, 2(2): 103-109.
- Jugel, S. 2001. *Der Leistungsstand Deutscher Beteiligungsgesellschaften*. Fachhochschule Wiesbaden zusammen mit Baumgartner & Partner, Nachrichten, Wiesbaden.
- Khair, M. 2005. *Great Oaks from Little Acorns Grow: Strategies for New Venture Growth*. Columbia University.

- Lockett, A., Ucbasaran, D., & Butler, J. 2006. Opening Up the Investor–Investee Dyad: Syndicates, Teams, and Networks. *Entrepreneurship Theory and Practice*, 30(2): 117-130.
- Maula, M. 2001. *Corporate Venture Capital and the Value Added for Technology Based Ventures*. Helsinki University of Technology, Espoo.
- Parsons, T. 1964. *The Social System*. New York: The Free Press.
- Parsons, T. 1977. *Social Systems and the Evolution of Action Theory*. New York: The Free Press.
- Petkova, A. 2006. *Reputation Building by New Ventures: Three Essays on Processes and Performance*. Dissertation, University of Maryland.
- Reuber, A., & Fischer, E. 2005. The Company You Keep: How Young Firms in Different Competitive Contexts Signal Reputation through Their Customers. *Entrepreneurship Theory and Practice*, 29(1): 57-78.
- Scholten, V. 2006. *The Early Growth of Academic Spin-offs*. University of Wageningen.
- Shane, S., & Cable, D. 2002. Network Ties, Reputation, and the Financing of New Ventures. *Management Science*, 48(3): 364-381.
- Shane, S., & Stuart, T. 2002. Organizational Endowments and the Performance of University Start-ups. *Management Science*, 48(1): 154-170.
- Stein, M., & Bygrave, W. 1990. The Anatomy of High-Tech IPOs: Do Their Venture Capitalists, Underwriters, Accountants, and Lawyers make a Difference? *Frontiers of Entrepreneurship Research*: 394-407. Wellesley, MA: Babson College.
- Stuart, T., Hoang, H., & Hybels, R. 1999. Interorganizational Endorsements and the Performance of Entrepreneurial Ventures. *Administrative Science Quarterly*, 44(2): 315-349.
- Tyebjee, T., & Bruno, A. 1984. Venture Capital: Investor and Investee Perspectives. *Technovation*, 2(3): 185-208.
- Vater, W. 2002. *Die Qualität Deutscher Private Equity Unternehmen - Optimierungsmöglichkeiten bei der Vergabe von Beteiligungskapital*. Wiesbaden.
- Wells, W. 1974. *Venture Capital Decision Making*. Carnegie-Mellon University, Pittsburg.
- Wright, M., & Robbie, K. 1998. Venture Capital and Private Equity: A Review and Synthesis. *Journal of Business Finance & Accounting*, 25(5&6): 521-570.

CHAPTER 6

REFERRAL CHARACTERISTICS IN THE VENTURE CAPITAL DUE DILIGENCE PROCESS: TYPE OF INFORMATION AS THE KEY CONTINGENCY

JORIS HEUVEN
University of Twente
NIKOS
Capitool 15
Enschede, The Netherlands, 7500 AE
Tel: (+31) 53 - 4895355
Fax : (+31) 53 – 4892159
E-mail: j.m.j.heuven@utwente.nl

ABSTRACT

The decision-criteria that venture capital (VC) firms apply when taking investment decisions have been widely studied. In this paper, the focus is not on these actual decision-criteria but on the information-sourcing practices of VC firms regarding these decision-criteria. The specific focus is on one type of information source for VC firms in their due diligence process: third party referrals. Under conditions of uncertainty, third party referrals play an important role in a venture capitalist's approval of new ventures. In this paper, the role of third party referrals in the VC due diligence process is explored along two dimensions: (1) referral source characteristics and (2) the type of information provided by the referral source. First, the importance of certain referral source characteristics to the VC due diligence process is studied for four types of characteristics. These characteristics of referrals sources are (1) strategic capital (2) economic capital (3) cultural capital and (4) social capital. Added to this, I test whether the characteristics of influential referrals differ depending on the sourcing of various types of information in the due diligence process. Data for this paper was collected by interviewing 57 VC funds in the Netherlands and Sweden, which resulted in a sample of 101 influential referrals involved in VC due diligence. The results show that the third party referrals in VC due diligence can be classified into two groups based on their characteristics. First of all, venture capitalists rely on a group of referral sources with strong business backgrounds, strong ties to the venture capitalist and an economic interest in the new venture. This group is predominantly used for the sourcing of market, financial and strategic information. Referrals in the second group have weaker business backgrounds, no or weak ties to the venture capitalist and do not have an economic interest in the new venture. This group is predominantly used to source information on the new venture's technology and intellectual property (IP) situation. These findings clearly show how venture capitalists rely on different types of referral sources when sourcing multiple types of information. By studying the referral characteristics of referral sources involved in the VC due diligence process and relating them to types of information, a contribution is made to VC literature since it provides a more detailed understanding of the social context of venture capitalist's decisions.

INTRODUCTION

VC is an important source of capital for technology-based ventures. However, many new ventures fail to attract this type of funding. In order to help new ventures that want to acquire VC, my claim is that a more detailed understanding of the VC decision-making process is an important first step. Although there is a substantial body of literature focusing on VC decision-making, many questions regarding this process remain unanswered. In this paper, the focus is on the due diligence practices of VC funds (Manigart, Wright, Robbie, Desbrieres, & DeWaele, 1997). In the due diligence process, the entrepreneurial team, publicly available sources, network contacts and other experts are all sources that a venture capitalist consults in order to collect information. In this paper, the particular focus is on one of these information sources: the role of third party referrals in the VC due diligence process.

The importance of networks and referrals to the VC investment process are widely recognized (e.g., Harrison, Dibben, & Mason, 1997; Lockett, Ucbasaran, & Butler, 2006;

Parhankangas & Landstrom, 2006; Shane & Cable, 2002). The role of these networks and referrals is especially prominent when investing in technology-based ventures. In this type of investment, the uncertainty regarding new markets, new technologies and unknown entrepreneurs is high and sources of information are scarce. Under these conditions, networks are proven to be an important source of information for external stakeholders (Stuart, Hoang, & Hybels, 1999). However, current approaches to the VC decision-making process still lack a detailed understanding of the role of these referrals on a process level (Hall & Hofer, 1993). For example, there is still little understanding of the question of how the influence of certain referral characteristics is dependent on, for example, the information they provide to venture capitalists and the stage of the VC funding process (e.g., Batjargal, 2007; Fiet, 1995; Fried & Hisrich; Lockett et al., 2006; Wright & Robbie, 1998).

In this paper, the focus is on the referral sources contacted by venture capitalists in the due diligence process. The main research questions in this paper are if and how the characteristics of a referral differ depending on the type of information to be sourced in the due diligence process. In order to shape profiles of people consulted during the due diligence stage, the 'Entrepreneurship in Networks' (EiN) model is applied. The EiN model is based on the work of Parsons and adapted by Groen to the context of entrepreneurship (e.g., Groen, 1994, 2005; Groen, De Weerd-Nederhof, & Kersens-van Drongelen, 2002; Groen, Wakkee & De Weerd-Nederhof, 2008; Parsons, 1964, 1977). The EiN model is a multidimensional framework which allows us to shape more complete and systematic profiles of referral sources contacted by the venture capitalist during due diligence. Added to this, the type of information that was provided by the referral source will be studied. In doing so I am able to study whether the characteristics of influential referrals differ depending on the type of information to be sourced. By studying both the referral source characteristics and information types at the due diligence stage, a more detailed understanding of the social context of venture capitalist's decision-making is reached.

A more complete understanding of the referrals involved in the VC due diligence process would have important practical implications. For example, venture capitalists often ask the entrepreneurs for references in their due diligence process. When an entrepreneur knows, at these occasions, which types of referrals are most influential in providing certain types of information, he will be better able to respond to these questions. As a result, entrepreneurs will be better able to influence a venture capitalist's due diligence practices.

This paper continues with a review of the literature on the role of referrals in the VC investment process. Subsequently, the EiN model of entrepreneurship is introduced and it is explained how multiple characteristics of the referral sources involved in VC due diligence can be deduced from the model. Then the relevance of the EiN model is shown in the context of venture funding by a brief review of the literature along the various dimensions of the EiN model. Subsequently, the second analytical dimension of this paper is introduced; the type of information provided by the referral. Subsequently, an elaboration of the method and empirical approach that were used to explore the characteristics of referrals in the VC due diligence process are provided. After the results section, the paper ends with the conclusions and a discussion of the contributions of the paper.

