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TOM LAHTI

ANGEL INVESTING IN FINLAND

AN ANALYSIS BASED ON AGENCY THEORY AND THE INCOMPLETE
CONTRACTING THEORY

Helsinki 2008

Angel Investing in Finland: An Analysis Based on Agency Theory and the Incomplete Contracting Theory

Key words: business angels, venture capital, agency theory, due diligence, control, contract

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Tom Lahti
Hanken School of Economics
Department of Management and Organisation (Entrepreneurship and Management)
P.O. Box 479
00101 Helsinki, Finland

Distributor:

Library
Hanken School of Economics
P.O. Box 479
00101 Helsinki, Finland

Telephone: +358 40 3521 376, +358 40 3521 265

Fax: +358 40 3521 425

E-mail: publ@hanken.fi

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Tom Lahti

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1 INTRODUCTION

There is an ongoing debate in Finland on how to invigorate the informal venture capital market in Finland. As the venture capital industry has shifted its focus from entrepreneurial ventures to mature companies and management buyouts (e.g. Klofsten et al., 1999; Sohl, 1999; Harding, 2000, Lawton, 2002; Sohl 2003; Maula et al., 2007)¹, informal investors are seen to have a crucial role in filling the equity gap that arises when there are entrepreneurial ventures that cannot access funding. Even though Finland constantly tops the statistics on competitiveness and ranks high in the number of patent applications per capita, the degree of entrepreneurial activity has remained low (Paasivirta and Valtonen, 2004). In the Global Entrepreneurship Monitor study (2006), which measures the degree of entrepreneurial activity in 42 countries, Finland scores 31st (Bosma and Harding, 2007). In Finland, the informal venture capital market, including wealthy individuals, referred to as business angels, investing a share of their net worth in entrepreneurial ventures, is considered to be an untapped pool of capital that can contribute to fostering entrepreneurial development (e.g. Lumme et al., 1998; Paasivirta and Valtonen, 2004; Maula, 2007; Maula et al., 2007; Lahti, 2004, 2007).

Previous research has highlighted the important role of venture capital for economic development and revealed that venture capital spurs innovation (e.g. Crispin-Little and Brereton, 1989; Kortum and Lerner, 2000) and supports the development of entirely new industries, such as microcomputer software and biotechnology (e.g. Harrison and Mason, 2000b; Bygrave et al. 2001). Many of the most successful high technology companies, in the US, during the 1980s and 1990s, including Apple Computer, Cisco Systems, Genentech, Microsoft, Netscape and Sun Microsystems, have been backed by venture capital (see e.g. Gompers and Lerner, 2001).

In addition to innovative entrepreneurial ventures, the formal venture capital market, comprising venture capital funds, can benefit highly from the existence of a well functioning market for informal venture capital. The shift in investment focus among venture capital funds from early to later stage investments implies that they require a high investment readiness before they are willing to propose funding. Business angels that commonly invest smaller amounts in companies in their nascent stages of development can enhance the investment readiness of an entrepreneurial venture. The involvement of business angels nurtures the company through its infancy, and aids in achieving a sufficient degree of investment readiness to qualify for funding from venture capital funds (e.g. Harrison and Mason, 2000a).

Recent studies have, however, argued (e.g. Wall, 1995; Aernoudt, 1999a,b; Mason and Harrison 2000b, 2001; Harding, 2002; McGlue, 2002) that the problem is not so much the supply of capital as the supply of good projects. If the quality of investment proposals is of poor or moderate quality, business angels will not provide a solution to the equity gap.

¹ Maula et al. report that only four Finnish venture capital companies (three of them public) with fund sizes greater than €50 million had made initial investments in Finnish seed or startup stage companies in 2006. They add that this is because the remaining funds have been reserved for follow-on investments or changes in the funds' investment strategies have moved them towards a preferred focus on later stage deals.

Albeit being less concerned about financial criteria than are venture capitalists (e.g. Van Osnabrugge, 1998a), business angels also seek companies that can grow and prosper. Thus, companies that are categorized as lifestyle ventures, whose sole purpose is to provide the owners and perhaps their families with an income, do not provide suitable investment opportunities for business angels (Sohl, 1999).

An increasing flow of capital into entrepreneurial ventures does not, per se, contribute to a growth in entrepreneurial activity. Even if the entrepreneur knows every technical detail of his innovation, he might lack the business knowledge needed to commercialize it. Business angels, many of whom have previously been successful entrepreneurs (e.g. Lumme et al., 1998; Reitan and Sørheim, 1999; Månsson and Landström, 2006), commonly possess extensive business knowledge (e.g. Sohl, 1999; Ardichvili et al., 2000). Therefore, in addition to bridging the equity gap, business angels' involvement can contribute to filling existing knowledge gaps in new businesses.

In the US, the informal venture capital market is the greatest source of funding for new, entrepreneurial ventures (e.g. Sohl, 1999). The existing studies on the Finnish informal venture capital market (see Lumme et al., 1998; Maula, 2007; Maula et al. 2007; Lahti, 2007) point to a need to promote the development of the market through policy measures. Therefore, in order efficiently to encourage the development of the market it is necessary to gain knowledge concerning the characteristics of the Finnish business angels and their modus operandi. This study will aid in filling this research gap and provide fresh insights into how business angels reduce risk pre and post investment.

1.1 Definitions

This section comprises definitions of the two key actors in the market for venture capital (i.e. the business angels and the venture capitalists) as well as the stages of development of entrepreneurial ventures. It also describes the investment process of business angels.

A) Business angel:

The **informal venture capital market** is comprised of individuals investing in unquoted companies who are looking for a higher return than they would see from more traditional investments². The invested money constitutes a part of an individual's net worth. In defining the terms business angel and informal investor this study builds upon Avdeitchikova et al. (2008) reflecting on the question: what do we mean when we talk about business angels? They point out that a problem in previous research is that there are studies that use the terms informal investor and business angel interchangeably as well as studies that distinguish them from each other. To avoid confusion, the two terms are defined as below and the definitions are applied throughout the entire study.

The informal venture capital market is comprised of **informal investors**, defined in this study as all men and women who have invested their own money in unquoted companies. In this study, family and founders are excluded from the population of informal investors

² Retrieved from <http://www.smallbusinessnotes.com/glossary/defangel.html> 12.04.2008

as well as investors that are connected to a company (i.e. employed by the company while making the investment). With the term **business angel** this study refers to high net worth individuals that involve themselves in the unquoted ventures they fund. Their involvement is a means for them to safeguard their investments and contribute value added through performing various roles. In other words, the term business angel is a narrower one than the term informal investor which encompasses investors with very little or no involvement in their investments.

Business angels are a part of the population of informal investors. They are the group of investors with the strongest involvement and the highest investment activity³. In this study, business angels are minority or majority owners, but not entrepreneurs (management) in charge of running the business operations. Because some business angels become employed by the company post investment, their role in the business might resemble an entrepreneur's.

In Finland, as well as in Sweden (see Månsson and Landström, 2006), investors make direct investments or choose to channel their funds through an investment company. The investment companies are established by investors that want to gain from more beneficial taxation. This mode of investing is, particularly, appealing to the most active investors. Investors making investments through a company are seen to belong to the business angel population, given that they are investing their own money (see Avdeitchikova et al. 2008).

This study focuses on business angels. It aims to capture a representative sample of the most active group of investors in the informal venture capital market. However, even amongst the most active investors there is sure to be much heterogeneity in the degree of involvement. The involvement can take the form of active involvement in the operations of a new venture or be limited to board membership. This study seeks to explain some of the heterogeneity in involvement of Finnish business angels.

Since there exists no strict criteria for the degree of involvement or the investment activity required to be referred to as a business angel, investors were considered a part of the population business angels on the conditions that:

- i) they perceive themselves as business angels,
- ii) are investing to obtain a return on the invested capital and
- iii) the size of their investments exceeds € 10 000.

This study examines their degree of involvement in the most recent investment. As the degree of involvement can vary dependent on the characteristics of the investment, it would be difficult to use involvement as a categorization criterion.

³ Similarly, this study makes a distinction between **angel investments** and **informal investments**. Informal investments are in average much smaller than angel investments (see e.g. Maula et al. 2005; Avdeitchikova et al., 2008).

B) Venture capitalist:

The **formal venture capital market** is comprised of venture capital funds. The funds comprise professionally managed pools of capital injected in portfolios of high growth companies and management buyouts/buyins (Crispin-Little and Brereton, 1989). The majority of the funds are raised from institutional backers, such as pension funds, insurance companies and financial institutions. In Finland most venture capital funds are structured as limited partnerships that have predetermined, finite lifetimes of usually ten years. The outside investors constitute the limited partners and the venture capital management the general partners, who control a fund's activities. A fund typically pays the venture capitalist an annual management fee of approximately 2.5% on the committed capital of the funds, in addition to 15 to 30% carried interest on the net profits of the fund once the initial capital has been returned to outside investors, along with a preferential return, which is referred to as the "hurdle rate" (e.g. Sahlman, 1990; Gifford, 1997; Seppä, 2000; Hellmann and Puri, 2002). The word **venture capitalist** refers to the investment managers, who are expected to maximize the return on the invested capital of their institutional backers. A distinction can be made between captive and independent venture capitalists. The captive venture capital funds have been established by corporations (see e.g. McNally, 1997; Maula et al., 2001 and Tyebjee 2001), insurance companies, banks, pension funds or the government (see Seppä, 2000). They are captive in the sense that they have been established to serve the interests of their parent company. They receive their funding from their parent company and do not have to seek funding, on a competitive basis, from a variety of outside sources, which contrasts with independent venture capital funds (e.g. Van Osnabrugge and Robinson, 2001).

C) Stages of development

In classifying the entrepreneurial ventures, this study makes a distinction between four development stages: the pre/seed stage, the startup stage, the early stage and the later stage. Management buyouts/buyins are not investigated in this study, since they do not fall within the scope of angel investing.

I) Pre-/seed stage: At the pre/seed stage the operations have not yet been initiated. The company may still lack a formal business plan and key management personnel. Financing is needed to help the entrepreneur to come up with a concept for research and development (Auer, 1990).

II) Startup stage: At this stage the company is organized, key personnel have been selected, a formal business plan is ready and the company may, already, have been in business a short time.

III) The early stage: At this stage investors have a strong role in finding additional financing, clients and suppliers. As the company grows and needs revenue, investors may also help in recruiting marketing and other non-technical executives (Bottazzi and Da Rin, 2002).

IV) The later stage: At this stage the development of the company has matured (growth is more stable than in the previous stages). Later stage investments aim to help the firm become a market leader and unleash its earning potential by preparing it for a trade sale or an initial public offering (IPO) (Bottazzi and Da Rin, 2002).

D) The investment process

Both in the US (e.g. Tyebjee and Bruno, 1984; Norton, 1995; Fried and Hisrich, 1994; Wright and Robbie, 1998) and the UK (e.g. Sweeting, 1991; Van Osnabrugge, 1998a) the investment procedures of venture capitalists have been well documented. There is, however, considerably less research on the investment process of business angels (Feeney et al., 1999).

There are individual differences in how the investment process of business angels is depicted. Van Osnabrugge and Robinson (2000) provide a rigorous description of the investment process of business angels, in their book which compares business angels' and venture capitalists' investment activities. The investment process of the two types of investors is considered to comprise the following eight stages: i) investment motivations, ii) investment criteria, iii) finding deals, iv) initial screening, v) due diligence, vi) negotiations and actual investment, vii) post investment monitoring and viii) exiting and realizing returns. Paul et al. (2007) criticize the model for lacking an empirical basis.

In Paul et al. (2007), a model for the investment process is presented based on empirical evidence gathered from thirty interviews with business angels in Scotland. The model comprises five stages: i) familiarization, ii) screening, iii) bargaining, iv) managing and v) harvesting. They note that it would be wrong to see the investment process as fitting into neat compartments, as the stages in practice overlap and boundaries are blurred. In their study, intense interaction and assessment were employed throughout the entire investment process. Even though their model builds on empirical evidence, the fact that the data were gathered in a single country may limit the generalizability of the model.

Riding et al. (2007) propose a five stage model for a business angel's investment process. It includes the following stages: i) deal sourcing and initial screening, ii) evaluation and due diligence, iii) negotiation and consummation, iv) post investment involvement and v) exit. They acknowledge that the investment process should be studied from both the entrepreneurs' and business angels' perspective.

This study builds on Van Osnabrugge and Robinson (2000) and Riding et al. (2007) when drawing up the phases in business angels' investment process. The model depicted is a modification of the investment process described in the two studies. In this study, the investment process is divided into six subsequent stages.

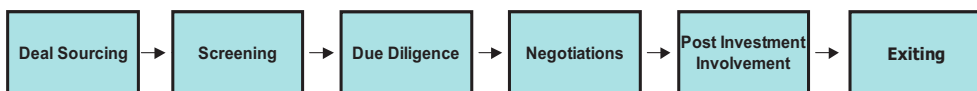


Figure 1 The investment process model

In the deal sourcing stage new investment opportunities are identified. Typically investors come across new investment opportunities by receiving business plan descriptions or “cold calls” from entrepreneurs in need of funding, through their network of referrals or business introductory services. Riding et al. (2007) state that business angels do not generally seek out potential investments. This study examines the extent to which Finnish business angels engage in the active search for investment opportunities.

In the screening stage business angels reject investment proposals that do not comply with their investment criteria. This study investigates the percentage of the investment opportunities that are subject to serious consideration, as well as the percentage that actually gets funding. The investment criteria are addressed in a separate study (see Lahti, 2007).

The due diligence stage is the focus of this study. Due diligence encompasses an analysis of the entrepreneur and management team, the investee company, the market environment and the product and/or service. Riding et al. (2007) point out that little theoretical work has been reported regarding business angels’ evaluation and due diligence processes. This study can be seen as a response to their call for more research on the topic.

When an investment opportunity survives the due diligence stage, negotiations are initiated between an investor and an entrepreneur. In the negotiation stage the contractual terms in the deal are agreed upon. If the negotiations are successful, they conclude in a decision to invest. Kelly and Hay (2000a) have described the characteristics of contracts between business angels and entrepreneurs.

The post investment involvement stage follows the decision to invest. The degree of involvement may vary substantially among business angels, from active interaction on a daily basis to almost no involvement. This study explores the degree of involvement of Finnish business angels. Involvement is a means for business angels to monitor and gain control of their investments and ensure that they perform well by taking on various value adding roles in a company. In this study, assumptions regarding the nature of business angels’ involvement are built on agency theory and the incomplete contracting theory.

The exit stage completes the business angels’ investment process. In the exit stage business angels seek a suitable route for realizing their investments. It can take the form of an initial public offering (an investor sells the holdings on the stock market), a management buyout (the founding team and the venture buy back the shares), a trade sale (the sale of the investee company to another company), a private placement (an investor sells his shares to an outside investor) or a liquidation (see e.g. Lehtonen, 2000). In a successful exit an investor is rewarded by selling his shares at a value that exceeds the purchase price of the shares.

1.2 Description of the problem area

Even though there is a plethora of research conducted on the business angels in the US and the UK, there is to date only one extensive study on business angels in Finland. The lack of existing research on Finnish business angels stems from the invisibility of the population under study. As the investors want to retain their anonymity, it is very difficult to gather data. The main reason why business angels want to retain their anonymity is that if their identity is disclosed, they may receive an overwhelming amount of investment proposals from entrepreneurs in need of funding.

The Finnish study was conducted by Lumme, Mason and Suomi in 1994, which is why the findings of the study might not reflect the current state of the informal venture capital market in Finland. The current study will extend the research approach in Lumme et al. (1998) by including a theoretical framework model to explain two of the phases in the business angels' investment process. The focus here is on due diligence procedures and involvement post investment. Due diligence refers to the analyses undertaken for the assessment of the quality of an investment opportunity⁴.

To study the magnitude of business angels' due diligence, previous studies have used measures such as the number of hours spent on due diligence (Wiltbank, 2005), the amount of industry sector research conducted up front (Van Osnabrugge, 1998a), the duration of the due diligence process (e.g. Freear et al., 1995; Mason and Harrison, 1996a and Sohl, 2006), the costs of due diligence (Van Osnabrugge, 1998a) and the percentage of time in the investment process that is consumed by the analysis of the investment proposal (Ardichvili et al., 2000).

The evidence from these studies provides a general understanding of the due diligence procedures of business angels. First, there seems to be a great deal of heterogeneity in the due diligence effort of business angels. In Wiltbank (2005), the number of hours consumed in due diligence ranged from only a couple to 200. This implies that there is a great deal of variation in the due diligence practices of business angels. Kaplan and Strömberg (2003a; 2004) found similar evidence among venture capitalists and point out that the investment memorandum describing the investment under consideration can vary from two pages to a very detailed description exceeding twenty pages.