REVIEW OF THE LITERATURE

In the literature, there is substantial, but fragmented evidence provided for the importance of third party referrals and informants in various stages of the VC investment process. First of all, third parties play a role in VC deal flow. The role of third parties (e.g., accountants, other VC firms and corporate finance brokers) is important to both deal flow quantity and quality. For example, previous research has found differing percentages of deals that come through referral. For example, Jugel (2001) found that 46% of the new deals come by third party referral. Vater (2002) found a percentage of 54 %, Wells (1974) a percentage of 61% and Tyebjee and Bruno (1984) even found a percentage as high as 65%. Referrals are not only important in generating deal flow quantity, because Fried and Hisrich (1994) find that deals that come through third parties are also more often funded than deals that come without any third party referral involved. This finding provides support for the notion that the deals that come by referral are also higher in quality than deals that come through other channels. However, in this paper, the focus is not on the role of referrals in VC deal flow but on the role of third party referrals and informants in the VC due diligence process. This due diligence process plays a crucial role in a venture capitalist's decision to invest and in the proposition's valuation process (Manigart et al., 1997). When compared to the referrals involved in VC deal flow, the referrals involved in the VC due diligence process have received little attention. However, several researchers have found evidence regarding the importance of referrals in the VC due diligence process. For example, Shane and Cable (2002) show that not only direct ties, but also indirect ties between the venture capitalist and the proposition influence the funding decision by a process of information transfer. Added to this, Harrison et al. (1997) show how the perception of trust in VC funding processes is influenced by referrals and personal networks.

Given the importance of referrals to the VC due diligence process, researchers have focused on the characteristics of the referrals involved. For example, Fiet (1995) found that VC investors rely heavily upon associates at other VC firms for market information and business angels rely upon close associates for information about agency factors. Hustedde and Pulver (1992) focused on the type of actors assisting new ventures in acquiring capital and found that banks, public organizations and universities are related to a failure to acquire capital. In addition to typologies of referral sources, researchers also found several characteristics that have a positive effect on the role of referrals in the venture capitalist's investment decision. For example, trust (MacMillan, Zemann, & Subbanarasimha, 1987), prominence (Maula, 2001) and a strong tie between the referral source and the venture capitalist (Batjargal, 2007; Batjargal & Liu, 2002) all are shown to have a positive impact on the influence of a referral source in the VC's decision-making process.

In current literature, the role of referrals is mainly studied by looking at the characteristics of the referral source. Less attention is paid to the actual content of the information provided in the referrals. However, it can be expected that the characteristics that make referrals more influential in the due diligence process are dependent on the type of information provided to the venture capitalist. This claim is supported by the findings of Fiet (1995). For example, in his study he finds that VC investors rely heavily upon associates at other VC firms for the sourcing of market information.

In summary, the literature provides substantial evidence of the importance of third party referrals in the VC funding process. However, some shortcomings can be identified. First of all, the specific characteristics of referral sources that make them influential in due diligence have only received fragmented attention in previous studies (e.g., Batjargal, 2007; Fiet, 1995; Maula, 2001). Added to this, referrals are often not related to a specific VC investment stage. This could be a problem since the referrals that venture capitalists rely on in deal flow might be different from referrals they rely on for the sourcing of information in the due diligence process (e.g., Batjargal, 2007; Lockett et al., 2006; Vater, 2002). Furthermore these studies fail to determine whether the characteristics of these referral sources are dependent on the types of information to be sourced over the investment process. In this study, these shortcomings are addressed by (1) providing a multidimensional model that allows us to shape more complete profiles of the referral sources involved in due diligence, and (2) relating these referral source characteristics to the specific types of information to be sourced.

ANALYTICAL DIMENSIONS

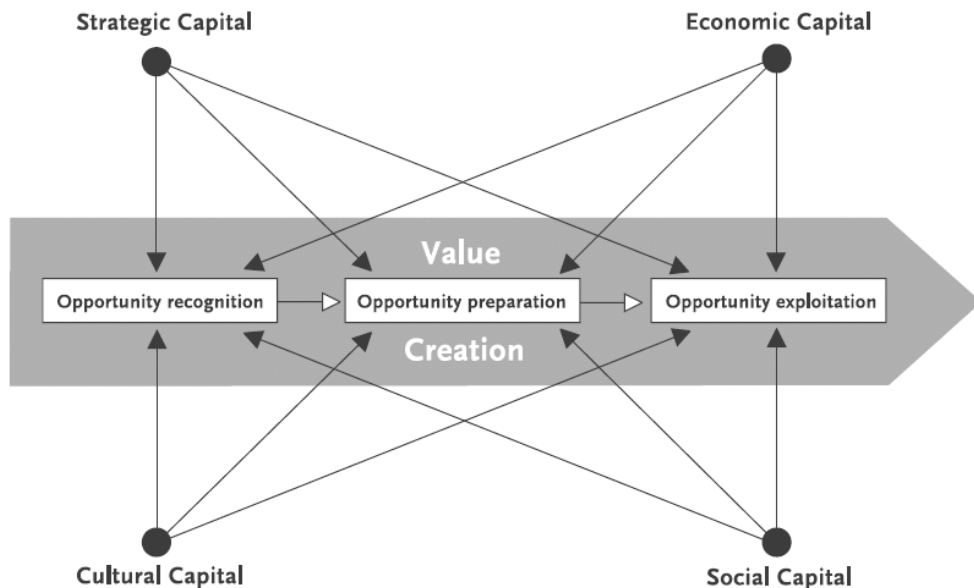
In the previous section, two analytical dimensions were briefly introduced. In this section, these dimensions are further elaborated. First of all, the EiN model is introduced. This is a multidimensional model that is used in order to shape more complete profiles of the referrals involved in the VC due diligence process. After the introduction of the model, some research findings that show the relevance of the dimensions of the EiN model in the context of the VC funding process are reviewed. The second dimension along which the referrals in VC due diligence is studied is the type of information that is provided by the referral. Therefore, this section ends with an explanation of my approach to identifying the various types of information that a referral could supply.

The Entrepreneurship in Networks Model: Deducing Referral Characteristics

I first explain the core model that is used in order to study the referral source characteristics in the context of VC due diligence; the ‘Entrepreneurship in Networks’ (EiN) model. This model is based on social systems theory (e.g., Groen, 1994, 2005; Groen et al., 2002, 2008; Parsons, 1964, 1977) and is designed specifically in order to study entrepreneurial processes. An overview of the EiN model is provided in Figure 1. Even though model is not completely described in this paper, it is important to note that based on this model, a categorization of capital types is deduced. Based on these capital attributes, more systematic profiles of the referral sources involved in the VC due diligence process can be created, thus overcoming the fragmented findings in past studies. The types of capital that influence the performance and influence of the actors involved in entrepreneurship are based on the basic definition of a social system as defined by Parsons (1964).

“ . . . a social system consists in a plurality of individual actors interacting with each other in a situation which has at least a physical or environmental aspect, actors who are motivated in terms of a tendency to the “optimization of gratification” and whose relation to their situations, including each other, is defined and mediated in terms of culturally structured and shared symbols” (Parsons, 1964, pp. 5–6).

Figure 1: The Entrepreneurship in Networks Model



Four mechanisms are embedded in this definition: (1) interaction between actors; (2) striving for goal attainment; (3) optimization of processes; and (4) maintenance of patterns of culturally structured and shared symbols. Each of these mechanisms is related to a specific “capital need” that has to be fulfilled by the actors involved in entrepreneurship in order for them to perform better or be influential, leading to four generic types of capital requirement. ‘Striving for goal attainment’ (mechanism 2) deals with strategic goals and positioning strived for and is labelled as *strategic capital*. Strategic capital also refers to legitimacy and reputation issues surrounding entrepreneurship. ‘Optimization of processes’ (mechanism 3) refers to the efficient organization of entrepreneurial processes and is quite straightforwardly related to money as the basic resource, i.e., *economic capital*. ‘Pattern maintenance and institutionalization of shared symbols’ (mechanism 4), are embodied in *cultural capital*, as they can be found in an organization’s values, knowledge, skills, experience, and technology. Finally ‘Interactions between actors’ (mechanism 1) is related to the *social network capital*. The central assumption of the EiN model is that actors involved in entrepreneurship will need sufficient ‘capital’ for their enterprise to be sustainable over time. This implies that new-venture entrepreneurs need to have or have access to sufficient strategic, economic, cultural and social capital to establish a viable enterprise.

In the context of this paper, I do not only hypothesize that these four types of capital play a role for the central actor in entrepreneurship, the entrepreneur, but also for the actors that influence in the process of entrepreneurship. Therefore, in the context of this paper, I hypothesize that the influence of a referral in the VC due diligence process is dependent on its strategic, economic, cultural and social capital characteristics. More specifically, in the context of VC due diligence, it can be expected that the influence of a referral is dependent

on the reputation of the referral source (strategic capital), the economic interest of a referral source in a deal and the venture capitalist (economic capital), the functional background of the referral source (cultural capital) and the network tie between the referral source and the venture capitalist (social capital). In this way, I can test, for example, whether ‘embeddedness’ of the referral source in the venture capitalist’s network through a economic interest, a common base of knowledge or a strong tie to the venture capitalist plays an important role in order to be influential in the VC’s due diligence process. Table 1 shows (1) how the various types of capital of the EiN model are related to the more fundamental mechanisms of the social system, and (2) how the specific referral characteristics that are of interest in this paper are deduced from the various types of EiN capital.

Table 1: Overview of Social System Mechanisms, EiN Capital and Referral Source Characteristics

Social System Mechanism	Related EiN Capital	Relevant Referral Source Characteristic in VC Due Diligence Process
Striving for goal attainment	Strategic capital	Reputation
Optimization of processes	Economic capital	Economic interest in the deal Economic stake in the VC
Pattern maintenance	Cultural capital	Business background Technology background
Interaction between actors	Social capital	Tie to the VC

Dimensions of the Entrepreneurship in Networks Model and the Role of Referrals in VC funding

In the previous section, the characteristics of the referral sources were deduced from the EiN model. In the literature, a lot of support can be found on the relevance of these four dimensions in referral mechanisms. The review of the literature showed that the characteristics of the referral sources involved in VC due diligence only have received fragmented attention in VC literature. However, in studies taking a broader financial perspective, substantial (indirect) evidence is found that the influence of third party referrals is heavily dependent on the EiN characteristics of these referral sources. Along the dimensions of the EiN model, I therefore review evidence of the characteristics of referral sources that make them more influential in the broader context of new-venture financing.

First of all, there is support in the literature that the *strategic capital characteristics* of the referral source have a favourable impact on its influence. This type of capital is concerned with the favourable effects of a referral’s power, status and reputation. For example, Stuart

et al. (1999) show how firms with prominent strategic alliance partners and organizational equity investors go to Initial Public Offering (IPO) faster and have higher valuations than firms that lack those connections. Chang (2004) also showed how the reputations of VC firms and strategic alliance partners lead to shorter times to IPO. Burton, Sorensen and Beckman (2002) focused on the role of prior employee prominence and showed how this prominence is closely associated to the firm's probability of obtaining external financing. Although no evidence that specifically focuses on the strategic characteristics of explicit referrals in VC due diligence was found in the literature, it can be expected that the positive effects of highly reputable third party affiliations to IPO are also applicable to explicit referrals in VC due diligence.

Second, evidence is found, from a new-venture perspective, that the *economic capital characteristics* of the referral source involved in due diligence are useful. In the context of this paper, this capital is concerned with the question of whether the third party affiliation has a direct financial interest or stake in the company or in the VC fund. For example, Janney and Folta (2006) found that those ventures that are able to attract prominent investors are better able to attract subsequent financing due to signalling mechanisms. Indirectly, the importance of the economic dimension is confirmed by Shane and Stuart (2002) and Shane and Cable (2002) who have shown that new ventures that have direct and indirect relationships with venture investors are more likely to attract venture funding and are less likely to fail. Added to this, there is evidence showing the positive effects of investors to the performance of new ventures in a broader context as well (Chang, 2004; Stein & Bygrave, 1999; Stuart et al., 1999). Therefore, it can be expected that this economic dimension also plays a role in a referral's influence in VC due diligence.

In addition to the strategic and economic characteristics, support is found for the relevance of the third dimension of the EiN model: the *cultural capital characteristics* of the referral sources involved in VC due diligence. For example, many researchers have implicitly claimed that referrals are especially valuable in those areas in which a referral source is perceived to have expertise (Baum, Calabrese, & Silverman, 2000; Goode, 1978, Reuber & Fischer, 2005; Stuart et al., 1999). One of the few studies that explicitly focuses on the cultural characteristics of the referrals involved in financing is the study of Hustedde and Pulver (1992). They found evidence that the advice and referral role of public agencies and university-related organizations are associated with a failure to acquire capital. On the other hand, they found that attorneys have a positive effect in referring to non-VC sources of financing. In line with these findings, it can be expected that the functional background of the referral source involved in due diligence plays an important role in the influence of the referral as well.

The last type of referral characteristic that is taken into account in this study following the EiN model are the *social capital characteristics* of the referral source. In the context of this paper, this capital is concerned with the question of whether the venture capitalist has a pre-existing tie to the referral source involved in due diligence. For example, researchers have looked into the network 'tie strengths' most effective to acquire funding. For example, Jenssen (2001) found that new ventures mostly secure financing through the use of strong ties. Related to these findings, Batjargal (2007) and Batjargal and Liu (2002) specifically focus on the role of referrals in acquiring VC funding. Their results show how the referral-

venture capitalist tie, referral-entrepreneur tie, and the interpersonal trust between referral source and venture capitalist have positive effects on third party referrals and the investment decisions of venture capitalists. He finds that it has positive effects when the aforementioned ties are strong. These studies clearly show evidence of the relevance of the fourth dimension of the EiN model in the context of VC due diligence referrals.

Types of Information

Four types of dimensions (and related capitals) that are used in studying the referral source characteristics are now introduced. I now explain the second analytical dimension along which these referrals are studied. This dimension is the type of information that a referral provides to the venture capitalist. In previous studies, attention has mainly been paid to the question of *who* the referral sources are instead of the question of *what* the referral sources actually say. This is an important shortcoming in the literature since the characteristics that make certain referral influential in the due diligence process may be dependent on the type of information to be sourced by the venture capitalist. When studying the content of the information provided by the referral source, a classification of types of information had to be constructed. This was done based on a review of previous VC research (e.g., Fried & Hisrich, 1994; Gupta & Sapienza, 1992; Hall & Hofer, 1993; MacMillan, Siegel, & Narashima, 1985; MacMillan et al., 1987; Manigart et al., 1997; Maula, Autio, & Murray, 2005; Wright & Robbie, 1998, Zacharakis & Meyer, 1998). Based on this, seven categories of information that a venture capitalist potentially sources during its due diligence process were identified. These resulting types of information are (1) market information, (2) financial information, (3) information on the proposition's strategy, (4) team information, (5) partner information, (6) technology information and (7) information on intellectual property (IP). The main research questions in this paper are if and how the characteristics of referral sources (as deduced from the EiN model) differ, depending on the types of information provided by the referral source. In the next section of this paper, the method and the approach to data collection that was applied in order to answer this research question is explained.

METHOD AND DATA

Sample

To examine the research question, a sample was constructed of 101 people that were most influential in the VC due diligence process. This sample was created by conducting structured interviews with 57 early-stage VC firms in The Netherlands and Sweden. I chose to interview venture capitalists in two (similar) countries since the population of early-stage venture capitalists in each of these two countries was too small to reach sufficient statistical variation. The interviews at the VC firms were all conducted between April and November 2007. These venture capitalists were identified by constructing a database of venture capitalists based on information from the national VC associations of The Netherlands and Sweden. Subsequently, VC industry experts were consulted in both countries to check whether the venture capitalists still existed and whether the venture capitalists really invest in early-stage technology-based ventures. Following this method, a total population of 102 early-stage VC funds in The Netherlands and Sweden was identified. By conducting

interviews with 57 of them, more than 50% of the population was covered. The characteristics of the interviewed VC funds were also compared to the funds that were not interviewed. I checked whether these two groups differ regarding, for example, location, the sources of their funds, their investment focus and the number of deals they had done. No differences between the interviewed funds and the funds that were not interviewed were found. Based on this finding, and the fact that more than 50% of the population was interviewed, it can be concluded that the sample of VC funds is a good representation of the population.

Investment managers that were responsible for the daily selection and screening of new deals were interviewed. When discussing the two most recent propositions they invested in, the venture capitalist was asked to mention the most influential third party referral that was involved during their due diligence process. The lack of information on less-influential referrals is not important to my research question because the goal of this paper to test whether characteristics of influential referral sources involved in VC due diligence *differ* significantly between referrals contacted for multiple types of information. Where possible, the data provided by the venture capitalist was checked with publicly available sources. In this way, a sample was created of 101 third parties that were most influential in VC decisions.