Second, the due diligence process of business angels is shorter than the corresponding one for venture capitalists⁵. Freear et al. (1995) suggest two explanations for this. In angel investments there are less people involved in the decision process and/ or business angels invest in fields in which they are familiar. In venture capital funds the decisions are undertaken by a group of people forming an investment committee. The due diligence tasks are allocated among the members of the committee. However, the difference between the two types of investors also builds on the difference in their investor bases.

⁴ see section 1.4 "research questions" for an elaborate description of the meaning of the phrase due diligence in the domain of venture capital and business angels

⁵ Lu et al. (2006) highlight that the length of the due diligence process is a good proxy for the due diligence effort, as it excludes the initial screening and preliminary review in the selection process as well as the contract negotiations.

Whereas the venture capitalists invest the money of their outside backers and therefore are under pressure to perform in a satisfactory manner, the business angels invest their own money and are accountable only to themselves (e.g. Van Osnabrugge, 1998a and Van Osnabrugge and Robinson 2000).

Venture capitalists investing the money of their private and institutional backers as well as making considerably larger investments than business angels focus on reducing the risks *ex ante*, to produce sufficient returns on their investments. The failure to produce sufficient returns on their investments can make it difficult and even jeopardize the possibility to attract further funding. Venture capital funds operate in a competitive environment, where bad investments can seriously tarnish their reputation and worsen a fund's competitive position in the market (see Sapienza and Korsgaard, 1996; Cable and Shane, 1997; Van Osnabrugge and Robinson, 2001). Despite venture capitalists being more concerned about the financial performance at the outset than business angels, the study by Mason and Harrison (2002) demonstrates that business angels are capable of generating superior returns on their investments than venture capitalists. One of the possible reasons for this superiority is, according to the study, business angels' higher ability in selecting and evaluating investment proposals.

Third, the findings in Ardichvili et al. (2000) indicate that business angels allocate more time to post investment governance than pre-investment due diligence activities. Based on that Arthurs and Busenitz (2003) advocate that the relevance of agency theory in the venture capital setting is strongest in the pre funding era. In the domain of business angels this statement can be challenged. As the business angels' due diligence is less comprehensive than the due diligence of venture capitalists (Van Osnabrugge, 1998a), agency theory seems to be less relevant in explaining the behavior of business angels prior to investing than it is in explaining the corresponding behavior of venture capitalists. The due diligence *ex ante* strives to reduce the degree of asymmetric information prior to investing and to facilitate the formation of a contract that stipulates the behavior of the entrepreneur and the management to the fullest extent possible (Van Osnabrugge, 1998a). Venture capitalists are oriented towards contractually governing the behavior of an entrepreneur and a company's management, whilst business angels' contracts tend to be relatively simple and informal (see e.g. Kelly and Hay, 2000a). Consequently, business angels are less reliant on detailed information at the phase of negotiating and signing the purchase agreement.

Fourth, the study by Van Osnabrugge (1998a) shows that the costs incurred during due diligence are more significant in venture capitalists' than business angels' investments. Costs incur from utilizing third party information: accountants, consultants and lawyers who use their expertise to review the financial, technical and legal details of the deal. The costs from utilizing these services are fixed regardless of the size of the investment. For reasons of cost efficiency venture capitalists with heavy due diligence requirements prefer to make a small number of large deals, instead of a large number of small deals (Harding, 2002; European Commission, 2002). Harrison and Mason (2002) note that the smaller deals that business angels make cannot support the high costs that arise from extensive due diligence.

Finally, evidence from Van Osnabrugge's (1998a) study of venture capitalists and business angels in the UK points to a stronger industry sector research undertaken by venture capitalists than business angels and reveals that venture capitalists possess a stronger industry sector experience than business angels. This suggests a stronger industry sector specialization among venture capitalists than business angels. Previous studies have demonstrated that many venture capitalists, in their initial screening of investment opportunities, specialize with respect to industry sector, geography and stage of development (see e.g. Tyebjee and Bruno, 1984; Sweeting 1991; Norton and Tenebaum, 1993; Fried and Hisrich, 1994 and de Clerq et al., 2001)⁶. In accordance with the findings in Van Osnabrugge (1998a), industry sector specialization appears to be a less prevailing strategy among business angels than venture capitalists. In the due diligence and decision making process business angels can compensate for their lack of industry sector experience with their strong general management experience and business knowledge.

There is to date relatively limited knowledge on what information sources and valuation methods business angels utilize for due diligence purposes. The study that has directly addressed this issue is Harrison and Mason (2002). In addition, there is literature on the use of information sources and valuation methods among venture capitalists (e.g. Wright and Robbie, 1996; Karsai et al., 1998; Manigart et al., 2000 and Lockett et al. 2002). Another evident gap is in the research on the valuation of an entrepreneur's and management's human capital. The study by Smart (1999) revealed that venture capitalists' assessment of an entrepreneur's and management's human capital was very accurate in many deals. Although there has been numerous studies on the informal venture capital market, which highlights the importance the business angels attach to the characteristics of their entrepreneur and the management team (e.g. Fiet, 1991, 1995; Lumme et al. 1998; Feeney et al. 1999 and Harrison and Mason, 2002), there, currently, seems to be no research estimating the time spent on the valuation of an entrepreneur's and management's human capital. This research will investigate how the degree of uncertainty relates to the use of information sources, valuation methods as well as the time spent on the valuation of an entrepreneur's and management's human capital.

There is also a need to gain more insights into the nature of business angels' involvement post investment. There exist studies in the domain of venture capital and business angels that examine the relationship between ownership and control (e.g. Barney et al., 1989; Landström, 1992; Sapienza and Gupta, 1994; Kelly and Hay, 2000a). This has produced conflicting evidence for business angel research regarding the extent to which business angels' involvement should be seen as monitoring (aimed at defending shareholder interests). Kelly and Hay (2000a) found a relationship between ownership and involvement. This contrasts with Landström (1992) who did not find support for the predicted relationship. In line with Kelly and Hay (2000a) and Landström (1992), this study investigates the relationship between the degree of involvement of business angels and the level of ownership of the entrepreneur/ management team as well as business angels. As can be seen, there is scope to enhance the understanding of what influences the

⁶ De Clerq et al. (2001) demonstrate that industry sector specialization is the most relevant specialization strategy among Finnish venture capitalists.

degree of involvement of business angels. Thus, the research will dive into new areas and aim at adding explanatory power by relating the degree of involvement to the underlying tangible assets, the financial structure and the inclusion of covenants mitigating the hold-up problem. In doing this, the study integrates assumptions behind the incomplete contracting theory into the research design. Accordingly, this study should reveal whether the incomplete contracting theory can enhance our understanding of the degree of involvement post investment.

1.3 Objectives of the study

The study has two objectives. The first is to gain an understanding of the characteristics and investment behavior of Finnish business angels. The strongest focus here is on the due diligence procedures and their involvement post investment.

The second objective is to assess whether agency theory and the incomplete contacting theory are useful theoretical lenses in the arena of business angels. To achieve the second objective, this study investigates i) how risk is mitigated in the investment process, ii) how uncertainty influences the comprehensiveness of due diligence as well as iii) how control is allocated post investment.

In the following section the research questions are derived.

1.4 Research questions

As been highlighted earlier, there is a limited knowledge on the characteristics and investment behavior of Finnish business angels. The pioneering study by Lumme et al. (1998) provided insights into how Finnish business angels operate by studying their investment procedures and the size and scale of the market for informal venture capital. The data for the study were gathered in 1994, and the present study will therefore provide a more up-to-date picture, reflecting market conditions in the first decade of the 21st century.

In 1994 the Finnish economy had recovered from a severe economic downturn. The recession occurred for several reasons, including an uncontrolled deregulation of the financial markets and a rapid increase in foreign borrowing, which led to an overheated domestic economy (Dahlman et al., 2005), the breakup of the Soviet Union resulting in the loss of a fifth of Finland's export earnings and a series of flaws in economic policy (Keskimäki, 2003). The recession was characterized by a major banking crisis, unemployment rates rising from 2 and 3 percent to over 15 percent, and the accumulation of government debt from modest levels to over 60 percent of the gross domestic product and approaching international lending limits (Dahlman et al., 2005).

Prior to the economic downturn the Finnish economy had been strongly reliant on the export capacity of the forest industry. In the 1990s the focus gradually shifted from traditional to knowledge based companies, building on high technology. Venture capital

had a strong role in fuelling the economic growth of the ICT sector in Finland⁷. In 1994, Finland, along with Sweden and Austria, were preparing for EU membership, implying free trade and flow of employees/capital within the member countries. The findings in Lumme et al. (1998) indicate that the Finnish market for informal venture capital was strongly underdeveloped. They suggest that the size of the informal venture capital market was smaller than the size of the formal venture capital market⁸.

In comparing the findings of the current study to those in Lumme et al. (1998), the change in the economic situation has to be taken into consideration. A comparative study has recently been undertaken in Sweden. Månsson and Landström compared the informal venture capital market in 2004 to the one in 1992, taking into account the time factor (see Landström, 1993; Månsson and Landström, 2006). This means that data gathered in 1992 on angel investments and the characteristics of business angels were compared with more recent data gathered in 2004, to test whether significant differences could be found.

By late 2005 and early 2006, when the data for this study had been collected, the Finnish economy had seen another economic downturn, this time involving the global dot-com crash at the beginning of 2000⁹. The Internet hype in the late 1990s had a strong impact on the venture capital industry, which experienced remarkable growth. The downturn was, however, inevitable as the investors had overfunded hot industry sectors, entailing high valuations without foundation (Lerner, 2002). In addition, high amounts of funding were infused in startup companies, whether they were ready or not (Sohl, 2003), and investors were co-investing less, leading to greater competition for deals (Botazzi and Da Rin, 2002). The growth of the venture capital industry had gone in parallel with a considerable growth in listings on stock exchanges, specialized in the launch of new small high-growth companies (McGlue, 2002). As Månsson and Landström (2006) note, the crash has led to a situation where venture capitalists and business angels have difficulties in making exits, because of the decline in the interest in initial public offerings. Hyytinen (2005) and Ali-Yrkkö et al. (2003) reveal that, similarly, in Finland pursuing an exit through an IPO is dependent on the current stock market conditions, with a decline driving a decrease in IPO activity. The Finnish financial system has been heavily criticized in Ali-Yrkkö et al. (2003) for being unable to provide optimal exit opportunities for venture capital investments. This is, according to the study, because the Finnish exit environment is vulnerable to changes in macroeconomic conditions and because the exits are clustered in only a narrow set of industry sectors.

The difficulty involved in finding suitable vehicles for exiting investments can be seen to be one ingredient explaining why the development of the Finnish informal venture capital market is lagging far behind the more mature markets in the US and the UK (see

⁷ The high degree of bankruptcies, among entrepreneurial ventures, following the banking crises resulted in substitution of debt for equity as a preferred source of capital to finance growth (Hyytinen and Pajarinen, 2003b).

⁸ However, it is worth noting that the findings on the size and scale of the Finnish informal venture capital market in Lumme et al. (1998) were obtained by extrapolating from estimates on the geographical distribution of angel activity. Thus, the figures represent more the size and scale of the business angel population than the (aggregate) population of informal investors.

⁹ see section 1.8 for a more elaborate description of the “Finnish context”

Kanniainen, 2003; Hyytinen, 2005)¹⁰. This lack of feasible exit vehicles may hamper business angel activity¹¹. Another reason may lie in the lack of tax incentives for investors. Tax incentives can serve as a means of improving the risk-return ratio and increase the attractiveness of angel investing¹². A third, reason could relate to the shortage of business angel networks that match the supply of angel investments with entrepreneurs seeking funding. The Finnish informal venture capital market is highly invisible, as there is currently only one business angel network functioning as an information broker. Månsson and Landström (2006) suggest that the increase in the number of business angel networks in Sweden, during the last decade, has lessened the impact of anonymity and increased the business angels' deal flow.

In line with Månsson and Landström (2006), this study will take into consideration the socioeconomic development, when drawing inferences regarding how the Finnish informal venture capital market has evolved in somewhat more than ten years. The findings will reveal whether investor characteristics and the investment behavior have changed significantly over the time span as well as provide an indication of whether these changes can be attributed to the change in economic conditions. In addition, they are compared with the existing studies of business angels, with the objective of forming an understanding how Finnish business angels differ from their counterparts in other countries. The study aims at answering the following research question.

What are the characteristics of Finnish business angels?

The term due diligence originated in the context of public securities, where laws impose rigorous obligations on companies planning to offer securities (Camp, 2002). These companies are expected to prepare a prospectus that provides full and true information on the securities being offered (Camp, 2002). Due diligence in venture capital differs from the due diligence conducted for public stock offerings and large business acquisitions, where hundreds of thousands of euros are invested. In the venture capital context the meaning of the term due diligence may vary considerably. For venture capital investors, due diligence can apply either narrowly to the process of verifying data presented in a business plan, or broadly to the complete analytical process that precedes a commitment to invest (Heying, 1999). When due diligence constitutes a complete investigation of all aspects of the investment, one can distinguish between four key forms of due diligence (see e.g. Blomquist et al., 1997, 2001; Camp, 2002 and Rosenbloom, 2002):

1. The “management due diligence”: an assessment of the qualities of the entrepreneur and the management team
2. The “business due diligence/ operational due diligence” focuses on the characteristics of the product, the business, the industry and the market

¹⁰ In the Global Entrepreneurship Monitoring (financial) report comparing total informal investments as a percentage of the gross domestic product in 42 nations Finland ranks 36th (Bygrave and Quill, 2006).

¹¹ See section 5.2 for a discussion of the topic

¹² However, there are also risks involved in the introduction of tax incentives, addressed in sections 5.1 and 5.2.

3. Legal due diligence: an insurance against already existing legal difficulties. In a legal due diligence lawyers are asked to provide a legal opinion on the liabilities of the company subject to due diligence (Harvey and Lusch, 1995). If nothing is found wrong, the attorney's fee will be a sunk cost (Resnicow and Rathkopf, 2002).
4. Financial due diligence includes the review of financial and accounting information as well as an assessment of the value of the investment opportunity.

The due diligence process can be long and difficult to carry through, which is why it should be undertaken only when investors are serious about the proposal (Van Osnabrugge and Robinson, 2000). According to Mayfield (2002), it is during the due diligence process a relationship forms between an investor and an entrepreneur as information is gathered about the investment proposal.

Due diligence focuses on identifying down side risks: factors that can seriously affect the success of the investment. It is the prime opportunity for an investor to mitigate the adverse selection problem that arise from investors' inability to determine the qualities of the entrepreneur (management) and the viability of the new venture, prior to making the investment decision. The information collected during the due diligence process impinges upon the negotiations and the drafting of the contract between the entrepreneur (management) and the investor(s).

Little is known about how Finnish business angels conduct due diligence and which factors determine the comprehensiveness in investors' due diligence. This study will investigate the information sources utilized for due diligence, the valuation methods applied as well as the time spent on the valuation of an entrepreneur's and management's human capital. The agency theoretical assumption is that increased uncertainty is associated with a more rigorous due diligence. To examine whether the agency theoretical assumption holds, a set of measures for the degree of uncertainty in an investment have been established. They lay the foundation for the research hypotheses in the first part of this study. Through using agency theory as a framework, this study aims at identifying some of the factors that contribute to explaining the comprehensiveness of due diligence. The study aims to answer the following research questions.

How do business angels in Finland conduct due diligence?

What factors explain the comprehensiveness of the due diligence procedures?

The investment process in venture capital works towards managing agency problems. It comprises screening, due diligence and the negotiations prior to making a contract that aim at reducing the risk of investing in a venture of weak quality with an entrepreneur and management lacking the required qualities to successfully run the business. The contracting sets the rules of the game. The contractual provisions impose obligations on the entrepreneur and management. This is to safeguard the angel's investment by curbing opportunistic behavior (e.g. Kelly and Hay, 2000a). Through active involvement and board membership investors can ensure that an entrepreneur and management behave in accordance with what has contractually been agreed upon. Reducing agency problems

increases the likelihood of investors successfully harvesting their investments at the exiting phase (see e.g. Van Osnabrugge, 1998a; Van Osnabrugge and Robinson, 2000).

In Van Osnabrugge (1998a) agency theory proved to be more relevant in explaining the investment process of venture capitalists than in explaining the investment process of business angels. The findings revealed that venture capitalists place significantly more emphasis on risk reduction pre-investment than business angels do. This agrees with the argument in Arthurs and Busenitz (2003) claiming that agency theory is most relevant for venture capitalists prior to making an investment. The due diligence undertaken *ex ante* is an important tool for reducing uncertainty. The degree of uncertainty is reduced, as an investor gathers information on an entrepreneur, product/service, business and the external environment.