Measurement

Where possible, existing scales were used to measure the characteristics of the referral sources along four dimensions. For several types of capital, new scales were developed. *Strategic capital* of the referral source was measured through reputation. Reputation of the referral source was measured as the number of search engine hits at the date of contact to the venture capitalist. A search engine was used that allowed us to see how many hits the referral had at a certain date in the past. Log transformed values of the reputation scores were used in the statistical analysis. The measurement of reputation by media appearance was adapted from Petkova (2006). This approach could have some limitations. For example, a referral source can have many search engine hits because of things irrelevant to his expertise; for example, someone might have been a famous athlete in the past. Added to this, it could be that someone has many hits but that these hits contain a lot of negative information about the referral source. In this case, the due diligence referral can have a high reputation but for the wrong reasons. In order to overcome this, the first 50 hits of each referral name were checked to see whether these hits contained clear negative information on the referral source. In the data, no referral sources containing clear negative information were found in the hits. Added to this, the measurement of reputation is also supported by the work of Petkova (2006). In her study in the context of new ventures, she did not only look at the number of media appearances, but also at media tenor. She found that the number of media appearances had a significant positive effect on venture performance. Media tenor, which looked at the positive/negative content of these media appearances, did not have any significant effect on venture performance. This shows that the number of media appearances is a better predictor of venture performance than media tenor. I expect that for referrals involved in funding these new ventures, a similar reputation mechanism might hold. *Economic capital* was measured through two dummies indicating whether the referral source had an economic stake in the VC fund or economic interest in the deal.

Cultural capital of the referral source was measured by business background (four items on a seven-point scale, measuring the referral source's background in marketing/sales, strategy, management and financing, $\alpha = .94$) and technological background (three items on a seven-point scale and measuring the referral source's background in technological research, product development and engineering, $\alpha = .92$). In the analysis, summarized scores of these items were used. *Social capital* was measured as 'tie strength' between the referral source and the VC firm by two items: affinity and frequency of contact. These items were adapted from Granovetter (1973; Scholten, 2006). These two social capital items were scored on a scale from 0 to 3 and summarized in order to create one 'tie strength' variable, with scores ranging from 0 to 6. As already explained, not only the characteristics of the referrals were studied, but also the information they provided. The type(s) of information provided by the referral sources was measured by seven dichotomous variables to indicate whether the referral provided information on the proposition's (1) market (2) strategy (3) financing (4) team (5) technology (6) IP, and (7) partners.

Analysis

The first step in the data analysis was the clustering of the referrals based on the characteristics of the referral sources. Second, the types of information provided by the referral sources were also clustered. In practice, most referral sources provide more than one type of information when contacted by the venture capitalist; I therefore also chose to cluster the information types in order to see whether certain combinations of types of information fall into similar clusters. For both the clustering of the characteristics of the referrals and the types of information, a two-step cluster analysis was applied. This clustering technique is especially designed to form clusters on the basis of a combination of continuous and categorical variables. Before forming the clusters, the variables were standardized in order to make the cluster formation independent of the scale difference between the variables. The log-likelihood criterion was used as a distance measurement in order to form the clusters. This distance measurement is best suited to form clusters based on data that contains a mixture of continuous and categorical variables. In the final step of the analysis, I tested whether the characteristics of the referrals differ significantly depending on the sourcing of different types of information. This was done by conducting a chi square test.

RESULTS

Before discussing the findings, some statistics regarding the VC due diligence process are summarized. On average, the venture capitalists had a total deal flow of 239 propositions, had first meetings with 92 entrepreneurial teams and, on average, invested in four propositions per year. This means that once an entrepreneurial team is able to arrange a meeting with the venture capitalist, the chance is still only about 4% that the proposition will be funded. Regarding these decisions, I discussed to what extent third party referrals play a role in the venture capitalist's due diligence process. In my sample, the venture capitalist, on average, consulted seven referral sources for information in their due diligence process. On one occasion, the venture capitalist even consulted 70 referrals, showing that the number of referral sources consulted in the due diligence process varies widely between deals and venture capitalists.

When clustering the referral sources based on their EiN characteristics, a two-cluster solution was found. In Table 2, the results of this clustering are provided. There are three variables that drive the formation of these clusters. First of all, the individuals in cluster 1 more often have a financial interest in the proposition than the individuals in cluster 2 (economic capital). Added to this, the referral sources in cluster 1 also have stronger backgrounds in business than referral sources in cluster 2 (cultural capital). Last of all, the individuals in cluster 1 also have stronger ties to the venture capitalist (social capital). The other variables that were taken into account when clustering these types of referrals do not significantly drive the formation of the clusters. This means that the reputations (strategic capital), technological backgrounds (cultural capital) and a financial stake in the VC fund (economic capital) do not significantly differ for referrals in clusters 1 and 2. The referral sources in cluster 1 can be regarded as people that are closely connected to the venture capitalist or the propositions. In other words, they are better embedded in the network of both the venture capitalist and the proposition through a network tie or a financial interest in the proposition. They can be regarded as the first ring of referrals that a venture capitalist contacts. The referral sources in cluster one could be labelled as “embedded generalists”. The referral sources in cluster 2 are connected somewhat more loosely to the venture capitalist and the proposition and have weaker business backgrounds. They can be regarded as the second ring of referrals that a venture capitalist contacts. The referrals in cluster 2 could be labelled as “independent referrals”.

In Table 3, the results of the clustering of the multiple types of information are shown. The result of this clustering is also a two-cluster solution. This means that all of the types of information a referral source can provide can be classified into two groups. Information cluster 1 consists of referral sources that provide information on the new-venture technology and intellectual property issues. The referral sources that fall into this cluster do not provide any information on the proposition’s market, financial situation and strategy. On the other hand, the referrals in cluster 2 provide, in contrast to the cluster 1, information on the proposition’s market, financial situation and strategy. The referrals in cluster 2 provide technological information less often than referrals in cluster 1. This information cluster is labelled as the “business information” cluster. The provision of team information to the venture capitalist does not significantly fall into one of these clusters. Added to this, there was only one case in which the referral provided information on the partners of the proposition/ new venture.

In Table 4, a cross tab of the characteristics of the referral source on one side and the type of information provided by the referral source on the other dimension is provided. The Chi square test shows that the referral source characteristics differ significantly depending on the type of information to be sourced. First of all, the “business information” is more often provided by “embedded generalists”. The fact that venture capitalists rely on people with strong business backgrounds for business information is quite evident. What is interesting is that those people who provided business information more often have a financial interest in the proposition as well and also have stronger ties to the venture capitalist. For information on technology and intellectual property issues, the venture capitalists more often rely on referrals that were labelled as “independent referrals”. These were provided by referral sources that do not have an interest in the proposition, have weaker business backgrounds and have weaker ties to the venture capitalist. Thus it appears that for the

provision information on technology and intellectual property issues, a financial interest in the proposition and a strong tie to the venture capitalist matter less than for the provision of business information.

Table 2: Clustering based on Referral Source Characteristics

	Cluster 1	Cluster 2
Reputation (Strategic capital)		
Mean	2.389	2.444
S.D.	2.329	2.364
Economic interest in the venture (Economic capital)*		
Yes (N=15)	15	0
No (N=86)	36	50
Economic stake in the VC (Economic capital)		
Yes (N=10)	8	2
No (N=91)	43	48
Business background (Cultural capital)*		
Mean	21.902	14.660
S.D.	4.006	7.531
Technology background (Cultural capital)		
Mean	13.157	13.720
S.D.	6.087	6.115
Tie strength to the VC (Social capital)*		
0	5	34
1	0	0
2	0	1
3	0	4
4	0	9
5	38	0
6	8	2

* This referral source characteristic contributes significantly to the formation of the clusters, $p < .05$

Table 3: Clustering based on Information Types

	Info Cluster 1	Info Cluster 2
Strategy information (N=30)*	0	30
Market information (N=54)*	0	54
Financial information (N=11)*	0	11
Technology information (N=49)*	31	18
IP information (N=3)	3	0
Team information (N=41)	14	27
Partner information (N=1)	0	1

* This type of information significantly contributes to the formation of the clusters, $p < .05$

Table 4: Cross Table (Information Types vs. Referral Source Types)

	Embedded generalists	Independent referrals	
Technology info	12	30	42
Business info	39	20	59
	51	50	

Pearson Chi Square 13.824, df1, $p = .000$

CONCLUSIONS, CONTRIBUTIONS AND IMPLICATIONS

In this paper, the focus was on the due diligence stage of the VC funding process. More specifically, I focused on one type of information source that venture capitalists use in this stage of the funding process: third party referrals. Previous studies have shown that, especially in early-stage investments, these third party referrals play a prominent role in VC funding decisions because alternative information sources for these early stage investments are scarce (e.g., Harrison et al., 1997; Lockett et al., 2006; Shane & Cable, 2002). To date, detailed studies on the workings of these referral mechanisms and the type of referral sources contacted for multiple types of information are scarce. In this paper, I focused, in depth, on the characteristics of the referral sources contacted for multiple types of information in the due diligence process. Based on the EiN model, a set of dimensions of third party characteristics were deduced along which the referral sources involved in the due diligence process were studied. Based on these characteristics, the referrals were clustered in order to identify different types of referral sources that a venture capitalist

consults. In a next step, I explored the extent to which these types of referral sources differ depending on the types of information they provide to the venture capitalist.