Agency theory suggests that the due diligence effort increases as a function of the degree of uncertainty involved. Currently, there appears to be no evidence in the research on business angels pointing to a positive relationship between the degree of uncertainty in an investment and the rigorousness of due diligence. Based on the very limited empirical evidence, the degree uncertainty does not seem to be the key driver of due diligence efforts (e.g. Van Osnabrugge, 1998a; Wiltbank, 2005). Instead, these studies imply that due diligence increases as a business angel gains more experience and with the maturity of a company being evaluated. Only Lu et al. (2006), in their study of the formal venture capital market in Singapore, have found strong support on behalf of the degree of uncertainty and the due diligence effort.

In investigating the relationship between the degree of uncertainty and due diligence, the current study uses several measures to examine the impact of the degree of uncertainty involved. As there are several sources that give rise to uncertainty, the best way to test the agency theoretical relationship is by using varying measures, for the degree of uncertainty, in developing research hypotheses. The research findings will reveal whether the higher degree of uncertainty involved results in a stronger emphasis on due diligence.

The agency theoretical assumption in the classic principal-agent model of Holmström (1979), Harris and Raviv (1978, 1979) and Shavell (1979) is that opportunistic behavior can be mitigated through monitoring or tying the agent's pay to the performance of a company. Principal-agent theory is often referred to as the complete contracting theory, as the parties are assumed to be able to draw a contract that will be complete in the sense that it will consider all future contingencies that may arise (see e.g. Tirole, 1999). Venture capital contracts are in reality incomplete, which is why there will always be some degree of ambiguity *ex post*. Previous research has indicated that business angels' contracts are more incomplete than venture capitalists' (e.g. Norton, 1995; Landström et al., 1998; Kelly and Hay, 2000a; Harrison and Mason, 2002).

One of the major contributions in the field of venture capital was the study of Kaplan and Strömberg (2003a) that provided empirical support for the incomplete contracting theory. They demonstrated that the control (allocation of board and voting rights) post investment is contingent on the performance of the entrepreneurial venture, in accordance with the model of Aghion and Bolton (1992). In the arena of business angels, the model

of Aghion and Bolton (1992) does not apply in explaining the allocation of control ex post, for reasons addressed in subsection 2.4.2. The study by Van Osnabrugge (1998a) postulates that the involvement of business angels is a means to gain control post investment. It suggests that when companies lack tangible assets and are highly indebted the best way to gain control of an investment is through active involvement. In Van Osnabrugge (1998a) the business angels' approach to investing is referred to as the incomplete contracting approach.

This study examines the assumptions put forth in Van Osnabrugge (1998a) by studying the relationship between the degree of involvement and the underlying tangible asset as well as the degree of involvement and the level of indebtedness. By applying both agency theory and the incomplete contracting theory, this study seeks to form an understanding of the nature of business angels' involvement. In line with Landström (1992) and Kelly and Hay (2000a), the study also investigates the agency theoretical assumption that suggests a relationship between ownership and control. The research findings reveal how well agency theory and the incomplete contracting theory explain the business angels' degree of involvement post investment.

The hold-up problem that arises in the venture capital setting when the entrepreneur (management) leaves the company after the investment is done is an essential ingredient in the incomplete contracting theory (see e.g. Hart, 1995b; Neher, 1999). There are a set of covenants that makes it difficult for an entrepreneur and management to leave their company (they are introduced in subsection 2.4.2). If the covenants included in the deal struck are bonding expenditures on the part of the entrepreneur and management, the agency theoretical assumption would be that this reduces the need for the investor(s) to gain control through involvement (see e.g. Jensen and Meckling, 1976). This study explores whether there is a relationship between the inclusion of covenants mitigating the hold-up problem and the degree of involvement post investment. The empirical findings, in this study, contribute to increasing our understanding of the merits of agency theory and the incomplete contracting theory in explaining business angels' pre and post investment behavior. The study aims at answering the following research questions.

How is the control of an investment allocated post investment?

What is the explanatory power of agency theory and the incomplete contracting theory in the arena of business angels?

1.5 Limitations

The methodological limitations of this study are addressed, separately, in section 3.7. They focus on issues related to the sample, the methods as well as measures applied in this study that underline their influence on the interpretations of the research findings. Limitations presented in this section are more of a general nature.

This study builds on agency theory and the incomplete contracting theory. Other theories, such as the procedural justice theory (e.g. Sapienza and Korsgaard, 1996; Virtanen, 1996; Sapienza et al., 2000), the stewardship theory (Arthurs and Busenitz, 2003) and the

resource based view (e.g. Ardichvili et al., 2000; Echols, 2000; Lee et al. 2001) have previously been shown to be relevant in understanding the relationship between the investor and the entrepreneur. These competing theories will only be considered when agency theory and the incomplete contracting theory lack explanatory power¹³.

The focus on due diligence is limited to the assessment of the sources utilized for due diligence purposes, the valuation methods applied and the amount of time consumed in the valuation of an entrepreneur's and management's human capital. Outside the scope of this study is e.g. the legal due diligence (which is only to be touched upon when discussing the use of third party information) as well as the assessment of the product/service.

The referral networks of the investors will not be investigated, in this study, despite influencing the screening as well as the due diligence of investment opportunities. Previous studies indicate that business angels are reliant on informal sources, such as friends and colleagues (Landström, 1993; Freear et al., 1995; Fiet, 1996; Harrison et al., 1997 and Lumme et al., 1998). Trusted referrals can increase the confidence in a deal with the effect of alleviating the need to perform thorough due diligence.

1.6 Positioning of the research

Ontology is the enquiry into the nature of existence. It aims at answering the following questions: "What kinds of things exist?" and "What is their mode of existence?" (Ackroyd and Fleetwood, 2000) The ontological question "What exists?" is often translated into the epistemological question "How can we know what exists?" (Ackroyd and Fleetwood, 2000) In the following sections the ontological and epistemological positioning of this study is depicted.

1.6.1 Ontology

The research perspective applied, in this study, builds on the ontological assumptions of the realist view. The realist view is, nevertheless, better suited to explain the natural world than it is to explain the social world. Realism tends to assume that the social world exists independently from the knowing subject (see e.g. Burrell and Morgan, 1994; Chia, 1997; Morcöl, 2001) and is made of hard, tangible and relatively immutable structures (Burrell and Morgan, 1994). The task of a researcher is to find reality rather than to create or interpret it (Wicks and Freeman, 1998). This implies that objective reality can be captured and analyzed meaningfully and that the observer can be separated from the observed (Love et al., 2002).

Wilfredo Pareto who came to sociology from economics had a significant influence on the view of the society. He saw in the concept of equilibrium as a useful tool for understating social life (see Burrell and Morgan, 1994). The concept of equilibrium has

¹³ See the introduction to chapter 2 "the theoretical framework" for the motivation behind the choice of theories for this study

been used successfully in economics and is the central ingredient in principal agent theory (normative agency theory) and the incomplete contracting theory.

Realism bases itself on the deterministic assumption that entities and events are causally connected. The universe is assumed to be completely determined and totally predictable (Morcöl, 2001). Causality is linear and there are not causes without effects and no effects without causes (Love et al., 2002). Realism emphasizes the constant conjectures of events or causal law statements of the form “whenever event x then event y ” (Downward and Mearman, 2002). Two closure conditions are highlighted, i) the intrinsic condition of closure (ICC), which implies that a cause always produces the same effect and ii) the extrinsic condition of closure (ECC), which suggests that an effect always has the same cause (Downward and Mearman, 2002).

This research strives to capture the objective reality i.e. a reality existing independent of the researcher studying it. In an artificial environment “such as in experiments conducted in a laboratory setting” the assumption of constant conjectures is feasible. However, in studying the informal venture capital market, the closure condition underlying the assumption of constant conjectures is relaxed. In an open economy change and transformation occurs, which is why the relationship between an event (cause) x and an event (outcome) y is not totally predictable. The causal relationship is not isolated from other influences. Therefore, even if a reality exists independent of the researchers studying it, a social world cannot exist independent of individuals (see Downward and Mearman, 2002). To determine all the causes in a causal relationship, having an impact on a specific outcome, is not very often possible. Therefore, research in the social sciences suffers from the construction of causal relationships (models) with significantly lower (explanatory) power. Consequentially, this study will not report on predictive power for the established models of causal relationships. It will only explore the impact of individual causal relationships.

1.6.2 Epistemology

In this study knowledge is to be accumulated in accordance with the positivist rules of scientific rigor. The logical positivism view is that scientific knowledge originates in the scientific researcher’s observations of facts (Lee, 1985). The approach to obtaining knowledge is an inductive one, implying that empirical observations are made with no prior knowledge of theory. This is to ensure objectivity.

Modern positivism, however, uses the rules of hypothetico-deductive logic to accumulate knowledge. The philosophers of today believe the logic of empirical justification not to be inductive, but to be deductive. Rather than generalizing from a collection of observations to a theory, the logic is to begin instead from a theory (Lee, 1985). As Bryman (1988) states, scientific theories are seen as providing a kind of backcloth to empirical research in the sense that hypotheses are derived from them.

Theoretical statements have to satisfy the four requirements of falsifiability, logical consistency, relative explanatory power and survival (Lee, 1991). The requirement of

logical consistency demands that all of a theory's propositions must be logically connected to one another and be logically deductible from the underlying theory (Lee, 1991). Donaldson (2003) emphasizes that a theory is never proved or established as the truth, but constitutes valid scientific knowledge until it is falsified. To be scientific, a theory or a hypothesis has to be testable (Chase, 1989).

The growth of knowledge is essentially a cumulative process in which new insights are added to the existing stock of knowledge and false hypotheses eliminated (Burrell and Morgan, 1994). It is possible for a single observation to be consistent with several theories. Therefore, the key is not to accumulate observations that are consistent with a theory, but to find observations that falsify or disconfirm a theory (Donaldson, 2003). The focus on falsification rather than confirmation is in line with the view of the philosopher Karl Popper. The researcher can never justify a theory. He can only justify a preference for one theory out of a set of competing theories (Demetrian, 2004). A theory must be able to explain, or predict, the subject matter as well as any competing theory (Lee, 1991).

In this study hypothetico-deductive logic is applied to accumulate knowledge. The hypotheses are deduced from two contractual theories, agency theory and the incomplete contracting theory. The hypotheses are logically connected to each other. Based on the empirical findings, the hypotheses are either supported or rejected. As the study is seen to be only able to approximate the truth the empirical findings do not lead to the confirmation or verification of hypotheses and the underlying theories.

1.7 An overview of informal venture capital

The aim of this section is to provide a general overview of research within the field of informal venture capital. It provides an initial understanding of the characteristics of the actors in the market and of their investment behavior. The findings in this study will be positioned in relation to the existing knowledge from previous studies and add new insights to it.

Studies conducted in the US (e.g. Haar et al., 1988; Freear and Wetzel, 1989) and the UK (see e.g. Mason and Harrison, 1994) have revealed that the business angel is a well educated middle-aged man with considerable business experience and a substantial net worth. Similar evidence was found from Sweden (Landström, 1993; Månsson and Landström, 2006), Norway (Reitan and Sørheim, 1999) and Finland (Lumme et al., 1998). However, the Finnish and Swedish business angels appear to be somewhat older than their counterparts in the US and the UK. According to Lumme et al. (1998) their older age may reflect the high tax rate on capital and wealth accumulation.

Business angels live virtually everywhere and are not restricted to major financial centers and large urban areas (Gaston, 1989a; Mason and Harrison, 1996c) and make investments in virtually all industry sectors (Mason and Harrison, 1996c). As opposed to venture capitalists that have gradually shifted their investment focus to later stage investments and management buyouts (e.g. Harding, 2000, Lawton, 2002; Sohl 2003), business angels

prefer to make investments in seed, startup and early stage companies (e.g. Wetzel, 1983; Sohl, 1999; Mason and Harrison, 2000a,b; Harding, 2002). Business angels' investments are also considerably smaller in size than the venture capitalists' (e.g. Frear and Wetzel, 1990; Van Osnabrugge, 1998a; Casamatta, 2003).

Similarly to venture capitalists, business angels are prone to syndicating their investments (e.g. Lumme et al., 1998; Reitan and Sørheim, 1999; Stedler and Peters, 2003; Månsson and Landström, 2006). Co-investing with other business angels and venture capitalists provides the opportunity to pool capital for participating in large investments, in more mature companies (e.g. Harrison and Mason, 2000a), and improve portfolio diversification (e.g. Lumme et al., 1998)¹⁴. Whereas venture capitalists utilize convertible and multiple securities when making investments (e.g. Sahlman, 1990; Kaplan and Strömberg, 2003a), business angels commonly inject the invested capital in the form of common equity (e.g. Lumme et al., 1998; Wong, 2002; Casamatta, 2003). In addition, in contrast to their formal counterparts, business angels rarely infuse the capital in stages (e.g. Lumme et al., 1998; Wong, 2002).

Even though these general characteristics apply for most of the business angels, previous research has demonstrated that the population of business angels is extremely heterogeneous. Based on investment activity, business angels have been divided into serial and non-serial investors (e.g. Van Osnabrugge, 1998a; Kelly and Hay, 1996, 2000a) or respectively into habitual and non-habitual investors (Wright et al., 1998 and Farrell and Howorth, 2002). The group entitled habitual investors encompasses both those with a "serial approach" and "portfolio approach"¹⁵.

Previous studies have identified various groups of investors (e.g. Gaston, 1989b; Landström, 1992; Frear et al., 1994; Sullivan and Miller, 1996; Hale and Hackbert, 1998; Kelly and Hay, 1996; 2000a,b; Wright et al., 1998; Sørheim and Landström, 2001; Robinson and Cottrell, 2007 and Tingchi et al., 2007). Criteria for the categorization have been, for example, investment motivations and preferences, previous experience, investment activity and the degree of involvement post investment¹⁶. The term business angel is sometimes only used for the most experienced and active type of informal investors (see e.g. Sørheim and Landström, 2001 and Robinson and Cottrell, 2007)¹⁷.

Bygrave et al. (2002) and Maula et al. (2005) have studied the population of micro-angels. Micro-angels encompass all men and women who have personally invested in a business startup that was not their own (see Maula et al., 2005). Micro-angels include

¹⁴ see section 2.4.1 for a discussion on the advantages of syndication in performing due diligence

¹⁵ Investors with a serial approach have conducted more than three investments previously, while investors with a portfolio approach hold portfolios of investments. The non-serial investors are commonly referred to as virgin angels or novice angels (see e.g. Wright et al., 1998; Van Osnabrugge, 1998a,b; Kelly and Hay, 2000a and Farrell and Howorth, 2002).

¹⁶ see table 1 in Appendix 1 for a summary of the informal investor taxonomies

¹⁷ As highlighted previously, a problem in previous studies is that there is strong variation in the meaning of the word business angel. The definition in Sørheim and Landström (2001) is more stringent than in previous studies that have used the word rather loosely (this is especially the case for studies conducted in the US).

such groups as family and friends, who do not belong to the business angel population. The money invested by friends and family is sometimes referred to as “love money” (e.g. Kelly and Hay, 2000a)¹⁸. In contrast to business angel funding, this form of funding does not principally seek financial gain and is hence invested on much less strict terms. Therefore, business angel funding is commonly only considered when all funds provided personally and/or from close family members and friends have been exhausted (Kelly and Hay, 2000a; Van Osnabrugge and Robinson, 2000).

Perhaps the greatest challenge in researching the informal venture capital market has been to estimate the size of the market. Since the population of investors is highly invisible, the size of the market cannot be estimated with certainty. Only rough estimates can be produced. There have been several attempts to come up with accurate measures for the size of the informal venture capital market. The findings in these studies are not directly comparable as the studies have applied different approaches for achieving figures for the population sizes. Studies have made findings based on i) studying the number of wealthy individuals and ii) businesses that have received outside funding as well as by extrapolating based on the research on iii) the geographical distribution of angel activity and iv) angels registered with business angel networks (see Mason and Harrison, 2000a).

Evidence on the informal venture capital market in the US demonstrates that the market is of vital importance (Wetzel, 1987; Gaston, 1989a; Sohl, 1999). The study by Van Osnabrugge (1998a) suggests that business angels provide an annual amount of two to five times more money to entrepreneurial firms than the venture capital industry. Findings have revealed that there are approximately 125000 business angels in European countries, indicating that there is a lot of untapped potential to be realized through suitable policy measures (see European Commission, 2002). The most developed market in Europe is the UK, with somewhat more than 30 business angel networks operating to encourage angel activity, while simultaneously increasing the transparency of the market (see EBAN, 2006b). The study by Mason and Harrison (2000a) that estimated the size of the informal venture capital market in the UK suggested that the proportion of business angels in the adult population in the UK is less than half the rate in the US. Estimates on the size of the Finnish informal venture capital market can be found in Lumme et al. (1998), Maula et al. (2005) and Lahti (2007). They reveal that the Finnish informal venture capital market is quite small because there are a very limited number of active business angels in the market. In the light of these findings, there is still much scope for increasing the significance of informal venture capital as a source of funding for entrepreneurial ventures.

One of the research areas has been the investment procedures of business angels, where the research has explored the business angels' investment activities during different phases of the investment process (e.g. Landström, 1993; Freear et al., 1995; Mason and Harrison, 1996a; Lumme et al., 1998; Van Osnabrugge, 1998a; Van Osnabrugge and Robinson, 2000; Paul et al., 2007). Evidence from findings on the business angels' investment process has commonly been compared with similar evidence in the formal

¹⁸ By including family members “micro-angels” includes investors that are considered to be outside the scope of the informal venture capital market. see section 1.1 definitions

venture capital market (e.g. Tyebjee and Bruno, 1984; Sweeting, 1991; Fried and Hisrich, 1994). Regardless of differences in the models established for the investment process, the investment process is generally considered to begin with an investor's identification of investment opportunities and ending with the investor realizing the investment through an exit.

The key differences in the business angels' and venture capitalists' investment process are summarized in the following.

- Due to the invisible nature of the informal venture capital market, business angels come across a smaller number of investment opportunities than venture capitalists (e.g. Mason and Harrison, 1995; Van Osnabrugge, 1998a; Jungman and Seppä, 2006).
- In their deal origination business angels are more reliant on informal sources, such as friends and business associates (e.g. Landström, 1993; Freear et al., 1995; Fiet, 1996; Harrison et al., 1997; Lumme et al., 1998)
- Business angels are motivated by non-financial criteria, when making an investment (so called "hot buttons"), such as the willingness to support the creation of new business (see e.g. Wetzels, 1983; Freear et al., 1994; Sullivan and Miller, 1996; Berglund and Johansson, 1996)
- In assessing investment opportunities, business angels place greater emphasis on factors related to entrepreneurs and management than venture capitalists do. In contrast, venture capitalists are more concerned about factors related to the market environment than business angels are, in general (e.g. Fiet, 1991, 1995; Harrison and Mason, 2002; Paul et al., 2007).
- Business angels are more reliant on intuition (gut feeling) in their decision to invest than venture capitalists (e.g. Mason and Harrison, 1996a and Prowse, 1998).
- The contract between a business angel and an entrepreneur (management) is made in a more informal and friendly manner than is the contract between a venture capitalist and an entrepreneur (management) (e.g. Norton, 1995; Landström et al., 1998; Kelly and Hay, 2000a).
- Business angels are more actively involved in ventures they fund than venture capitalists (e.g. Ehrlich et al., 1994; Sweeting and Wong, 1997; Van Osnabrugge, 1998a). By taking a hands-on role they can contribute their commercial skills, entrepreneurial experience and business contacts (e.g. Mason and Harrison, 1996a; Lumme et al., 1998; Sohl, 1999; Ardichvili, 2000). To be able to involve themselves, business angels prefer to invest in companies they can commute to (e.g. Lumme et al., 1998; Harrison and Mason, 2000b).

- Business angels are less concerned about exiting their investments than venture capitalists (e.g. Van Osnabrugge, 1998a; Sohl, 1999). Despite this, two studies have shown that business angels' investments yield a higher return on the invested capital (see Lumme et al., 1998; Mason and Harrison, 2002).

According to recent studies by Stedler and Peters (2003) and Heukamp et al. (2006), the interests of the German speaking business angels and venture capitalists have become more aligned. This would imply a stronger emphasis on financial factors, while the importance of being able to extract fun and excitement by influencing an investment has declined.

If a similar trend is witnessed in other informal venture capital markets, such as the one in Finland, the key differences in the investment procedures of venture capitalists and business angels, summarized earlier, are vanishing. The findings of this study reveal whether the word “informal” is appropriate to describe the investment behavior of Finnish business angels.

1.8 The Finnish Context

This section describes the economic climate in Finland, its taxation, financial markets, the current state of its venture capital industry and the public funding agencies for entrepreneurial ventures. The overview is essential for understanding how the Finnish context may influence the research outcomes and the explanatory power of the underlying theories.

1.8.1 The Economic climate

The Finnish economy has performed very well in recent years, with strong Gross Domestic Product (GDP) growth in a low inflation environment with rising employment. Economic growth was above 4 percent in the years 2006 and 2007. The GDP per capita was still slightly below the weighted average level for the other Nordic countries and the US (OECD, 2008). The unemployment rate has fallen significantly in recent years to around 6½ percent, but it remains well above that of the other Nordic countries (OECD, 2008). Following the global economic slowdown triggered by the financial crisis in the US economic growth in Finland is expected to decline in 2008 (Ministry of Finance, 2008). However, the deceleration in growth might only be temporary¹⁹, were the US economy to recover swiftly from the recession.

At the beginning of the 1990s Finland was one of the least ICT specialized industrial countries. Now Finland is among the most ICT intensive countries in the world (Koski et al., 2002) with, according to OECD statistics for year 2006, the world's highest share of ICT employment in business sector employment²⁰. The successful, rapid development of the ICT sector is the product of a high quality, innovative environment. Both the

¹⁹ Retrieved from www.etla.fi 24.09.2008

²⁰ Retrieved from www.oecd.org 25.09.2008

government and the corporations in Finland invest heavily in research and development (R&D). In 2007 these investments totaled €6 billion²¹. They were 3.4 percent of the GDP²², placing Finland 2nd in the world, behind Sweden, in terms of R&D per GDP. The high expenditures on R&D relate to a high patenting activity. Finland is amongst the top four countries for the number of patents per capita (see e.g. Falk, 2007). The annual competitiveness report measures and compares countries' competitiveness based on factors that are critical to driving productivity. These factors are grouped into nine pillars: institutions, infrastructure, the macro economy, health and primary education, higher education and training, market efficiency, technology readiness, business sophistication and innovation²³. Finland has in this study consistently been among the most competitive countries in the world, ranking 6th in 2007 (see Porter et al., 2008).

In 2006 there were 250 378 companies in Finland²⁴, which meant that the number of companies had increased by 3.4 percent from the previous year. Despite the strong focus on innovation in Finland, there is a shortage of small high growth companies. Depending on the definition, such companies account for only 0.2 to 0.3 percent of the total company base (EK, 2007)²⁵. Stenholm et al. (2008) indicate that Finnish companies have the lowest growth intentions amongst the Nordic countries and rarely manage to bring innovative products or services to the market. Pursuing high growth involves taking higher risks. In Finland the willingness to take risk is relatively low (Ministry of Trade and Industry, 2003). The fear of failure is a significant barrier and it is difficult to start a business, because even "honest failures" easily get branded (Ministry of Trade and Industry, 2003). Thus, an unwillingness to take risks might be one explanation for the low growth intentions.

Another explanation may lie in entrepreneurs' lack of business skills and lack of experience required for pursuing high growth (e.g. Paasivirta and Valtonen, 2004). Business angels may have a valuable impact in improving the conditions for achieving high growth, as they make their human capital available. Therefore, as suggested earlier, increased business angel activity in Finland might improve the deal flow of venture capitalists that want to see investment opportunities with high growth potential (often reflected in substantial investment needs).

Maula et al. (2006) estimated that from 2004 to 2005 there were 800 to 900 different Finnish companies attempting to raise venture capital funding. The fact that only 97 initial early stage investments were made by Finnish venture capitalists during the same time period indicates that it is very difficult for an entrepreneur with investment needs between €200 000 and €600 000 to obtain funding. Public funding can be found for investment needs below €200 000 (Maula et al, 2006). Business angel funding is thus crucial for bridging this equity gap.

²¹ Retrieved from www.tekes.fi 24.09.2008

²² Retrieved from www.tekes.fi 24.09.2008

²³ Retrieved from <http://www.gcr.weforum.org> 24.09.2008

²⁴ Retrieved from www.tilastokeskus.fi 24.09.2008

²⁵ The growth is measured as the annual increase in a companies' turnover. Only 0.2 percent of the companies, in year 2005, exceeded an annual growth in turnover of 10 percent.

1.8.2 Taxation in Finland

The Scandinavian culture is egalitarian with strong emphasis on fairness. To ensure social security (i.e. protection against poverty, old age, disability and unemployment), government intervention is critical in the allocation of resources. In contrast, the US is an individualistic society, promoting self-seeking interests and competition rather than solidarity. This would suggest that in Scandinavian countries opportunistic behavior is less common than in the US. The Scandinavian welfare model builds on “*broad public participation in various areas of economic and social life, the purpose of which is to promote economic efficiency, to improve the ability of the society to master its problems and enrich and equalize the living conditions of individuals and families (Erikson et al. 1987: pp. vii)*”. The main source of funding for public participation is taxes. To support the welfare model, Scandinavian countries have the highest average tax burdens among the OECD countries (Andersen, 2004)²⁶. In Finland the effective tax rate on labor progressively increases as a function of an employee’s salary level. Elschner et al. (2005) revealed that for highly skilled employees demanding a disposable income that exceeds € 100 000 the effective tax rate in Finland is even more than 50 percent. Consequently, Finland is one of the least attractive regions for highly skilled employees to work in. High taxes are a factor in decreasing competitiveness (Brunila and Vihriälä, 2004). A key challenge for Finland is to cut taxes, while still preserving the essential elements of social support offered by the Scandinavian welfare model (OECD, 2008).

The focus in the remainder this subsection is to describe the taxation of business angel activity in Finland. In Finland income is taxed according to the income tax act or the business tax act²⁷. The business tax act applies for business profits and income from professional activities. In May 2004 capital gains exemption has been granted to the transfer of shares if a company fulfills certain specified conditions (see e.g. Ministry of Finance, 2005)²⁸. In the business tax act losses are deducted from capital gains in the subsequent ten tax years. Taxation under the business tax act is considerably more favorable than taxation under the income tax act.

Capital gains from business angel activity are generally taxed as investment income subject to the income tax act. The tax rate on capital gains is 28 percent. As stated in section 1.4 “research questions”, there are no tax incentives for Finnish business angels. In many European countries there is low (or no) tax on capital gains (e.g. Belgium and Luxembourg) or tax incentive schemes for informal investments (e.g. the UK, Ireland)²⁹. In a benchmarking of European tax and legal environments for venture capital Finland ranked 17th (EVCA, 2004) indicating that there is a lot to do in improving the conditions for venture capital and angel investing in Finland (Valtonen, 2008).

²⁶ OECD (the Organization for Economic Co-operation and Development) with membership of 30 countries has one of the world’s largest and most reliable sources for comparable statistics, and economic and social data. see www.oecd.org

²⁷ See Ministry of Finance (2005) for an extensive overview on taxation in Finland.

²⁸ e.g. the company disposing (transferring) shares must own more than 10 percent of the shares in the company sold (subject to transferal) and the shares must belong to their fixed assets

²⁹ See e.g. Maula, 2007

Business angels making direct investments are, in terms of deductibility, in an inferior position to those channeling their funds through investment companies. They are able to deduct acquisition costs and sales costs from the sales price, in addition to a percentage of the sales price that is dependent on the maturity of the holding period. Establishing an investment company for channeling funds to entrepreneurial ventures facilitates the matching of capital gains and losses. Also operating costs accruing from investment activity are deductible from capital gains. However, losses may only be set against capital gains arising in the same year and the following three years (Ministry of Finance, 2005).

In addition to the capital gains tax, business angels are charged with a transfer tax of 1.6 percent when the investor obtains the shares in exchange for the invested capital. Since it is charged *ex ante*, it will only cause losses if the investment fails. In Finland dividend in non-listed companies is taxed as income on the amount exceeding the 9 percent annual return on the value of the shares or € 90 000. Of the amount exceeding € 90 000, 70 percent is taxed as investment income at the rate of 28 percent, while 30 percent is exempt from tax. Dividends are rarely paid out in the ventures business angels prefer to invest in and the profits tend to be reinvested in the firm for financing growth.

1.8.3 The financial market

Helsinki Stock Exchange (HEX) is a part of the OMX Nordic Exchange, a marketplace integrating the stock exchanges of Helsinki, Stockholm, Copenhagen and Iceland. The OMX Nordic Exchange encompasses a main list as well as an alternative marketplace named First North. First North, launched in December 2005, is for small high growth companies and aims to provide opportunities within the Nordic and global financial markets³⁰.

Liquidity in the Finnish stock market is relatively low, having decreased markedly since the hot issue period that involved the IT hype, in the late 1990s (Selosmaa, 2007)³¹. An alarming trend in Finland is that the number of companies listed on the stock exchange has decreased over the last years (due to delistings). Of the 198 companies currently listed on First North, only three are Finnish³². In the other Nordic countries (especially Sweden), First North has successfully attracted a large number of high growth companies to enter the stock market. A recent study Selosmaa (2007) aimed to identify the reasons for the lack of Finnish companies in First North. The study suggested that the shortage of companies seeking high growth can be seen as one of the key explanatory factors for insufficient activity in First North. This would mean that there are relatively few companies that are suitable candidates, fulfilling the criteria for admission.

The Finnish banking industry is dominated by a few large players that have grown in size and magnitude through mergers, partnerships and the consolidation of activities. For the Finnish banking industry connections between banks and insurance companies have been

³⁰ Retrieved from www.omxgroup.com 23.09.2008

³¹ The size of the Swedish stockmarket is twice the size of the stock market in Finland and Nokia accounts for a significant share of the aggregate market value of the Finnish shares (Selosmaa, 2007).

³² Retrieved from www.omxgroup.com 23.09.2008

strong traditionally (Andersen et al., 2007). Even though the profitability of the Finnish banking sector has been very good, the banks must respond to challenges created, in terms of strategic renewal, by globalization (see Andersen et al., 2007). They need to be able to compete within an integrated European economic system.

The financial system in Finland has traditionally been bank centered. In June 2004, the combined financial wealth of Finnish households was about € 90 billion, over half of which was still in the form of bank accounts (Brunila and Vihriälä, 2004). The apparent preference of households for investing in bank deposits rather than in capital market has limited the liquidity of the Finnish stock market.

Banks generally hold large ownership blocks in their client firms (Hyytinen and Pajarinen, 2003b). Small businesses in the US, in Berger and Udell (1998), had a leverage ratio of 50.37 percent. The study was replicated in Finland, in Hyytinen and Pajarinen (2003a) and demonstrated that Finnish small businesses are somewhat more indebted than their counterparts in the US and run a leverage ratio of 54 percent. This study revealed that the debt to equity ratio is non-monotonic over the lifecycle of firms. It is first high at 56 percent when small businesses are “infants”, i.e. 0 to 4 years old, then decreases somewhat, and reaches its peak at 61 percent when firms become middle-aged. Also small firms in Sweden rely heavily on bank financing (Landström and Winborg, 1995).

The heavy dependence of small businesses on banks for credit indicates that a “credit crunch” on banks might have severe consequences for the bank dependent small businesses (Hancock and Wilcox, 1998). A “credit crunch” means a dramatic decrease in the availability of bank funding for entrepreneurial ventures. The US has in 2008 been hit by a credit crunch with the effect of driving a number of entrepreneurial ventures out of business³³.

In Finland a “banking crisis” occurred in the early 1990s and revealed to Finnish entrepreneurs the dangers of being overly reliant on debt. Prior to the crisis entrepreneurial ventures had rapidly borrowed at an interest rate high above the European average (Hyytinen and Pajarinen, 2003b). A negative shock in the economy, largely caused by the collapse of trade with the former Soviet Union forced many entrepreneurs into bankruptcy. The entrepreneurs had to face the consequences of being left with unbearable debt burdens.

Finnish bankruptcy legislation is very strict and unforgiving. It is very difficult to start a new enterprise again after going bankrupt or undergoing debt restructuring (Brunila and Vihriälä, 2004). This highlights the importance of having a vibrant capital market with companies able to substitute external equity for debt. The tradeoff between debt and equity will be subject to further discussion when addressing the “pecking order theory” in chapter 2 “the theoretical framework”.

³³ see e.g. http://money.cnn.com/2008/09/24/smallbusiness/small_biz_credit_freeze.smb/index.htm

1.8.4 The formal venture capital market

The Finnish venture capital industry is characterized by independent, young and small venture capital firms (Hyytinen, 2005). Hyytinen and Pajarinen (2003b) argue that the venture capital industry in Finland (and the other Nordic countries) is at an earlier stage of development in the venture capital “industry” life cycle than elsewhere in Europe, with respect to the number of investments made and the number of exits. In Finland (as well as in France and Sweden) the governmental owned venture capital companies were long the dominant players in the market (Seppä, 2000). The first independent, professionally managed venture capital company with a limited partnership fund structure was established in 1993 (Seppä, 2000) and marks the birth of the Finnish venture capital industry. In the US, the most mature venture capital market in the world, venture capital activity began in 1946, when J. H. Barney founded the first venture capital company (Burrill et al., 1989). This demonstrates that the Finnish market lags, in terms of development, almost fifty years behind the market in the US.