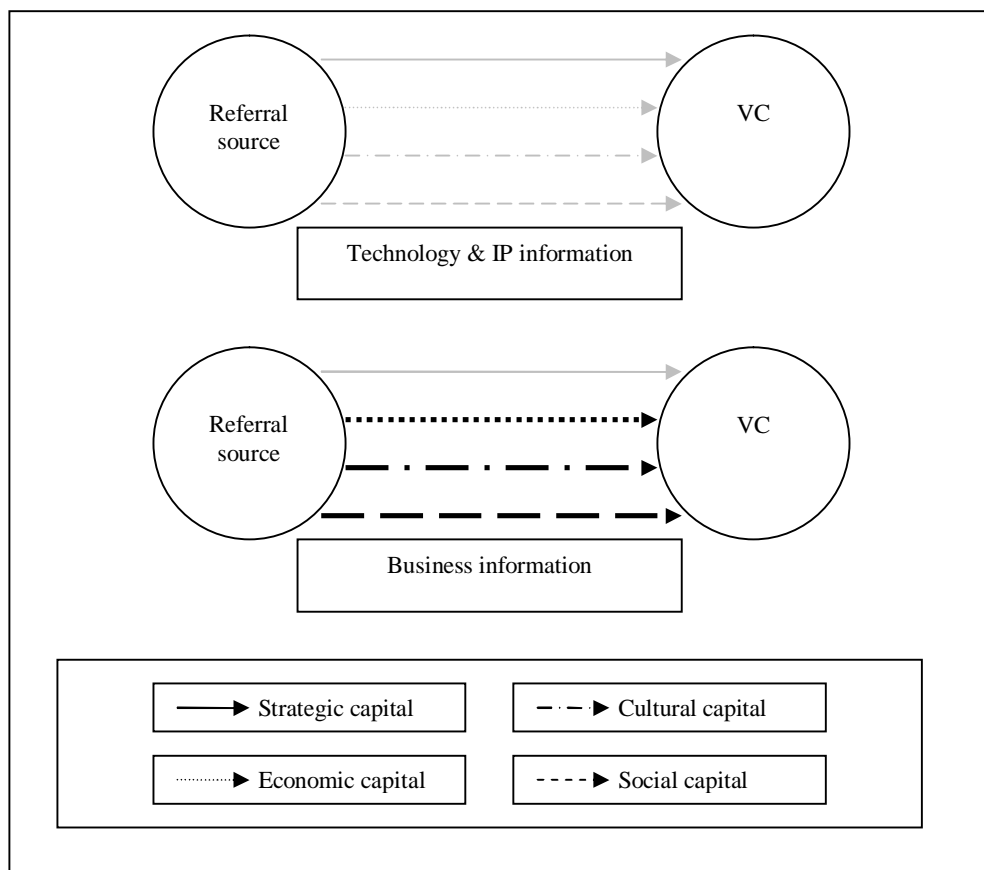
The findings of this paper are summarized in Figure 2. In this figure, the relative importance of the four types of EiN capital of referral sources that provide information on technology and IP, on the one hand, and business information on the other hand are shown. For technological information, it can be concluded that the referral sources have relatively “weaker” scores on three of the four EiN dimensions when compared to referral sources that provide business information. For information on technology and IP, the venture capitalist tends to rely on referrals from referral sources that do not have an interest in the proposition (economic capital), have weaker business backgrounds (cultural capital) and are more loosely tied to the venture capitalist (social capital) when compared to the referrals that provided business information. For the provision of the second category of information (primarily concerned with the provision of business information), another picture emerges. When sourcing this type of information, it can be concluded that the referral sources have a “higher” scores on three of the EiN dimensions when compared to the referrals that provide information on technology and IP. For the second type of information, a venture capitalist prefers to rely on referral sources that have an interest in the proposition (economic capital), have stronger business backgrounds (cultural capital) and are stronger tied to the venture capitalist (social capital).

The findings contribute to the literature in several ways. First of all, a more complete understanding on the social context of VC decision-making processes is provided (e.g., Batjargal, 2007; Lockett et al., 2006). Current approaches have focused extensively on the decision-criteria that venture capitalists apply. In these studies, the venture capitalist is often assumed to be a rational actor that balances these criteria. My claim is that not only the decision-criteria in themselves are important to the decision but also the people who provide information on the decision-criteria. Added to this, the study provides more insight into the characteristics of actual third party referrals that are most influential in the due diligence process. Current approaches that focus on the role of referrals have only provided fragmented support for the effectiveness of certain referral source characteristics in VC decisions (e.g., Batjargal, 2007; Fiet, 1995; Maula, 2001). Related to this, a contribution to the literature is made by studying the effectiveness of certain characteristics of referrals for various types of information. Although referrals are sometimes taken into account as a dummy, previous research has failed to relate the effectiveness of the various characteristics of referral sources to the provision of multiple types of information. The findings clearly show how the characteristics of the referral sources differ depending on the types of information to be sourced. Finally, a contribution to the literature is made by focusing, in depth, on the VC due diligence stage of early-stage deals, whereas previous studies have particularly focused only on the effects of referrals and networks on IPO or on valuation, instead of on the actual VC due diligence process (e.g., Stuart et al., 1999).

In addition to the literature on VC, this study also contributes to the development of the EiN model (e.g., Groen, 1994, 2005; Groen et al., 2002, 2008). The study shows how the EiN model can be used in the context of the VC due diligence process. The EiN model provides a multidimensional model consisting of four dimensions. By using the EiN model, a systematic approach in deducing the referral source characteristics in the VC due diligence

process is applied. The results show that three of the four EiN dimensions drive the formation of the two referral clusters. The ‘strategic capital’ dimension of the EiN model, as measured by the referral source’s reputation, is the only dimension that does not differ between the two referral types. This shows that an EiN model approach to the study of referrals has additional value over the one-dimensional approaches. Past studies have only studied these referral mechanisms in a fragmented way by looking, for example, at only the functional background of the referral source or only looking at the network tie between referral source and the venture capitalist. Added to this, the results show that the signalling value of the four types of EiN capital is dependent on the type of information to be sourced by the venture capitalist.

Figure 2: Relative Importance of the Four Referral Source Capitals in the Provision of Information



The exploratory nature of this paper provides many interesting insights; however there are still some questions regarding the actual explanation of the findings. From the results, two potential theories that could provide more insight in future studies regarding the working of referral mechanism in the VC due diligence process can be identified. A first theoretical

concept that could be used in future studies is the concept of social circles. The referrals that influence the venture capitalist's decisions meet the criteria of social circles as defined by Kadushin (1968). The concept of social circles is well suited to study influence mechanisms in a variety of contexts. In social circle approaches, several types of these circles can be identified. In this study, one specific type of a social circle was studied: the power and influence circles that play a role in VC decision-making processes. Kadushin (1968) claims that the characteristics of actors in these social circles vary depending on the specific nature of a social circle. In this paper, it was shown that the characteristics of the actors in the social circles that venture capitalist rely on to take investment decisions differ between the sourcing of two types of information. These types of social circles were identified along the dimensions of the EiN model. The 'embedded generalists' and the 'independent specialists' can both be regarded as types of social circles influencing the VC due diligence process. Therefore, the social circle approach might be a fruitful direction for future research regarding the VC funding process.

A second theoretical stream that could help to explain the findings are knowledge (transfer) theories. In this paper, the types of information to be sourced were based on a study of the literature. Since the types of information were based on a study of the literature on VC decisions, I did not really focus on the theoretical concepts underlying these multiple types of information to be sourced. However, with the clustering of the information types, a quite interesting clustering appeared that has interesting similarities to concepts that can be found in knowledge (transfer) literature. When comparing the two information clusters, an important distinction can be identified that is similar to one this is made in knowledge literature; the distinction between explicit and tacit knowledge (Nonaka & Takeuchi, 1995; Polanyi, 1966). Cluster 1 is a more explicit type of information cluster, since information on technologies and IP has many codified sources. For example, information on technology can be found in journal articles and information on IP can be checked in patent databases. When venture capitalists want to source information on these issues, they contact someone that has the skills and knowledge to consult these explicit sources. Information cluster 2 could be regarded as a more tacit type of information cluster. Especially in early-stage deals, the information on, for example, a new venture's market and strategy has few explicit sources. Therefore, the quality of information in this cluster is heavily dependent on the experience and "gut feeling" of the referral source contacted for this type of information. Based on these insights, I would hypothesize that for tacit knowledge, there is more subjective judgment of the referral source involved based on its experience and skills. For explicit knowledge, this judgment is more objective since much of the information provided by the referral has its origin in codified sources. When more subjective judgment is involved, it can be expected that the venture capitalists prefer to rely on people with whom they have strong ties. When venture capitalists are strongly tied to a referral source, they can better determine if the referral source has the right experience and "gut feeling" to make a correct judgment on the tacit issues in the business information cluster. For the more explicit knowledge in the technology/IP cluster, this strong tie is less important since there is less subjective judgment about the information to be provided. This is supported by the findings in this paper. Therefore knowledge (transfer) literature could be a second interesting area for future studies regarding behaviour in the acquisition of VC.