The Finnish Venture Capital Association has currently 37 venture capital firms as “full” (investor) members. Many of these have been established as spin-offs/management buyouts from public investors (Maula et al., 2007). According to Maula et al. (2007), the Finnish venture capital companies lack world class serial entrepreneurs and are instead made up of many former civil servants who might not possess the required expertise for managing early stage investments.

In year 2007 the Finnish venture capital industry enjoyed remarkable growth. According to the Finnish Venture Capital Association’s (FVCA’s) statistics, altogether € 1559 million was raised in new capital, exceeding the total for the three previous years³⁴. In terms of venture capital investments as a percentage of GDP Finland ranks third, after Sweden and Denmark, and before the UK (EVCA, 2008). The higher amount of capital raised in recent years has begun to be seen in the total amount of funds invested. In total € 877 million was spent on new investments, which is 2.5 times the previous year’s volume (FII, 2007). In addition, € 761 million was invested in the form of initial investments, while follow-on investments received only € 115 million. The capital was injected into 291 portfolio companies. Most of the venture capital investments were made in the service industry (34 percent). The FVCA statistics demonstrate the following industry distribution: service industry (34 percent), industrial products and services (19 percent), medical related industries (13 percent) and computer related and electronics industries (7 percent). The year was also very good for exits. Exits at purchase price amounted to € 648 million in 2007 (FII, 2007). The most common vehicle for exiting investments was trade sales, accounting for up to € 412 million of divestments.

Regardless of the favorable development of the venture capital industry, the amount invested in early stage (seed, startup and other early stage) firms declined from the previous year. Of the € 877 million, € 72 million was invested in early stage firms, accounting for merely 8 percent of the invested capital. A similar development was witnessed in other European countries. In Europe of the € 79 billion funds raised in 2007,

³⁴ Retrieved from www.fvca.fi 23.09.2008

€ 60 billion (76 percent) was allocated to buyouts and € 10.3 billion (13.1 percent) to venture and growth capital (EVCA, 2008).

The decreasing involvement of venture capitalists in the early stages highlights the importance of promoting business angel activity in Finland. Since the Finnish informal venture capital market is small scale, government support is needed to fill the equity gap. The different actors in the market of public funding for entrepreneurial ventures are briefly described in the following subsection.

1.8.5 Public funding of entrepreneurial ventures

There are seven important government agencies that work to ensure public funding and services for entrepreneurial ventures. These are Finnish Industry Investment, the Finnish Funding Agency for Technology and Innovation, the Finnish Innovation Fund, Finnvera, Finpro, the Employment and Economic Development Centres and the Foundation for Finnish Inventions. They all have distinctive functions in the market, thus complementing each other.

a) Finnish industry investment

Finnish Industry Investment Ltd (FII) is a government owned investment company. It engages in equity investment and invests in venture capital funds, private equity funds and, increasingly, directly in selected target companies through an FII controlled seed fund (Maula et al., 2007; Paasivirta and Valtonen, 2004). In 2007 FII's investments amounted to € 470 million³⁵. FII co-invests with both business angels and venture capitalists and aims to increase investment activity in seed and startup stages. It launched a seed financing program in 2004, and has today made investments in almost 100 early stage companies (FII, 2007). The seed financing program is perceived to have been successful. A large share of the companies have developed favorably and successfully penetrated foreign markets (FII, 2007).

b) The Finnish Funding Agency for Technology and Innovation

TeKes, the Finnish Funding Agency for Technology and Innovation, is a major funding organization for young innovative companies (Maula et al., 2007). Funding may be a low interest loan or a grant, depending on the stage of the innovation and the nature of the proposed project³⁶. TeKes has in 2008 € 500 million of funds available for research and development, of which 40 percent will be channeled to research projects at universities and 60 percent to innovative companies (TeKes, 2008). Recently, TeKes has initiated funding programs that support the commercialization of innovations. TeKes has been seen to be very technology focused with a lower emphasis on understanding of the challenges of commercialization (Maula et al., 2007). One aim of the new programs is to enhance the transferal of business knowledge from universities to innovative companies. TeKes

³⁵ Retrieved from www.teollisuussijoitus.fi 22.09.2008

³⁶ Retrieved from www.tekes.fi 22.09.2008

approval of funding is based on the assessment and screening of applications that are submitted electronically.

c) **The Finnish Innovation Fund**

Sitra, the Finnish Innovation Fund, is an independent public fund which is under the supervision of the Finnish Parliament³⁷. Sitra has reduced its role as an early stage venture capital investor, but maintained an important role in matching entrepreneurs and business angels (Maula et al., 2007). It has a network of investor-members, including 350 (active) business angels and 100 potential investors (e.g. Lahti, 2007). Its PreSeed activity provides entrepreneurs with two distinct services, which are elaborately described in Rasila (2004)³⁸.

The service matching entrepreneurs in need of funding with business angels looking for investment opportunities is referred to as Intro. Entrepreneurs are expected to express preferences regarding the amount of funding, whether syndication is acceptable, and what kind of role is expected of potential investors (Rasila, 2004). They need to submit business plan descriptions and financial information to Sitra that evaluates the quality of the investment opportunities. Based on this evaluation, an entrepreneur may get the opportunity to present his investment proposal to investors at one of the five annual Intro forums (Maula et al., 2007).

The other PreSeed service of Sitra is called Diili. It is a matching instrument for companies and sales professionals. Companies lacking people with sales and marketing skills can recruit management personnel by reviewing the CVs of sales executives registered in Sitra's network. Entrepreneurs are expected to reward the personnel with an equity stake in a venture (Rasila, 2004).

d) **Finnvera**

Finnvera plc is a specialized financing company owned by the State of Finland. It provides its clients with loans, guarantees, venture capital investments and export credit guarantees³⁹. In 2007 Finnvera provided a total of € 261 million of financing for newly established companies (Finnvera, 2007). Many of its products are tailor-made for the needs of entrepreneurs. These include the microloan, the entrepreneur loan, loans for female entrepreneurs, an entrepreneur guarantee and a micro-enterprise guarantee⁴⁰.

Finnvera's 100 percent owned subsidiary Veraventure Ltd. makes equity investments to support the growth of young innovative companies. It is a fund of funds that infuses capital into regional venture capital funds and serves as a management company for the seed fund Vera Ltd (Avera) (Maula et al., 2007)⁴¹. Vera Ltd is expected to have an

³⁷ Retrieved from www.sitra.fi 22.09.2008

³⁸ A third service, LIKSA, offered consultancy and funding for entrepreneurs developing their business plans. It was, however, terminated in late 2006 due to insufficient demand (www.sitra.fi).

³⁹ Retrieved from www.finnvera.fi 22.09.2008

⁴⁰ for information on the characteristics of the loans and guarantees see www.finnvera.fi

⁴¹ Vera Ltd was established in 2005 on the basis of the proposals for action in Ministry of Employment and the Economy's AISP strategy rapport Paasivirta and Valtonen (2004).

important role in filling the equity gap as it targets investments to ventures that are unable to obtain funding from other investors.

e) Finpro

Finpro is an association founded by Finnish companies that supports the internationalization of Finnish companies (Maula et al., 2007). Its aim is to guarantee Finnish companies, especially small and middle growth companies, access to high quality, comprehensive internationalization services around the world⁴². The aid Finpro provides helps to reduce the risks involved in entering foreign markets as well as hasten the internationalization process (Paasivirta and Valtonen, 2004).

e) The Employment and Economic Development Centers

The Employment and Economic Development Centres (T&E Centres) guides entrepreneurs in preparing internationalization plans as well as in initiating and developing exports (Paasivirta and Valtonen, 2004). Financial aid is granted to project implementation.

f) The Foundation for Finnish Inventions

The Foundation for Finnish Inventions supports and helps private individuals and entrepreneurs to develop and exploit invention proposals both within Finland and internationally (Maula et al., 2007). It grants subsidies and loans for the commercialization of innovation⁴³.

1.9 The structure of the doctoral thesis

The remaining chapters are organized as follows. Chapter 2 first provides an overview of the two theoretical lenses of this study, i.e. agency theory and the incomplete contracting theory. The theories have been chosen, because they are expected to provide a framework for understanding the investment behavior of business angels by emphasizing risk reduction pre and post investment. The two theories as well as previous research in the domain of venture capital and business angels are utilized for deriving research hypotheses that contribute to answering the research questions derived in this chapter.

In chapter 3 the methodological issues are addressed. It describes the sample's characteristics, the design of the questionnaire, the methods of the analyses applied in this study, and also forms the basis of the discussion around the concerns related to validity and reliability. The chapter shows how the research hypotheses developed in chapter 2 are tested and how the criteria on which the findings are based are analyzed in chapter 4.

Chapter 4 presents the research findings and the interpretations drawn from analyses of the research findings. First, the descriptive findings are presented. Then the research

⁴² Retrieved from www.finpro.fi 22.09.2009

⁴³ Retrieved from www.keksintösäätiö.fi 22.09.2008

hypotheses developed in chapter 2 are subject to analysis. Based on the findings, the research hypotheses are either supported or rejected. Interpretations are made that assess the explanatory power of the theoretical underpinnings. Further analyses of the findings are undertaken in chapter 5 where the findings are assessed with respect to the objectives of this study.

This dissertation concludes with chapter 5. The chapter comprises a discussion that focuses on answering the research questions, established for this doctoral thesis. In addition, the chapter provides concluding remarks, implications for investors, entrepreneurs and policy makers as well as suggestions on the scope for future research. Building on the research findings, this chapter takes a holistic view and evaluates the influence the Finnish institutional environment has on the investment behavior of the actors in the informal venture capital market. In doing this, it seeks to understand whether and how the institutional context shapes the nature of the market.

2 THE THEORETICAL FRAMEWORK

In this chapter the hypothesized notions are derived from the underlying theoretical lenses. The theories focused on in this doctoral work are agency theory and the incomplete contracting theory. The theories were chosen for this study on the following grounds.

First, in Lahti (2007) tax incentives appeared to have the effect of increasing business angels' willingness to inject funding into early stage ventures. In addition, business angels attached high importance to both short and long term financial criteria. This study, building on a part of the data collected for this dissertation, suggested that business angels are primarily motivated by long term financial rewards. This would indicate that agency theory based on the rationality assumption of business angels engaging in investment activity for maximizing their wealth may have relevance in the Finnish context. The rationality assumption underlying agency theory would expect investors to be concerned about the degree of uncertainty related to an investment. In order to secure long term financial rewards, business angels' efforts in risk management are predicted to be a function of the degree of uncertainty involved. Due diligence is the key tool for reducing uncertainty pre investment. It is also during the due diligence process that the relationship forms between an investor and an entrepreneur (Mayfield, 2002). This study holds the view that a comprehensive due diligence may also be a means for building chemistry and trust post investment. If substantial uncertainty is mitigated prior to investing, business angels are more aware of how an entrepreneur will behave given different circumstances. In addition, due diligence provides the opportunity for the business angels to identify competence gaps in the ventures and their need for involvement. Consequently, for this study assuming that the comprehensiveness of due diligence increases with the degree of uncertainty does not imply that it rules out reliance on mutual trust.

Second, this is the first study to investigate assumptions derived from the incomplete contracting theory. The theory suggests that business angels aim at gaining control through active involvement when they are unable to obtain sufficient protection from the tangible assets of the investee companies. Applying a theory that has not been tested previously in the arena of business angels may add to our quest in opening the black box of involvement (see de Clecq and Manigart, 2007). The fact that it has proven to be highly relevant in explaining the relationship between venture capitalists and entrepreneurs further justifies its selection (e.g. Kaplan and Strömberg, 2003a, 2004; Kaplan et al., 2007). New knowledge is accumulated through obtaining an understanding of the extent to which the assumptions derived from the theory contribute to our understanding of business angels' degree of involvement in the businesses they fund.

Finally, agency theory was selected as the competing theory to the incomplete contracting theory in explaining the relationship between business angels and entrepreneurs. As this chapter will demonstrate, the incomplete contracting theory was founded to add realism to agency theory (e.g. Tirole, 1999). Thus, agency theory being a contrasting theory, in terms of underlying assumptions, presents an appropriate choice of theory to be used alongside the incomplete contracting theory.

Recent studies in the Nordic venture capital market, Parhankangas and Landström (2004) and (2006), revealed that Finnish venture capitalists are more eager to actively deal with unmet expectations than their Swedish counterparts. The findings indicated that Finnish venture capitalists use an “aggressive voice”, i.e. take efforts to win, without consideration for the concerns of an entrepreneur, when they perceive that unmet expectations are due to opportunistic behavior by an entrepreneur or a lack of skill and character and when they have more money invested in a venture.

In a similar vein, this study expects Finnish business angels to be more actively involved when the risk of opportunistic behavior is considerable. Consequently, in line with agency theory, the study assumes that business angel involvement increases when an entrepreneur (and management) has less ownership in the venture. Likewise, this study also expects to see a stronger degree of involvement when business angels have a higher level of ownership in a venture. In the following the structure of this chapter is presented.

The first section of this chapter gives an introduction to agency theory and the incomplete contracting theory by providing a brief overview of the historical development of the two theories.

In section 2.2 a discussion of agency theory is presented. Two agency theoretical problems are described. These are the adverse selection problem that emerges prior to signing a contract and the moral hazard problem arising due to opportunism post contracting. This section explains how agency theoretical problems can be mitigated and forms a discussion on how agency theory relates to venture capital and angel investing.

Section 2.3 presents the incomplete contracting theory. There are the three ingredients that give rise to contractual incompleteness: transaction costs, bounded rationality and asymmetric information. These ingredients are addressed in this section. It is stressed that, the ex post allocation of control is important when contracts are incomplete. The section ends by describing the incomplete contracting model of Aghion and Bolton (1992) that examines the relationship between a venture capitalist and an entrepreneur.

In section 2.4 hypotheses are derived from both agency theory and the incomplete contracting theory. The section comprises two parts. The first part is concerned with the adverse selection problem. Based on the underlying theory and previous research in the domain of venture capital and business angels, hypothesized relationships are formed for studying the relationship between the degree of uncertainty in an investment and the due diligence conducted by business angels. The second part builds on agency theory and the incomplete contracting theory. Hypothesized relationships are established to investigate how the level of ownership, the underlying fixed tangible assets and covenants mitigating the hold-up problem affect the degree of involvement of business angels. The chapter concludes with a summary of the research hypotheses.

2.1 The historical development of agency theory and the incomplete contracting theory

The concept of the firm has a long standing tradition in economic theory. The meaning given by economics to the concept of the firm tends to emphasize production as the primary function of the firm. Such a definition of the firm reflects the shift in the focus of economists from exchange to production and production efficiency. In the tradition of economics, the primary task of the firm is transforming some inputs into outputs of a higher value (Snehota, 1990). In the neoclassic theory, the firm was treated as a perfectly functioning “black box”, inside which everything operates smoothly and everyone does what they have been told (Hart, 1995b).

The neoclassic theory⁴⁴ has two main weaknesses. The first weakness is that it completely ignores the incentive problems. The second weakness is that the theory has nothing to say about the internal organization of firms, their hierarchical structure, how decisions are delegated, and who has authority (Hart, 1995b). Two schools in economic theory emerged in the mid 1970s to fill the gaps in the neoclassic theory. Agency theory that aims at incorporating the incentive problem was founded by authors such as Alchian and Demsetz (1972) and Jensen and Meckling (1976) who expressed their view that the firm is a “nexus of contracts”, written and unwritten, among owners of factors of production and customers (Jensen and Meckling, 1976).

These contracts or “internal rules of the game” specify the rights of each agent in the organization, the performance criteria on which agents are evaluated, and the payoff function they face (Fama 1980; Fama and Jensen, 1983a,b; Jensen 1983). The theory evolved into two separate streams: principal agent theory and the positivist agency theory. Principal agent theory (see e.g. Ross, 1973; Shavell, 1979, Harris and Raviv, 1978, 1979; Holmström, 1979; Grossman and Hart, 1983)⁴⁵ is concerned with optimizing the contractual parameters governing the agency relationship, subject to a set of assumptions, constituting a model that is an abstraction of reality⁴⁶. The positivist theory, commonly applied in organizational research, investigates the contractual structure when the principal’s and the agent’s goals differ. Positivist researchers are concerned with describing the governance mechanisms that solve the agency problems (Eisenhardt, 1989). Whereas principal agent theory is more mathematical and mostly concerned with analyzing the small firm context, the positivist theory emphasizes the separation of

⁴⁴ In the neoclassic view it is assumed that the (i) market functions freely, (ii) prices and technology are known by all interest parties, and (iii) owners are effective in controlling the use of their assets. If the price system works well, resources are allocated well (Demsetz, 1997).

⁴⁵ Principal agent theory has also often been referred to as the normative theory of agency (see. e.g. Jensen 1983; Eisenhardt, 1989 and Beatty and Zajac, 1994).