This study has some practical implications for entrepreneurs that are looking for funding. Since the study provides insight into the referral characteristics that are most influential during due diligence for sourcing multiple types of information, one will be better able to advise entrepreneurs in the VC investment process. For example, venture capitalists often ask the entrepreneurs for references in the due diligence process. When they do so, I can advise them much better on the types of referral sources to select on these occasions. Added to this, the findings also provide some insights for venture capitalists. For example, the results show that venture capitalists rarely mention information on new-venture partners as the most influential referral source in their due diligence process, which is quite an interesting finding in itself. Both in the literature and in practice, the network partners of a new venture are often identified as one of the key factors that predict the future performance of the venture. I would therefore advise venture capitalists to include the sourcing of information on venture partners more extensively in their due diligence practices.

LIMITATIONS AND FUTURE RESEARCH

A limitation of this study is that it only provides a descriptive classification of influential referrals in the due diligence process. Since I do not have examples of less influential referrals in the sample, I was not able to run, for example, a regression on the characteristics that really drive the influence of the characteristic of multiple referrals. In future research, it would be interesting to look at why certain referral characteristics are influential in the VC due diligence process. By doing so it could also be tested whether knowledge literature, which was suggested as one type of literature that can provide potential explanations for the findings, is a fruitful auxiliary area to integrate into the EiN model. In addition, I only studied the role of referrals in the VC due diligence process. In future research, it would be interesting to study the referrals involved in, for example, VC deal flow as well to see how the role of referrals differs over the VC investment process. Another weakness in this study is that no division was made between types of new ventures or types of VC firms. Studying referral with more variety along these dimensions would therefore provide a fruitful area of the study. A final limitation of the study is that it only focuses on one information source in the due diligence process; third party referrals. In future research, it would therefore be interesting to see how the importance of this source of information is related to the importance of other sources of information like business plans or publicly available information.

REFERENCES

- Batjargal, B. 2007. Network Triads: Transitivity, Referral and Venture Capital Decisions in China and Russia. *Journal of International Business Studies*, 38(6): 998-1012.
- Batjargal, B., & Liu, M. 2004. Entrepreneurs' Access to Private Equity in China: The Role of Social Capital. *Organization Science*, 15(2): 159-172.
- Baum, J., Calabrese, T., & Silverman, B. 2000. Don't go it Alone: Alliance Network Composition and Startups' Performance in Canadian Biotechnology. *Strategic Management Journal*, 21(3): 267-294.
- Burton, M., Sorensen, J., & Beckman, C. 2002. Coming from Good Stock: Career Histories and New Venture Formation. *Social Structure and Organizations Revisited*, 19: 229-262.
- Chang, S. J. 2004. Venture Capital Financing, Strategic Alliances, and the Initial Public Offerings of Internet Startups. *Journal of Business Venturing*, 19(5): 721-741.
- Fiet, J. 1995. Reliance Upon Informants in the Venture Capital Industry. *Journal of Business Venturing*, 10(3): 195-223.
- Fried, V., & Hisrich, R. 1994. Towards a Model of Venture Capital Investment Decision Making. *Financial Management*, 23(3): 28-37.
- Goode, W. 1978. *The Celebration of Heroes: Prestige as a Social Control System*. Berkeley: University of California Press.
- Granovetter, M. 1973. The Strength of Weak Ties. *American Journal of Sociology*, 78(6): 1360-1380.
- Groen, A. 1994. *Milieu en MKB, Kennis en Kennissen, Milieuinnovatie in de Grafische Industrie: Modelmatig verklaard*. University of Groningen, Groningen.
- Groen, A. 2005. Knowledge Intensive Entrepreneurship in Networks: Towards a Multilevel Approach. *Journal of Enterprising Culture*, 13(1): 69-88.
- Groen, A., de Weerd-Nederhof, P., & Kerssens-van Drongelen, I. 2002. Creating and Justifying Research and Development Value: Scope, Scale, Skill and Social Networking in R&D. *Creativity and Innovation Management*, 11(1): 2-16.
- Groen, A., Wakkee, I., & De Weerd-Nederhof. 2008. Managing Tensions in a High-tech Start-up. *International Small Business Journal*, 26(1): 57-81.
- Gupta, A., & Sapienza, H. 1992. Determinants of Venture Capital Firms' Preferences Regarding the Industry Diversity and Geographic Scope of Their Investments. *Journal of Business Venturing*, 7(5): 347-362.
- Hall, J., & Hofer, C. 1993. Venture Capitalists' Decision Criteria in New Venture Evaluation. *Journal of Business Venturing*, 8(1): 25-42.
- Harrison, R., Dibben, M., & Mason, C. 1997. The Role of Trust in the Informal Investor's Investment Decision: An Exploratory Analysis. *Entrepreneurship Theory and Practice*, 21(4): 1042-1087.
- Hustedde, R., & Pulver, G. 1992. Factors Affecting Equity Capital Acquisition: The Demand Side. *Journal of Business Venturing*, 7(5): 363-374.
- Janney, J., & Folta, T. 2006. Moderating Effects of Investor Experience on the Signalling Value of Private Equity Placements, *Journal of Business Venturing*, 21(1): 27-44.
- Jenssen, J. 2001. Social Networks, Resources and Entrepreneurship. *The International Journal of Entrepreneurship and Innovation*, 2(2): 103-109.

- Jugel, S. 2001. *Der Leistungsstand Deutscher Beteiligungsgesellschaften*. Fachhochschule Wiesbaden zusammen mit Baumgartner & Partner, Nachrichten, Wiesbaden.
- Kadushin, C. 1968. Power, Influence and Social Circles: A New Methodology for Studying Opinion Makers. *American Sociological Review*, 33(5) : 685-699.
- Lockett, A., Ucbasaran, D., & Butler, J. 2006. Opening Up the Investor–Investee Dyad: Syndicates, Teams, and Networks. *Entrepreneurship Theory and Practice*, 30(2): 117-130.
- MacMillan, I. C., Zemann, L., & Subbanarasimha, P. 1987. Criteria Distinguishing Successful from Unsuccessful Ventures in the Venture Screening Process. *Journal of Business Venturing*, 2(2): 123-137.
- MacMillan, I. C., Siegel, R., & Subbanarasimha, P. 1985. Criteria Used by Venture Capitalists to Evaluate New Venture Proposals. *Journal of Business Venturing*, 1(1): 119–128.
- Manigart, S., Wright, M., Robbie, K., Desbrieres, P., & DeWaele, K. 1997. Venture Capitalists' Appraisal of Investment Projects: An Empirical European Study. *Entrepreneurship Theory and Practice*, 21(4): 1042-2587.
- Maula, M. 2001. *Corporate Venture Capital and the Value Added for Technology Based Ventures*. Helsinki University of Technology, Espoo.
- Maula, M., Autio, E., & 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): 3-21.
- Nonaka, I., & Takeuchi, H. 1995. *The Knowledge Creating Company: How Japanese Companies Create the Dynamics of Innovation*. Oxford University Press: Oxford.
- Parhankangas, A., & Landstrom, H. 2006. How Venture Capitalists Respond to Unmet Expectations: The Role of Social Environment. *Journal of Business Venturing*, 21(6): 773-801.
- Parsons, T. 1964. *The Social System*. New York: The Free Press.
- Parsons, T. 1977. *Social Systems and the Evolution of Action Theory*. New York: The Free Press.
- Petkova, A. 2006. *Reputation Building by New Ventures: Three Essays on Processes and Performance*. Dissertation, University of Maryland.
- Polanyi, M. 1966. *The Tacit Dimension*. Doubleday & Co.
- Reuber, A., & Fischer, E. 2005. The Company You Keep: How Young Firms in Different Competitive Contexts Signal Reputation through Their Customers. *Entrepreneurship Theory and Practice*, 29(1): 57-78.
- Scholten, V. 2006. *The Early Growth of Academic Spin-offs*. University of Wageningen.
- Shane, S., & Cable, D. 2002. Network Ties, Reputation, and the Financing of New Ventures. *Management Science*, 48(3): 364-381.
- Shane, S., & Stuart, T. 2002. Organizational Endowments and the Performance of University Start-ups. *Management Science*, 48(1): 154-170.
- Stein, M., & Bygrave, W. 1990. The Anatomy of High-Tech IPOs: Do Their Venture Capitalists, Underwriters, Accountants, and Lawyers make a Difference? *Frontiers of Entrepreneurship Research*: 394-407. Wellesley, MA: Babson College.

- Stuart, T., Hoang, H., & Hybels, R. 1999. Interorganizational Endorsements and the Performance of Entrepreneurial Ventures. *Administrative Science Quarterly*, 44(2): 315-349.
- Tyebjee, T., & Bruno, A. 1984. Venture Capital: Investor and Investee Perspectives. *Technovation*, 2(3): 185-208.
- Vater, W. 2002. *Die Qualität Deutscher Private Equity Unternehmen - Optimierungsmöglichkeiten bei der Vergabe von Beteiligungskapital*. Wiesbaden.
- Wells, W. 1974. *Venture Capital Decision Making*. Carnegie-Mellon University, Pittsburg.
- Wright, M., & Robbie, K. 1998. Venture Capital and Private Equity: A Review and Synthesis. *Journal of Business Finance & Accounting*, 25(5&6): 521-570.
- Zacharakis, A., & Meyer, G. 1998. A Lack of Insight: Do Venture Capitalists Really understand Their Own Decision Process? *Journal of Business Venturing*, 13(1): 57-76.

SUMMARY IN DUTCH

Introductie

Referenties spelen een belangrijke rol in veel zoek en evaluatie processen. Referenties zijn bijvoorbeeld een belangrijke bron van informatie op de arbeidsmarkt voor mensen die een baan zoeken en werkgevers die op zoek zijn naar nieuwe werknemers. Referenties spelen niet alleen een rol bij het identificeren van banen en potentiële werknemers maar ook in de evaluatie van potentiële werkgevers en werknemers. Referenties zijn bijvoorbeeld een belangrijke informatiebron wanneer een werkgever iemand geschikt vindt voor een bepaalde functie. Daarnaast zijn referenties ook voor potentiële werknemers een belangrijke bron van informatie in hun evaluatie van een werkgever.

Soortgelijke referentiemechanismen kunnen ook gevonden worden in the context van ondernemerschap. Netwerken en referenties spelen een belangrijke rol in het identificeren van zakelijke mogelijkheden en het binnenhalen van middelen die nodig zijn om een bedrijf te laten overleven en groeien. De focus in dit proefschrift ligt op de rol van referenties in het binnenhalen van een specifiek soort middelen door startende technologie bedrijven, namelijk financiële middelen. Referenties spelen een belangrijke rol bij het leggen van het initiële contact tussen het technologie bedrijf en potentiële investeerders en in het evaluatieproces van potentiële investeerders. In dit proefschrift is er met name gekeken naar de rol van referenties in het binnenhalen van een specifiek soort van financiering, namelijk venture capital.

Thema's

Als eerste stap is er gekozen om te starten met een uitgebreide literatuurstudie naar de rol van netwerken en referenties in het ondernemerschapsproces. Het resultaat hiervan kan worden gevonden in Artikel 1. Hieruit bleek dat er erkend wordt dat referenten een belangrijke rol kunnen spelen in het succes van startende technologie bedrijven, maar ook dat referentiemechanismen weinig aandacht hebben kregen van onderzoekers op een micro niveau. Daarom is er gekozen voor een specifiek focus op referentiemechanismen in dit proefschrift om meer inzicht te krijgen in de exacte werking van referentiemechanismen. Omdat dit onderwerp nog steeds erg breed was is er gekozen om deze referentiemechanismen te bestuderen langs enkele thema's. Ten eerste is er aandacht besteed aan de rol van netwerkbanden tussen het startende technologie bedrijven, de referenten en de (potentiële) investeerders. Maakt het bijvoorbeeld uit dat de referent een goede bekende is van het startende technologiebedrijf of is dit voor het succes van een referentie niet van belang? Ten tweede is gekeken naar de vraag in hoeverre de impact van een referentie afhankelijk is van de karakteristieken van het startende technologie bedrijf, de referent en de investeerder. Daartoe is gekeken naar vier typen karakteristieken van deze actoren die het succes van een referentie beïnvloeden. Deze karakteristieken, die afgeleid zijn van ons 'Entrepreneurship in Networks' (EiN) model, zijn oorspronkelijk geïnspireerd door sociale systeemtheorie. Tot slot is gekeken in hoeverre de invloed van een referentie afhankelijk is van de specifieke fase in het investeringsproces. Er is bijvoorbeeld gekeken naar referenties die een rol spelen bij het binnenbrengen van nieuwe proposities bij een

venture capital fonds en naar de referenties die een rol spelen in het due diligence proces van een venture capital fonds.

Methode en Data

Na de literatuurstudie en de theoretische onderbouwing van deze thema's zijn deze thema's empirisch onderzocht. Ten eerste zijn de geïdentificeerde thema's geëxploreerd in een kwalitatieve studie in vier startende technologie bedrijven. De resultaten hiervan kunnen worden gevonden in Artikel 3. Vervolgens is er een kwantitatieve studie uitgevoerd door het interviewen van 57 venture capital fondsen in Nederland en Zweden. De resultaten van deze studie kunnen worden gevonden in Artikel 2, 4, 5 en 6. Artikel 2 is een kwalitatieve beschouwing van de eerste tien interviews met deze fondsen. Hierin wordt met name aandacht besteed aan de netwerkbanden tussen de referenten en de startenden technologie bedrijven en de netwerkbanden tussen de referenten en de venture capital bedrijven. Artikel 4 borduurt voort op een van de resultaten uit Artikel 3. In Artikel 3 bleek dat de ervaring van het ondernemende team een belangrijke factor is in het financieringsproces. Meer ervaren teams leken makkelijker toegang te krijgen tot venture capital fondsen en worden vaker gefinancierd door deze fondsen. Op zich is dit een evidente bevinding, daarom ben ik in Artikel 4 een stap verder gegaan door de verschillende effecten van ervaring uiteen te rafelen. Op basis van sociale systeem theorie zijn de effecten van ervaring uiteengerafeld en is gekeken welke van deze effecten verklaren dat ervaren teams minder moeite hebben om financiering te verwerven. Om in staat te zijn om deze effecten uiteen te rafelen is gebruik gemaakt van structural equations modelling. In Artikel 5 is gekeken naar de referenties die een rol spelen in het binnenbrengen van nieuwe proposities bij venture capital fondsen. Op basis van sociale systeem theorie zijn vier typen karakteristieken van referenten uiteengerafeld. Gebruik makend van regressie is er gekeken welke van deze karakteristieken de referentie succesvol maken. Een soortgelijke benadering is gevolgd in Artikel 6. In Artikel 6 is er echter gekeken naar de referenties die een rol spelen in het due diligence proces van venture capital fondsen. Hierbij is gekeken in hoeverre de karakteristieken van invloedrijke referenten verschillend zijn voor het verkrijgen van verschillende typen informatie. In Artikel 6 is er gebruik gemaakt van clustering technieken.

Resultaten

De empirische studies laten enkel interessante inzichten zien in de rol van referenties in het financieren van startende technologie bedrijven. Deze resultaten zullen kort besproken worden. Ten eerst zullen de resultaten besproken worden die betrekking hebben op het identificeren van financiële opties en het toegang krijgen tot venture capital fondsen. Ten tweede zullen de resultaten besproken worden die gerelateerd zijn aan het due diligence proces van een venture capital fonds en de uiteindelijke beslissing om in een propositie te investeren.

Ten eerste zal ik een overzicht geven van de resultaten die betrekking hebben op het identificeren en toegang krijgen tot investeerders, meer specifiek venture capital fondsen. Mijn resultaten laten zien dat gemiddeld gezien 46% van alle proposities die een venture capital fonds te zien krijgen via een referent bij het fonds terecht komen. Daarnaast geven

55% van de venture capital fondsen aan dat ze referenten als hun belangrijkste bron voor nieuwe proposities zien. Er zijn enkele karakteristieken van referenten die deze referenties succesvol maken in het leggen van contact tussen een startend technologie bedrijf en het venture capital fonds. Als we kijken naar de karakteristieken die we afleiden vanuit sociale systeem theorie zijn het met name de functionele zakelijke achtergrond van de referent en de sterkte van de band tussen de referent en het venture capital fonds die het succes van een referentie verklaren. Andere karakteristieken zoals het financiële belang van een referent in de propositie en de reputatie van een referent hebben geen significante invloed op het succes van een referentie.