⁴⁶ The principal agent literature has focused on modeling the effects of three factors: (1) the structure of preferences of the parties to the contracts, (2) the nature of uncertainty, and (3) the information structure in a business environment (Jensen, 1983).

ownership and control in large publicly listed companies with a large number of well-diversified owners⁴⁷.

Adam Smith is argued to have been flirting with agency theory advocating that a teacher's income should be tied to the quality of teaching as assessed by the students⁴⁸. The classic work of Frank Knight "Risk, Uncertainty, and Profit (1921)" made a distinction between risk and true uncertainty (or objective and subjective probability)⁴⁹. Faced with true uncertainty the entrepreneur cannot verify the outcomes of an event or evaluate the magnitude of loss from the event⁵⁰. True uncertainty integrated into the agency relationship provided the foundation for the two core topics of agency theory: namely adverse selection and moral hazard.

Opportunistic thinking that lies at the heart of agency theory, was already indirectly introduced in Machiavelli's "the Prince". Machiavelli suggested that a good Prince should be manipulative and convincing for achieving selfish ends. Pursuing selfish ends is the utility maximizing behavior of the Walrasian economic man (=homo economicus). Leon Walras considered an individual to be a selfish calculative machine that was under no ethical influences. The utility maximizing behavior is the rational behavior of an economic agent (or individual). The economists that gave birth to agency theory adopted the rationality assumption and this is why the agency theoretical underpinnings have been heavily criticized by behavioral economists⁵¹ aiming to construct a more realistic picture of the behavior of an economic agent⁵². Alfred Marshall was one of the fathers of this behavioral (managerial) thinking, arguing that people are purposeful and have a reason for what they do.

Recently, principal agent theory has been oriented towards extending the classical model by constructing models of multiple principals (see e.g. Bernheim and Whinston, 1986; Martimort, 1996; Dixit et al., 1997; Gailmard, 2002), multiple agents (see e.g. Holmström, 1982; Nalebuff and Stiglitz, 1983; Rasmusen, 1987; Andolfatto and Nosal, 1997; Gupta and Romano, 1998), multiple periods (see e.g. Holmström and Costa, 1986; Holmström, 1999; Ishiguro and Itoh, 2001), multiple tasks (see e.g. Baker, 1992, 2002) and double sided moral hazard⁵³ (see e.g. Al-Najjar, 1997; Chang et al., 2003), whereas

⁴⁷ Bearle and Means (1932), "The Modern Corporation and Private Property" was one of the early works to separate ownership and control in a corporation.

⁴⁸ See Adam Smith "An Inquiry into the Nature and Causes of the Wealth of the Nations" (1776) and Rosen (1987)

⁴⁹ Objective probability (=risk) means publicly and cheaply verified events, constituting the part of the uncertainty that can be determined (LeRoy and Singell, 1987)

⁵⁰ Profit accrued from bearing the true uncertainty (see Knight, 1921 and also Leigh, 1974). However, Knight completely failed to recognize the agency problem in his work, and even appears to have denied that such a problem even exists (LeRoy and Singell, 1987).

⁵¹ Their approach draws on the insights and empirical results gained from biology, psychology, sociology, and experimental economics (Bowles and Gintis, 2000).

⁵² Petersen (1993) sees the agent in agency theory as hyper-rational.

⁵³ Both the principal and agent may act opportunistically, deciding how much effort they will expend (the effort of the principal as well as the agent is unobservable).

the positivist theory has empirically tested the validity of agency theory in several contexts⁵⁴.

Another stream that emerged in the 70s, to fill the gaps in the neoclassic theory, was the transaction cost theory, which emphasizes the hierarchical structure of a firm with a single transaction as the basic unit of analysis. In the neoclassic theory the transaction costs were considered to be negligible, having no impact, whatsoever, on the contract between an agent and a principal. Coase in “The Theory of the Firm” (1937) was the first to pronounce the significance of transaction costs. He suggested that “transactions will be organized in the firm when the cost of doing this is lower than the cost of using the market”. Williamson (1975 and 1985) based his insights on Coasian thinking. He emphasizes that the governance mode that should be selected is the one that economizes transaction costs.

Coase (1960) is considered to be the pioneering work of the old property rights economics. Coase examined the economic implications of the allocation of liability rights to a subset of the total uses of an asset (Foss and Foss, 2001)⁵⁵. However, Coase (1960) was not interested in who owns the asset, only the allocation of property rights matters (Foss and Foss, 2001).

The transaction cost theory and the old property rights theory gave rise to the incomplete contracting theory (also known as the new property rights theory). The initial work of Grossman and Hart (1986) emphasizes that in the presence of transaction costs the contracts will inherently be incomplete. In the incomplete contracting theory the ex post allocation of control matters. The best way to gain control is through ownership (the residual rights of an asset). The incomplete contracting model by Grossman and Hart (1986), extended by Hart and Moore (1990) and Hart (1995b), investigates the relationship between a supplier and a manufacturer, concluding that ownership should be allocated to the party (the firm) that has invested most in the transaction (and thus has most to lose)⁵⁶.

Incomplete contracting models have been established to analyze the allocation of control in various settings: the relationship between a venture capitalist and an entrepreneur (Aghion and Bolton, 1992), research and development activity in organizations (Aghion and Tirole 1994), the labor market (Malcomson, 1997), and large firms (Hart and Holmström, 2002).

Several studies have investigated the relationship between the entrepreneur and the venture capitalist by applying agency theory as a framework (see e.g. Barney et al., 1989, Amit et al., 1990a,b, Fiet, 1991, 1995; Sapienza and Gupta, 1994; Norton, 1995; Cable

⁵⁴ One of the more recent areas of application has been professional hockey (see Mason and Slack, 2001, 2003)

⁵⁵ The liability right refers to the right for an owner of assets to obtain compensation when another actor using the assets damages them (see e.g. Cooter, 1991).

⁵⁶ In accordance with transaction cost theory the incomplete contracting theory encapsulates the following ingredients, i) ex ante and ex post transaction costs, ii) asset specific investments, iii) bounded rationality and iv) opportunistic behavior.

and Shane, 1997; Van Osnabrugge, 1998a; Reid, 1999; Sapienza et al., 2000; Bruton et al., 2000; Arthurs and Busenitz 2003, Kaplan and Strömberg, 2003a,b; Yoshikawa et al., 2004). The incomplete contracting model, studying the relationship between a venture capitalist and an entrepreneur, established by Aghion and Bolton (1992), has been extended based on empirical evidence by Vauhkonen (2003). The incomplete contracting model has been empirically examined by Kaplan and Strömberg (2003a).

A few studies have applied agency theory to investigate the relationship between a business angel and an entrepreneur (Fiet 1991, 1995; Landström, 1992; Van Osnabrugge, 1998a; Kelly and Hay, 2000a; Harrison and Mason, 2002). An incomplete contracting approach was utilized by Van Osnabrugge (1998a), who acknowledges that in angel investing ex post allocation of control is what matters. The following sections will take a closer look at the assumptions behind agency theory and the incomplete contracting theory and discuss their meaning in the domain of venture capital and business angels.

2.2 Agency Theory

All individuals associated within a firm can, in the absence of agency problems, be instructed to maximize profit or net market value or to minimize costs (Hart, 1995a). No authoritarian control is involved, and the arrangement is simply a contractual structure subject to continuous renegotiation (Alchian and Demsetz, 1972). Alchian and Demsetz (1972) highlight that it is not meaningful to assume that an employer can force an employee to do what the employer wants in the absence of coercion.

Jensen and Meckling (1976) define an agency relationship as a contract under which one or more persons (the principal(s)) engage another person (the agent) to perform some service on their behalf, which involves delegating some authority to the agent. There is a reason to believe that if the two parties' interests diverge, the agent will not always behave in the best interest of the principal. Padilla (2002) states, that there is an agency relationship when the action of one individual affects both his welfare and that of another person in a contractual relationship. In agency theory the contract is the central unit of analysis.

Agency theory is concerned with resolving problems that can occur in agency relationships. The first is the problem when the principal cannot ascertain (verify) the agent's level of ability (what the agent really knows). This is the problem referred to as adverse selection. The second is the agency problem referred to as moral hazard that arises when: (a) the interests of the principal and the agent conflict and (b) it is difficult or expensive for the principal to verify what the agent is actually doing (Eisenhardt, 1989). In the presence of asymmetric information, the principal cannot observe the agent's behavior. This means that the agent can use his information advantage for his own benefit, rather than for the benefit of the principal (Van Osnabrugge, 1998a).

2.2.1 Adverse selection

Adverse selection refers to misrepresentation by an agent. The pioneering study in the adverse selection framework focuses on the market for used cars. In Akerlof (1970) the seller of a used car has more information about the car than the buyer does. The seller knows from experience whether the car is a dysfunctional "lemon" or an excellent running "plum", whereas the buyer cannot identify the quality of the car (Peake, 2000). The buyers will be unable to ascertain the quality before they purchase, and the sellers have no way of convincing the buyers of the quality of the car. Wilson (1980) extended Akerlof's model (1970) by demonstrating that the price level of cars can work as an indication of higher average quality.

The adverse selection framework is equally valid in explaining the pricing of insurance premiums. The adverse selection problem studied in e.g. Rothschild and Stiglitz (1976) arises when an insurance company is unable to identify the probability of occurrence of an accident for a population comprising both high risk and low risk individuals. Costs arise from providing separate contracts that take into consideration the risk level of individuals.

The adverse selection problem is highlighted in the labor market, when a firm is recruiting personnel. An agent may claim to possess certain skills or abilities when he or she is hired. The adverse selection arises because the principal cannot verify these skills or abilities either at the time of hiring or while the agent is working (see Spence, 1973; Eisenhardt, 1989).

2.2.1.1 Signaling and screening as devices for mitigating the adverse selection problem

To limit the problem of adverse selection, a principal can utilize signaling and screening devices. The identification of the qualities of the principal is referred to as screening, and devices that sort out individuals according to their qualities are referred to as screening devices (Stiglitz, 1975).

It is crucial to identify the qualities of the agent *ex ante*, in order to avoid signing a contract with an agent that lacks the required qualities to perform a task. The positivist stream of agency theory uses the word bonding expenditures for costs that an agent carries to guarantee that he will not take actions which would harm the principal or to ensure that the principal will be compensated if he does take such actions (Jensen and Meckling, 1976; Hill and Jones, 1992). By carrying these costs, the agents' bargaining position may improve (see Bac, 2000, 2001). Spence (1973) advocates that an employee can signal his high ability level through investing in education. The agent has an incentive to reveal information regarding the ability level, if this is reflected in a higher level of salary (Stiglitz, 1975).

In screening an employer typically employs a set of observable characteristics, correlating with the parameters of interest, to screen and rank applicants' prospective job performances on the basis of their endowment with those characteristics (Padilla, 2002).

Similar to Spence (1973) and Stiglitz (1975), Riley (1979) advocates that educational screening can be utilized by an employer, to identify an agent's ability level. He notes that, although productivity is not observed until later in the career, educational achievements might "signal" information about their productivity.

Another way for an employer to screen a worker is to use a probationary period. Within this period of time the principal can, by monitoring the performance of a worker, determine whether that worker meets the specified standard (Lazear, 1986). In Lazear (1986) the type of agent is identified (screened) by the offer of a fixed salary or a salary contingent on performance⁵⁷. Only high ability agents will accept a compensation contingent on performance.

2.2.2 Moral hazard

In the classic principal agent model expected utility increases with wealth and decreases (disutility) with effort. In other words, the agent is assumed to prefer more wealth to less, and he feels that more effort (work) is unpleasant (regardless of hours worked). Moral hazard occurs in the presence of asymmetric information. When a principal has full information regarding an agent's actions, the agent's effort can be accurately determined and contracted upon (see Ross, 1973 and Demski and Feltham, 1978). This facilitates the use of a forcing contract that penalizes the dysfunctional behavior of the agent (Holmström, 1979).

In the presence of asymmetric information an agent's effort cannot be observed by the principal. This means that the agent's reward cannot be a direct function of his effort. The principal must reward the agent based on the outcome he can observe. The principal can tie the reward to a proxy measure (that is indirectly tied to the effort of the agent) such as performance. Then the outcome is determined by the agent's effort and the state of nature (exogenously and randomly determined). This prevents the principal from using the output to determine unambiguously the amount of effort that was supplied by the agent (Lambert and Larcker, 1987). In another words, the observable output is a function of two unobservable variables. The agent will choose his level of effort before the state of nature is realized (Dixit and Besley, 1997).

When an agent is aware of his behavior, but the principal is not, a dilemma arises, as a consequence of the principal's inability to determine whether the agent has behaved appropriately (Eisenhardt, 1985; Starks, 1987). Moral hazard then refers to the lack of effort by an agent. An agent may simply not put forth agreed upon effort, i.e. the agent is shirking (Eisenhardt, 1989). In the problem with moral hazard only, the principal is assumed to be fully informed about an agent's preferences and the agent's type (Page,

⁵⁷ A salary contingent on performance is often referred to as "piece rate" (see e.g. Stiglitz, 1975; Nalebuff and Stiglitz, 1983 and Lazear, 1986).

1991). In the positivist stream of agency theory moral hazard also involves, besides shirking, perquisite consumption⁵⁸.

2.2.2.1 The tradeoff between behavior and outcome based contracting

To mitigate the moral hazard problem, a principal can choose between paying an agent a fixed salary and monitoring his behavior or rewarding his behavior on the basis of an observable measure such as the performance of the company⁵⁹. The former is generally referred to as behavior based contracting, while the latter is referred to as outcome based contracting (see e.g. Eisenhardt, 1989).

To monitor an agent's behavior, a principal needs to invest in information systems such as budgeting systems, reporting procedures and the board of directors (Eisenhardt, 1989). The most relevant information system for monitoring management is commonly the board of directors (Eisenhardt, 1989). In the positivist stream, the monitoring function refers to the responsibility of directors to monitor managers on behalf of shareholders (Hillman and Dalziel, 2003). A board of directors has the power to replace management, decide on management incentives, has access to relevant internal performance measures and is apprised of important decisions before they are implemented (Williamson, 1985).

Outcome based contracting can be argued to comprise two important incentives and alignment devices. The first device provides an agent with an ownership stake in a company, and the second is pay contingent on performance (Coles et al., 2001). When an agent owns 100 percent of a company no agency problems accrue, whereas if management owns less than 100 of the equity, shareholders incur agency costs resulting from the risk of management's shirking and perquisite consumption (Ang et al., 2000). Jensen and Meckling (1976) define agency costs as the sum of the monitoring expenditures of a principal, the bonding expenditures by an agent and the residual loss⁶⁰.

Incentives contingent on the performance are employee stock option schemes and cash bonus incentive schemes. The primary benefit of stock options, compared with cash bonuses, is that their incentive effects derive from rewards that are based on all aspects of firm performance (e.g. Baker, 1992). In contrast, cash bonus schemes are often based on specific aspects of company performance, such as growth in profits (Pendleton et al.,

⁵⁸ The manager may invest in projects which are personally interesting to the manager (pet projects) (Nygaard and Myrtveit, 2000) or a research scientist may work on a personal research project in company time (Eisenhardt, 1989). A manager may also use a company's resources to e.g. purchase a company car for his personal use or maximize short run profitability at the expense of long run profitability, in order to give investors (principals) an impression of success and, hence improve his own status.

⁵⁹ An incentive contingent on the output (e.g. profit) is referred to as a "high powered" incentive scheme, whereas the fixed salary offered to an agent is referred to as a "low powered" incentive scheme (see e.g. Hart, 1995a,b).

⁶⁰ The dollar equivalent of the reduction in welfare experienced by a principal due to the divergence in interests is a cost of the agency relationship referred to as the residual loss (Jensen and Meckling, 1976; Hill and Jones, 1992).

2002)⁶¹. However, the problem with stock options is that they may induce an agent to maximize short term returns at the expense of the long term return, rewarding increases in the value of a firm, and that the agent possessing inside information about a firm may influence the terms of the option (e.g. the timing and the exercise in his favor) (Pendleton, et al., 2002).

Equity holders might find incentive alignment more effective than monitoring, in order to ensure that agents behave in their best interest. The design of such a compensation system is, however, complicated (Tosi and Katz, 1997). Incentives tend to be more effective than monitoring, particularly, in cases where ownership is divided between a large number of non-managing shareholders.. This is a consequence of the well known free riding problem in monitoring (Ang et al., 2000).

Principal-agent theory generally considers the case of a risk averse agent who performs a task for a risk neutral principal (Keser and Willinger, 2000). If the agent that is strongly risk averse is bearing all the consequences of his actions, he might not take actions that align with the interests of the principal. The agent might, then, choose a project with a low value and low risk, instead of a project with a high value and high risk as he is unwilling to carry the high risk involved. Therefore, when the agent is risk averse, the optimal solution requires some sharing of risk (Starks, 1987), and therefore the principal must also bear some of the consequences of the agent's action (Harris and Raviv, 1978, 1979; Grossman and Hart, 1983)⁶². It is not optimal to transfer all the risk to the agent (Shavell, 1979). In Eisenhardt's words, the risk aversion of the agent is positively related to behavior based contracting and negatively related to outcome based contracting (see Eisenhardt, 1989). Similarly, behavior based contracting is preferred to outcome based contracting when information is easily obtainable and less costly (Demougin and Fluet, 2001), and when outcome uncertainty is high, tasks are programmable, relationships are of a long term nature (Eisenhardt, 1985, 1989) and an agent has high personal wealth (Thiele and Wambach, 1999).

When the business environment is highly volatile, the outcomes are difficult to determine. They are then strongly affected by exogenous factors that do not relate to an agent's level of effort. A volatile business environment can be due to factors such as government policies, economic climate, competitor actions and technological change (Eisenhardt, 1985, 1989). When outcome uncertainty is high, shifting the risk to a risk averse agent is not advisable, which is why a principal will prefer behavior based contracting to outcome based contracting (Eisenhardt, 1985, 1989).

A principal will gain more information about an agent in long-term relationships (Lambert and Larcker, 1987; Stroh et al., 1996). Therefore, the length of a relationship is positively related to monitoring and negatively related to outcome based contracting

⁶¹ With reference to stock options, Jensen and Murphy (1988; 1990) argue that the pay-performance sensitivity (the relationship between pay and performance) is too low, while positively and statistically significant, to be consistent with agency theory. Kahn and Sherer (1990) suggest that bonuses for managers who are in high level positions are more sensitive to performance than bonuses for other managers.

⁶² According to Mirrlees (1997) some particular level of effort is optimal and incentives have to be set up to ensure that effort.

(Eisenhardt, 1989). Also more programmability implies more complete information about the agent's behaviors (Eisenhardt, 1985). Task programmability allows the principals to specify the behaviors that an agent needs to perform, why there will be more reliance on behavior based contracting and less on outcome based contracting (Eisenhardt, 1985; Stroh et al., 1996). Increased personal wealth induces an agent to require a larger compensation for the same level of effort (e.g. Thiele and Wambach, 1999). Hence, outcome based contracting becomes more expensive and behavior based contracting preferable.

Conversely, outcome based contracting is preferred to behavior based contracting when reliable information is difficult and costly to obtain (Demougin and Fluet, 2001) and the principal and agent's objectives diverge significantly (Eisenhardt, 1989). Risk sharing pay and punishment increase with the severity of the agency problem (Indjejikian, 1999)⁶³. The agency problem is most severe in situations when the goals of a principal and an agent fully diverge. Making an agent's payoff contingent on the performance, by transferring risk to the agent is utilized, in such cases, in order to reduce the divergence of goals. This is because additional monitoring will not motivate the agent to act in the best interests of the principal. Thus, when goal conflict increases outcome based contracting is preferred to behavior based contracting (Eisenhardt, 1989).

2.2.3 Agency theory in the domain of venture capital and business angels

In the domain of venture capital and business angels the investor is the principal, funding new ventures to obtain a return on the invested capital⁶⁴. The entrepreneur (the management team) is the agent with the responsibility to maximize the utility of the investor by exerting effort in taking a set of actions that will put the invested capital to the best possible use⁶⁵. The investor derives utility from monetary returns, while the entrepreneur derives utility from both private benefits and monetary benefits (e.g. Aghion and Bolton, 1992). Therefore, a risk exists that the entrepreneur will pursue his own interests rather than the investor's. The entrepreneur's effort is assumed to be unobservable by the investor, as are the qualities of the entrepreneur, pre investment. In other words, the relationship between the entrepreneur and the investor is seen as a case of asymmetric information.

However, as implied in section 1.2 "description of the problem area", there are significant structural differences between business angels and venture capitalists with respect to their investor bases. Business angels invest their own money, whereas venture capitalists raise

⁶³ In Mirrlees (1999) it is suggested that the moral hazard problem can be almost fully eliminated at extremely harsh punishments for bad outcomes, because when the agent takes the optimal action the bad outcomes are very unlikely (see also Dixit and Besley, 1997).

⁶⁴ This study uses, in this section, the word investor when theoretical assumptions relate to both business angels and venture capitalists.

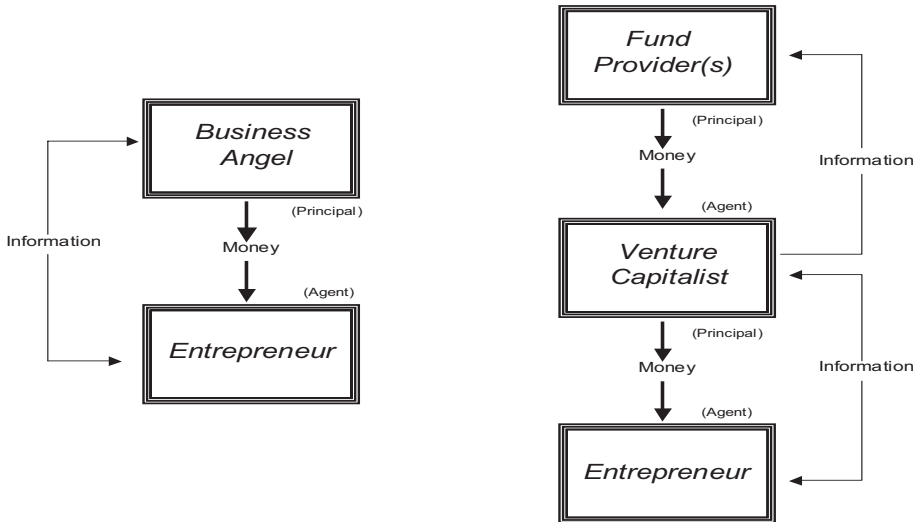
⁶⁵ In this chapter the words entrepreneur and management are, in most of the text, used as synonyms. However, the study acknowledges the fact that an agency relationship, in most cases, involves an investor and a management team (or several entrepreneurs as there is seldom only one person behind a business proposal). This is very common in theoretical discussions in the research on venture capital and angel investing.

finance from outside and this finance is provided on a competitive basis (Van Osnabrugge, 1998a; Van Osnabrugge and Robinson, 2000). In contrast to business angels who are only accountable to themselves, venture capitalists must satisfy their outside providers and have their best interests in mind. This means that venture capitalists have a dual role, being both principals monitoring their investments and agents with a responsibility to maximize the returns of the fund providers. Figure 2, on the following page, illustrates the agency relationships in angel and venture capital investing.

Venture capitalists invest their human capital by placing their reputation at stake and will not attract further funding if they do not perform satisfactorily (Wright and Robbie, 1998). As in the relationship between venture capitalists and entrepreneurs, there is asymmetric information between venture capitalists and their outside backers. Venture capitalists' need to alleviate this asymmetric information has implications for the venture capitalists' investment procedures. Since the focus in this study is on the relationship between business angels and entrepreneurs, this is only discussed in brief.

Venture capitalists aim at signaling the quality of their firm by agreeing on the inclusion of covenants prohibiting them from taking certain actions, establishing a good reputation, presenting impressive qualifications and demonstrating that the most responsible procedures are being utilized when choosing investments for the venture capital fund (see e.g. Sahlman, 1990; Van Osnabrugge, 1998a; Van Osnabrugge and Robinson, 2001, Gompers and Lerner, 2001). Covenants in the investment agreement commonly restrict the type of investment and the amount that may be invested in any given venture (Gompers and Lerner, 2000; Triantis, 2001). This partly explains venture capitalists shift towards mature later stage investments, which has the unfortunate consequence of limiting their involvement in seed and startup ventures (see e.g. Murray, 1999). While many mature venture capital firms have a good reputation from previous successful investments, Gompers (1996) found that young firms in the US had a tendency to bring companies public earlier in an effort to build up a reputation (referred to as "grandstanding"). Van Osnabrugge and Robinson (2001) note that even if a venture capitalist has a good reputation, easing off on the rules and procedures which initially gave it a strong reputation is unwise. Failures to produce returns on the invested capital may ruin a venture capitalist's reputation and make it difficult to qualify for further investments. Van Osnabrugge (1998a) and Arthurs and Busenitz (2003) point out that venture capitalists emphasize risk management pre investment. By producing rigorous documentation in the phase of due diligence, venture capitalists can show their providers of funding the rationale for selecting a particular investment. Business angels investing on their own account do not have to emphasize as strongly as venture capitalists the reduction of risk pre-investment (Van Osnabrugge 1998a).

Furthermore venture capitalists need to keep their outside providers of funding informed regarding the performance of their investment portfolios. Venture capitalists use about four to six pieces of information to fulfill the information obligations and reporting requirements: annual reports, semi-annual reports, quarterly reports, semi-annual portfolio evaluations and an annual presentation/ visit (Van Osnabrugge, 1998a).



Source Van Osnabrugge (1998a)

Figure 2 A comparison of business angel and venture capitalist agency relationships

The following subsections address the agency relationship between entrepreneurs and venture capitalists as well as entrepreneurs and the business angels. Both the adverse selection and the moral hazard problem are of great concern to venture capitalists and business angels.

2.2.3.1 Adverse selection

In the presence of asymmetric information, an entrepreneur can claim to possess certain abilities and an investor is unable to judge whether this is the case (misrepresentation) (Van Osnabrugge, 1998a). The entrepreneur is more aware of their own qualities and the qualities of the business opportunity than the investor. For example, the entrepreneur may claim to have greater knowledge of a particular technology than is the case in reality (Arthurs and Busenitz, 2003). The adverse selection problem is most severe when the investor is not familiar with the field he is investing in. The high financial returns of the investee company are an indicator of a skilled entrepreneur (Amit et al., 1990a,b). However, to obtain funding the entrepreneur may manipulate the information provided to the investor (Cable and Shane, 1997).

Thus investors have to engage in risk reducing activities, to mitigate this uncertainty deriving from asymmetric information. To reduce this information gap, investors conduct due diligence pre investment. The adverse selection problem is pronounced, as the newly established ventures do not have the same information obligations as publicly listed companies. Hence, information flows inefficiently from an entrepreneur to potential and current investors. In addition, the degree of anonymity of the informal venture capital market is in conflict with the need to maintain high quality deal flow (Sohl, 2003). The business angel networks have been established for the purpose of reducing this

information gap, serving the market by matching business angels' investment preferences with investment opportunities from entrepreneurs in need of funding.

The pecking order theory developed by Myers and Majluf (1984) suggests that entrepreneurs prefer internal to external financing and debt to external equity. This is, especially, the case in the face of asymmetric information. An investor may be unable to determine an entrepreneur's ability to develop a successful venture (Amit et al., 1990a,b; Landström and Winborg, 1995). The entrepreneur will know more about the project than the investors, resulting in a possible expectation gap due to the difference in available information (see Chua and Woodward, 1993). The valuation of the venture, that determines the price of the investment and the percentage of ownership the entrepreneur has to relinquish in exchange for the capital invested, is sensitive to asymmetric information. Commonly both the entrepreneur and the investor calculate a value for a company. A divergence in the valuation of the entrepreneur and the investor(s) is affected by the presence of asymmetric information. The investor might be unable to determine whether the entrepreneur is being overly optimistic in projecting the future. The unrealistic expectations may stem from a lack of competence by the entrepreneur (Lumme et al., 1998). If the entrepreneur's superior expectations build on his information advantage vis-à-vis the investor, rather than on his over-optimism, then external equity will be a costly solution⁶⁶. Since several studies have highlighted that in the presence of asymmetric information venture capitalists will not be able to attract the most talented entrepreneurs (e.g. Sahlman, 1990; Amit et al., 1990a,b and Norton, 1995), this, especially, appears to be a problem in the (formal) venture capital context.

The degree of asymmetric information can be the consequence of i) presentational shortcomings and/ or ii) unwillingness on the part of entrepreneurs to reveal trade secrets to potential investors. If there are serious deficiencies in the written (e.g. business plan) and oral presentation, this will diminish the attractiveness of the investment proposal (see e.g. Feeney et al., 1998; Mason and Harrison, 2001). One reason investors choose not to invest is that they feel they are unable to access sufficient information about the investment proposal (Lumme et al., 1998). This information gap may often result from a poorly written business plan.

The information costs in (formal) venture capital are high, because the entrepreneur has to reveal more information about the business than in raising capital from other sources of funding (Harrison and Mason, 1991). Entrepreneurs generally perceive funding from business angels to be less expensive than funding from venture capitalists (Freear et al., 1995). The fact that business angels invest on their own account allows them to take more risks than venture capitalists are able to, as they are able to base their judgments and decision making on intuition when information gaps prevail and cannot be filled. It is assumed that the investment behavior of business angels is less sensitive to information asymmetries.

⁶⁶ This is in line with the pecking order theory, suggesting that in the presence of asymmetric information alternative sources for capital will be preferred to external equity.

An entrepreneur may be unwilling to give up the technical details of a product the investor requires in order to evaluate the success potential of an investment opportunity and make a sound investment decision (see e.g. Cable and Shane, 1997). Even though an entrepreneur is commonly protected, as the investor is expected to sign a non-disclosure agreement (confidentiality agreement) when initiating a due diligence effort (see e.g. Blomquist et al., 1997; Camp, 2002), he might refrain from revealing trade secrets to investors. Trade secrets are often the most valuable assets in early stage companies (Camp, 2002). Venture capitalists have been known to refuse to sign the standard non-disclosure agreement, which is why entrepreneurs fear that they will exploit a business opportunity, for example by distributing the business plans to companies in their investment portfolio (Cable and Shane, 1997). A shortage of information relating to a business opportunity has severe effects on the valuation of a company, and hence the price of external equity.

Recent research has revealed that, in the presence of a high degree of asymmetric information, external equity is sometimes a more suitable alternative than debt (see e.g. Hyytinen and Pajarinen, 2003a; Berger and Udell, 2002; Cressey, 2002). These studies suggest that the pecking order theory is partially reversed. This is because banks are commonly reluctant to invest when companies are short of assets in place that can be pledged as collateral for a loan. Furthermore, as banks hold large portfolios of investments, they lack the time to involve themselves sufficiently to reduce risk (Hyytinen and Pajarinen, 2003a). Consequently, entrepreneur(s) may be strongly reluctant to convey information to bankers, as their involvement is often only of interim nature.

2.2.3.2 Moral hazard

When applying agency theory, in the domain of venture capital and business angels, the investor is assumed to be risk neutral, whereas the entrepreneur is assumed to be risk averse. Thus, one of the incentives for an entrepreneur to approach the investor is to share risk. In line with the positivist stream of agency theory investors have often diversified risk. An entrepreneur, on the other hand, has commonly invested a large fraction of his net worth and time in his venture and the salary from his company is often the only source of income during the holding period.

However, the assumption of risk neutrality for investors has strong limitations. As noted earlier, venture capitalists are under pressure to provide sufficient returns to their outside investors. This restricts their willingness to expose themselves to risk. Regardless of the fact that a pool of capital is injected into portfolios of investments venture capitalists can hardly be seen as neutral to the level of risk involved. Their recent orientation towards less risky later stage investments reinforces this statement. Moreover, even though business angels are accountable to themselves, their ability to diversify risk is limited to the net worth they possess. In reality, the agency relationship seems to be more of a case of two risk averse parties.

The ownership of a small, non-listed firm is concentrated in the hands of a few actors. The entrepreneur(s) constitute the insiders and the investor(s) the outsiders. In angel investments the insider-outsider dimension may disappear if a business angel takes an active role in the day-to-day operations. In the early stages of a firm the relationship is often a simple single principal-single agent. The separation of ownership and control is more of an issue in publicly listed firms, than in small and middle growth enterprises, where the entrepreneurs own a substantial portion of the company (and consequently bear a substantial share of the wealth effects of their decisions (e.g. Fama and Jensen, 1983a)). As the investee company grows, instead of a single entrepreneur, a management team (and the CEO) becomes the agent. However, the investors often realize their investment before the investee company reaches maturity, why the organization structure during the holding period of the investment often remains a simple entrepreneurial one. This is, however, more the case in business angel than venture capital investments, due to business angels' stronger preference for funding ventures in their initial stages of development.

Investors typically operate in uncertain environments where outcomes are uncertain and may not only be affected by the entrepreneur's (agent's) effort (Sapienza and Gupta, 1994 and Van Osnabrugge, 1998a). The small, technology based companies, these investors actively invest in involve a lot of uncertainty.

The contracts of investors are long term, even if venture capital contracts are commonly renegotiated when the infused capital is invested in stages. Business angels, in contrast to venture capitalists rarely rely on the staging of the invested capital (e.g. Lumme et al., 1998; Wong, 2002), instead they inject funding as a lump sum. Consequently, the renegotiation of contractual terms is more seldom required in angel investments. The severity of the agency problem in a relationship varies from case to case⁶⁷. In the relationship between an investor and an entrepreneur, the moral hazard problem arises, because the parties' utility functions differ. Since both an investor and an entrepreneur derive utility from monetary benefits their goals seldom fully diverge. After an investment is made, an investor gradually gains more information about an entrepreneur and the operations of the investee company. Thus, asymmetric information decreases with the maturity of an investment.