Voordat startende technologie bedrijven contact opnemen met een venture capital fonds verzamelen ze informatie over de verschillende typen van financiering die beschikbaar zijn. In deze fase lijken netwerken met veel structurele gaten een voordelig effect te hebben. Dit betekent dat startende bedrijven beter zijn geïnformeerd over de financiële mogelijkheden wanneer ze een variëteit aan contacten hebben vanuit veel verschillende hoeken. Daarnaast hebben deze bedrijven gevarieerdere financiële structuren. Bedrijven die alleen netwerk contacten hebben met actoren die elkaar onderling ook kennen hebben een geringere informatiefunctie voor startende bedrijven. Wanneer een startend technologie bedrijf contact legt met een venture capital fonds heeft het twee opties. Het bedrijf kan ervoor kiezen om direct contact op te nemen of ervoor kiezen om gebruik te maken van een referent die een makelaarsfunctie vervult tussen het startende bedrijf en het venture capital fonds. De karakteristieken van het ondernemende team zijn in hoge mate verklarend voor het succes van het direct contact leggen met een venture capital fonds. De zakelijke ervaring van het team is hierin de meest belangrijke verklarende factor. Ondernemende teams die deze ervaring missen doen er goed aan om gebruik te maken van een referent om toegang te krijgen tot een venture capital fonds. Wanneer een referent wordt gebruikt om toegang te krijgen tot een venture capital fonds lijken deze referenties het meest effectief wanneer de referent een sterke netwerkband heeft met het ondernemende team.

In deze sectie zal ik me richten op de rol van referenties in het due diligence proces van een venture capital fonds en de uiteindelijke beslissing van een fonds om in een propositie te investeren. Ten eerste laten de resultaten zien dat de karakteristieken van invloedrijke referenten in het due diligence proces afhankelijk zijn van het type informatie. De karakteristieken van referenten die afgeleid zijn van sociale systeem theorie verschillen voor de acquisitie van verschillende typen informatie. Voor informatie over de technologie en IP vertrouwen venture capital fondsen op referenten (1) waarmee ze zwakkere netwerkbanden hebben in vergelijking met andere due diligence referenten, (2) die een zwakkere zakelijke achtergrond hebben, en (3) die geen financieel belang hebben in de propositie. Voor informatie over de markt, de financiële situatie en de strategie van de propositie vertrouwen venture capital fondsen op referenten die (1) sterke netwerkbanden hebben met het venture capital fonds, (2) een sterkere zakelijke achtergrond hebben, en (3) vaak ook een financieel belang hebben in de propositie.

In het kwalitatieve artikel vanuit het perspectief van de startende technologie bedrijven bleek dat de ervaring van het ondernemende team voordelige effecten heeft op de financiering van een bedrijf. Daarom is ook gekeken naar de verschillende effecten van ondernemerschapservaring en functionele zakelijke ervaring die deze relatie tussen ervaring

en het verkrijgen van financiering verklaren. Teams met ondernemerschapservaring hebben hogere reputaties en hebben meer kennis en vaardigheden. Teams met meer functionele zakelijke ervaring hebben ook hogere reputaties en meer kennis en vaardigheden. Daarnaast hebben deze teams ook vaker bestaande sterke banden met het venture capital fonds wanneer je ze vergelijkt met teams die een gebrek hebben aan zakelijke ervaring. Hoewel deze twee typen ervaring dus verschillende effecten hebben, beïnvloeden deze effecten de investeringsbeslissing van het venture capital fonds niet op eenzelfde wijze. Alleen de vaardigheden, kennis, en netwerkband tussen het venture capital fonds en het team hebben een significante invloed op de investeringsbeslissing van het venture capital fonds. De reputatie van een team daarentegen heeft geen significante invloed op de investeringsbeslissing.

Implicaties

Door de focus op de rol van referenties in het verkrijgen van (venture capital) financiering, wordt bijgedragen aan verschillende literatuurstromingen. Ten eerste is de focus op referenties en toevoeging aan netwerk-literatuur. Hoewel het belang van referenties erkend wordt voor startende bedrijven heeft het referentiemechanisme weinig aandacht gekregen op een microniveau. Daarnaast is de focus op specifieke netwerkbanden tussen de actoren die betrokken zijn in referentiemechanismen een toevoeging aan netwerk-literatuur. Bestaande studies die focussen op het belang van referenties hebben tot op heden niet gekeken naar de effecten van deze banden op het succes van een referentie. Het gebruik van sociale systeem theorie in de context van netwerken en referenties is een volgende toevoeging aan de netwerk-literatuur. Door deze benadering wordt een beter inzicht verkregen in de specifieke contingenties die de invloed van referenties verklaren. Naast een beter inzicht in deze contingenties geeft de toepassing van het ons multidimensionale model ook een beter inzicht in de waarde van ons EiN model in de context van (venture capital) financiering. Een laatste toevoeging aan netwerk-literatuur heeft betrekking op de studie van referenties in verschillende fasen van het investeringsproces. Hiermee wordt bijgedragen aan een completer begrip van de rol van referenties in het (venture capital) investeringsproces. Naast netwerk-literatuur draagt dit proefschrift ook bij aan venture capital literatuur. Referenties hebben tot op heden weinig aandacht gekregen in venture capital literatuur. Dit terwijl verschillende onderzoeken hebben bewezen dat referenties en netwerken een belangrijke rol spelen in investeringsbeslissingen, zeker wanneer deze investeringen worden gedaan onder condities van hoge onzekerheid. Mijn studie van referenties in de context van venture capital investeringen draagt daarom bij aan een completer beeld van de sociale context van venture capital beslissingen.

Naast de theoretische implicaties heeft dit proefschrift ook praktische implicaties. Een meer systematisch begrip van referenties is bijvoorbeeld waardevol voor ondernemers die op zoek zijn naar financiële middelen. Wanneer ondernemers een beter begrip hebben van de sociale context van investeringsbeslissingen zullen ze ook beter in staat zijn om het venture capital investeringsproces te beïnvloeden. Daarnaast hebben de resultaten van dit proefschrift ook praktische implicaties voor mensen die als referent optreden ten behoeve van startende technologie bedrijven. Hierbij valt te denken aan corporate finance brokers, incubators and onafhankelijke business developers. Wanneer zij een startend bedrijf helpen bij het contact leggen met een venture capital fonds is dit het meest effectief wanneer deze

actoren een sterke zakelijke achtergrond hebben en wanneer zij sterke netwerkbanden hebben met het venture capital fonds. Dit betekent bijvoorbeeld dat deze actoren beter kunnen investeren in het opbouwen van sterke banden met enkele venture capital fondsen in plaats van het opbouwen van veel zwakke banden met vele fondsen. Daarnaast heeft dit proefschrift ook implicaties voor venture capital fondsen. Onder condities van hoge onzekerheid spelen referenties een prominente rol in investeringsprocessen. Wanneer venture capital fondsen zich beter bewust zijn van de invloed van deze referenties, zullen deze fondsen kritischer zijn in de mensen waarop ze bijvoorbeeld vertrouwen voor het aandragen van nieuwe propositities. Tot slot hebben de resultaten van dit proefschrift ook implicaties voor beleidsmakers. De problematiek omtrent de financiering van startende technologie bedrijven wordt vaak verklaard door te verwijzen naar een gebrek aan financiële middelen dat hiervoor beschikbaar is. Daardoor wordt het financieringsprobleem voor deze technologiebedrijven vaak aangepakt door overheden door het opzetten van nieuwe fondsen of te investeren in bestaande venture capital fondsen. Echter een benadering van dit probleem vanuit netwerktheorie en referentiemechanismen zoals gedaan in dit proefschrift laat zien dit financieringsprobleem fundamenteeler is. Dit pleit ervoor om als overheid niet alleen zelf te gaan investeren in startende technologiebedrijven maar om ook aandacht te besteden aan de meer fundamenteelere problemen die aan het financieringsprobleem ten grondslag liggen. Hierbij valt te denken aan het opleiden en trainen van ondernemende teams en het ondersteunen van systemen die een betere matching van ondernemers met (venture capital) investeerders mogelijk maken.

CURRICULUM VITAE

Joris Heuven (Zwolle, 25th of May, 1979) obtained his M.Sc. in Entrepreneurship & New Business Venturing from Erasmus University, the Netherlands. He also holds a Bachelor degree in Marketing (Saxion Polytechnic, Cum Laude) and a Bachelor degree in Business Administration (Erasmus University). Currently he works at the Dutch Institute for Knowledge Intensive Entrepreneurship (Nikos) which is a part of the University of Twente. His research interests include entrepreneurial networks, new-venture financing, new-venture signalling, and venture capital decision-making. He has presented his research at a variety of international conferences including the Academy of Management Conference, the Babson Conference and the Strategic Management Society Conference. Added to his research activities he trains and advises entrepreneurs and other stakeholders on a variety of entrepreneurship topics, hereby specifically focusing on venture capital decision making.