Furthermore, as an entrepreneur is commonly highly wealth constrained, tying the outcome to the performance of an investee company might have adverse effects on his livelihood. When this is the case, the entrepreneur's degree of risk aversion is high and he might shy away from taking action involving substantial risk. As the investments commonly involve high outcome uncertainty, long-term contracts and relationships, as well as wealth constrained entrepreneur(s), much emphasis is placed on behavior based contracting through monitoring activities⁶⁸. Investors monitor their investee companies via a company's board of directors (formal monitoring/ passive monitoring) and through

⁶⁷ See e.g. Virtanen (1996)

⁶⁸ Stock options are seldom used in small and middle growth enterprises, because such incentive schemes involve considerable costs for the company (Pendleton et al., 2002). Since less exogenous factors influence the value of a non-listed company, the stock option schemes would, however, be more suitable for these than for publicly listed companies (European Commission, 2003).

frequent interaction with an entrepreneur and management (active monitoring). Business angels are generally more involved in frequent interaction with an entrepreneur than venture capitalists, whereas venture capitalists have a greater representation on boards of directors than business angels (who do not always take a seat on the board) (e.g. Van Osnabrugge, 1998a).

2.3 The incomplete contracting theory

One important factor missing from the principal-agent view is the recognition that writing a (good) contract is in itself costly (Hart, 1995b). This thinking derives from the transaction cost theory of Coase (1937) that was further developed by Williamson (1975; 1985) by focusing on asset specificity, which has perhaps become the central concept in the present day economics of organization (Foss, 1998)⁶⁹. Although the optimal contract in a standard principal-agent model, in the presence of asymmetric information, will not be first best, it is comprehensive in the sense that it aims at defining, to the fullest extent possible, the obligations of all parties in all future states of the world (Hart, 1995a,b).

It is worth noting that agency theory itself already considers some contracting costs. In agency theory all the contracting costs of a principal are ascribed to the cost of observing variables (Hart, 1995b). There are, however, two ingredients not considered in agency theory that give rise to contractual incompleteness: namely transaction costs and bounded rationality. The transactions cost approach argues that the cost of contracting on an unlikely contingency may well outweigh the benefits (Spier, 1992). The bounded rationality approach argues that agents either have a limited ability to evaluate elaborate contingencies or cannot foresee unlikely contingencies (Spier, 1992; Hart, 1995b; Van Osnabrugge, 1998a). Spier (1992) identifies a third reason for contractual incompleteness, namely asymmetric information.

In the mid-80s a new area emerged that goes under the heading “the incomplete contracting theory” (or the new property rights theory). It has provided new insights into areas such as the meaning of ownership and the nature and financial structure of firms (Hart and Moore, 1999)⁷⁰. In the incomplete contracting theory ownership is the area of interest. The “boundaries of the firm” is defined in terms of ownership over assets⁷¹. The theory founded by Grossman and Hart (1986)⁷², and elaborated by Hart and Moore (1990) and Hart (1995b), focuses on two types of rights: specific rights and residual

⁶⁹ Assets are highly specific when they have value within the context of a particular transaction but have relatively little value outside the transaction (Foss, 1997).

⁷⁰ Tirole (1999) notes that the recent upsurge of incomplete contract models has been partially motivated by a perception that the principal-agent model and its variants predict contracts, that are “too powerful” in that they underestimate the difficulties involved in real world contracting, and on the other hand lack realism.

⁷¹ The firm is a bundle of assets under common ownership. This stands in contrast to the “nexus of contracts” view in agency theory (Foss, 1997).

⁷² The initial motivation of Grossman and Hart (1986) appears to have been to cast the essential insights of Williamson (1985) in more mainstream terms, and the incomplete contracting theory is often seen as a formalization of the transaction cost economics of Coase and Williamson (Salanié, 2000; Foss and Foss, 2000).

rights of control. The approach investigates the sales agreement (contract) between two firms: a supplier and a manufacturer.

When it is too costly for one party to specify a long list of rights it desires over another party's assets, in a contract, it may be optimal for that party to purchase all the rights, except for those specifically mentioned in the contract (Grossman and Hart, 1986)⁷³. In other words, the possession of residual rights of control necessitates ownership of a firm's assets (Foss, 1997). According to the incomplete contracting theory, it is optimal to assign asset ownership to those with the most important relationship specific investments, or who have indispensable human capital (Hart and Holmström, 2002).

In the incomplete contracting theory there are no monitoring costs, while the costs of writing a contract are infinitely large (Foss and Foss, 2000)⁷⁴. The contracts are, however, not totally incomplete. The incomplete contracting theory provides an extension of the principal agent model, in which the optimal contract is partially incomplete (Hart and More, 1999)⁷⁵. In the standard incomplete contracting model contracts can be completed ex post through renegotiation (Hart and Holmström, 2002). The theory has been criticized for lacking a coherent model (Maskin and Tirole, 1999b) and a clear definition of what an incomplete contract is (Tirole, 1999; Schmitz, 2002).

2.3.1 Transaction costs

In agency theory transaction costs are not included in the analysis, since they are not assumed to impact the allocation, being negligible. The incomplete contracting theory inherits the thinking of Coase (1937) and Williamson (1975, 1985), that there are transaction costs affecting the contractual outcome. Tirole (1999) categorizes the transaction costs in the incomplete contracting theory into three major ingredients: unforeseen contingencies, the costs of writing a contract and the costs of enforcing a contract⁷⁶.

i) Ex ante contracting costs (cost of writing contracts): The ex ante transaction costs comprise the costs of drafting, negotiating and safeguarding an agreement. When the contract is drafted numerous contingencies are identified by the parties and agreed upon in advance (Williamson, 1985). The number of contingencies might be considerable, which is why it would be too costly to describe them, even if one could foresee them (Tirole, 1999).

ii) Ex post contracting costs (cost of enforcing contracts): Courts must understand the terms of the contracts, because they have to be able to verify the contracted contingencies

⁷³ In Grossman and Hart (1986) the outcome of a complete contract is achievable through integration (a single firm owning the assets of both firms).

⁷⁴ This implies that the principal-agent approach and the incomplete contracting approach are extreme mirror images with respect to the transaction costs they consider (see Foss and Foss, 2000).

⁷⁵ The degree of partial incompleteness depends on the parties' ability to describe the nature of the trade (Hart and Moore, 1990).

⁷⁶ The following section "bounded rationality" will focus on contracting and unforeseen contingencies.

and actions in order to enforce the contract (Tirole, 1999). The phrase that a variable is observable but nonverifiable is used in the case of incomplete contracts to both mean that the variable is observed by all contracting parties and not by a court (and therefore is not verifiable), and also that there exists no elicitation mechanisms that might make it de facto verified by a court (Tirole, 1999). A lack of understanding by a court makes legal enforcement, in the case of a contractual breach, a costly solution. Ex post contractual costs also arise when contractual terms need to be renegotiated to reflect the altered conditions.

2.3.2 Bounded rationality

In models of full rationality, all relevant information is assumed to be available to the rational economic actor (*homo economicus*) (Todd and Gigerenzer, 2003), who has a well defined utility function that he optimizes (Minkes and Foxall, 2003). In standard optimizing theory the agents are assumed to perform exhaustive searches of all possible decisions and pick the best (Conlisk, 1996a).

The full rationality assumption lacks realism, since there are bounds on individuals' capabilities for information processing and decision making. When introducing the concept of bounded rationality, Herbert Simon's purpose was to acknowledge the fact that human beings have limits on their intelligence (Cyert, 1979)⁷⁷. Bounded rationality refers to people's limited ability to make comparisons, to see into the future, and more generally, to process information (Cyert, 1979). Two central concepts in Simon's theory of bounded rationality are search and satisficing (see e.g. Simon, 1979). When the agent discovers an alternative that is meeting his level of aspiration (i.e. the alternative is satisficing), the agent will terminate the search and choose that alternative (Simon, 1979). In another words, satisficing relates to suboptimizing (Conlisk, 1996a)⁷⁸.

The transaction cost theory makes a distinction between three forms of rationality: strong, semi-strong and weak. Bounded rationality is the semi-strong form of rationality, in which the economic actors are assumed to be "intendedly rational" (Williamson, 1975, 1985). This implies that even if the actors are goal oriented and adaptive, they sometimes fail in important decisions (Jones, 1999). Bounded rationality should, however, by no means be mistaken for irrationality among economic agents (Forest and Mehier, 2001), since individuals operate as effectively as they can (Prescott, 1978).

MacLeod (1996) makes a distinction between "small" and "large world assumptions". He notes that in a small world the decision maker understands all the consequences of his action and is able to assign a probability to each state of nature, whereas in a large world it is not possible for individuals to think about all the events that are relevant to a

⁷⁷ Human actors are omniscient; their knowledge, however, extensive as it may be, is always limited (Snehota, 1990).

⁷⁸ A decision maker who finds optimizing impossible or unduly costly may instead solve a simple approximation problem (Conlisk, 1996a). A classic optimal decision procedure, which makes optimal decisions in an approximated world can be regarded as a particular kind of satisficing program, in which "satisfactorily" is defined by the approximation procedure that is used (Gifford, 2005).

decision. The notion of environmental complexity is often regarded as being related to the rate of change or turbulence of the environment and its uncertainty and ambiguity (MacLeod, 1996). The decision maker facing a complex environment engages in e.g.: gradient adjustment⁷⁹, imitation⁸⁰, experimentation⁸¹ (Basov, 2003), routines, habit, thoughtless impulse, hunch (Pingle and Day, 1996), rules of thumb⁸² (Conlisk, 1996b), and analytic approaches (Selten, 1998)⁸³.

Since the assumption of unforeseen contingencies is an essential ingredient in the incomplete contracting theory, it relaxes the assumption of parties being fully rational (Hart, 1995b). In a complex and highly unpredictable world, people are unable to think very far ahead and plan for all the contingencies that may arise in the future (Hart, 1995b). A great deal of incompleteness undoubtedly arises from the parties' inability to search over all possible choices (e.g. Macleod, 1996), and consider the consequences of their actions. Foss (1994) notes, that the future holds genuine surprises, and thus limits the available contracting options. In simple transactions uncertainty may be relatively unimportant⁸⁴, whereas for more complex transactions the contract will typically be incomplete, providing remedies for only some possible future contingencies (Klein 1999).

Maskin and Tirole (1999a) and Tirløe (1999) state that unforeseen contingencies are the most commonly invoked motivation for incomplete contracts. Dekel et al. (1998) point out that, unforeseen contingencies cannot be considered to be events that an agent has considered but assigned as having zero probability, or as events a party could conceive but doesn't think of at the time he makes his choice. Hart (2001) indicates that norms matter when parties are boundedly rational, since a norm of fairness can help to fill in the contractual gap in an appropriate manner.

In agency theory there have been attempts to capture bounded rationality in a model of optimal incentives (see Hart and Holmström, 1987 and Basov, 2003), and in game theory bounded rationality has been applied to model decision making (Osborne and Rubinstein, 1998). Many scholars prefer to use the term asymmetric information to replace the concept of bounded rationality, as they perceive it to be more precise and it often does the same job for them (Foss, 2001 and Foss, 2003).

⁷⁹ Gradient adjustment: Individuals adjust their behavior on the basis of current experiences.

⁸⁰ Imitation involves an attempt to copy or mimic the actions of another decision maker (Pingle and Day, 1996).

⁸¹ Experimentation: Experimentation is commonly referred to as trial and error (see e.g. Osborne and Rubinstein, 1998).

⁸² Rules of thumb lead to habitual behavior which reduces economic fluctuation (Conlisk, 1996b).

⁸³ Experiences are interpreted in the light of qualitative beliefs and behavior is adjusted accordingly, without any attempts at forward looking optimization (Selten, 1998).

⁸⁴ Maskin and Tirole (1999a) advocate that the parties are constrained in contracting only by the fact that complicated states of nature cannot be verified.

2.3.3 *Asymmetric information*

Spier (1992) shows that in the presence of both transaction costs and asymmetric information incompleteness may act as a signal of an individual's type. This is because an individual may refrain from including a particular clause in a contract in order to signal his type. Studies have revealed that a contract does not reflect all the information available, when the benefits from leaving gaps in the contract outweigh the costs (Spier, 1992; Allen and Gale, 1992). Sometimes the proposal to include a certain kind of contingency might be interpreted by one party as a bad signal about the other (Allen and Gale, 1992). Spier (1992) uses the example of an athlete's agent that may advise an athlete to refrain from asking for an injury clause, because the team manager would infer from such a request that the athlete is more accident prone and would make the terms of the contract worse. This is a means to differentiate oneself vis-à-vis individuals with inferior qualities. In applying this logic it can be said that contracts are less incomplete when there is information asymmetry between the parties than they would be when both parties had full information.

Also Ayres and Gertner (1989; 1992), Aghion and Hermalin (1990) and Hviid (1996) show that contracts are incomplete in the case of asymmetric information. They analyze the effect of default rules when contracts are incomplete. In legal theory, a default rule is a rule of law that can be superseded by a contract or other legally effective agreement⁸⁵. Default rules fill the gaps in incomplete contracts, i.e. they govern unless the parties contract around them (Ayres and Gertner, 1989). The main point of these papers is that default rules can be used as instruments for contracting parties to reveal information. In order to increase his private gains from contracting (his "share of the pie"), one party might strategically withhold information that would increase the total gains from contracting (the "size of the pie") (Ayres and Gertner, 1992)⁸⁶. Ayres and Gertner (1989, 1992) suggest that by trying to contract around default rules parties can reveal information.

Bernheim and Whinston (1998) stress that, if some aspects of performance are non-contractible it is optimal to leave other aspects of performance unspecified. They use the term "strategic ambiguity" to describe the incompleteness that arises from this consideration. The completeness level of contracts can be difficult to evaluate (Saussier, 2000). Saussier (2000) points out that incompleteness is often the result of contracting parties' willingness to minimize costs. He uses the wording "more complete" contract when referring to a contract that tends to specify every dimension of the transaction, but does not necessarily use the relevant information.

⁸⁵ Retrieved from http://www.wordiq.com/definition/Default_rule 09.01.2008

⁸⁶ Rasmusen (2001) argues that the explanations of contractual incompleteness that arise as a consequence of asymmetric information are far superior to bounded rationality and transaction costs.

2.3.4 *Ex post allocation of control*

The Grossman and Hart (1986), Hart and Moore (1990) and Hart (1995b) models show that ex post allocation of control matters⁸⁷. The three basic models lay the foundation of the incomplete contracting theory. They investigate the contract between a supplier and a manufacturer under different degrees of integration. The model by Hart and Moore (1990) and Hart (1995b) is an extension of Grossman and Hart (1986). Hart and Moore (1990) and Hart (1995b) include the impact of human assets.

Hart (1995b) points out that the ownership of non-human assets matters⁸⁸ because ownership is a source of power when contracts are incomplete (due to transaction costs and unforeseen contingencies (bounded rationality))⁸⁹. When the contract does not specify all the aspects of asset usage in every contingency, it is the owner of the assets that gets to decide how the assets are used. The question then is: who should own the assets?

The central elements of the model are the asset specific investments that the parties in the relationship make (in line with the transaction cost theory of Williamson). Asset specific (=relationship specific)⁹⁰ investments are a priori investments, which create value if the parties' economic relationship extends over time, but do not if the parties split up (Hart, 1995b)⁹¹. In the incomplete contracting theory the hold-up problem arises when one of the parties will not make the required investment. In the case of two separate parties (non-integration) each party has the right to decide whether it will make the investment or not. This is especially the case if the surplus is not fairly distributed between the two parties as an incentive to hold-up (shirk) may arise.

When one of the parties owns the other (integration), the incentive for the acquiring party to make the asset specific investment increases because the acquiring party will obtain the lion's share of the ex post surplus. Therefore, as Tirole (1999) stresses, the party whose investments are "more important" (in the sense of their marginal impacts on the default payoff) should be the owner in the integrated relationship. The acquiring party can, nevertheless, not gain control (ownership) of the human capital (assets) of the other party, which means that human capital (assets) can be made non non-available (see Hart and Moore, 1990 and Hart, 1995b)⁹².

The incomplete contracting models result in solutions in which non-integrated relationships cause relationships to yield outcomes that are inferior to those that would be

⁸⁷ See also Mahnke (1997) and Schmitz (2002).

⁸⁸ The theory argues, in contrast to agency theory, that it is the control of residual rights (assets) and not the control of income rights that is of importance.

⁸⁹ In the basic model by Hart and his colleagues the parties are assumed to have full (symmetric) information.

⁹⁰ Since the incomplete contracting theory rests only on the ownership of assets, the relationship specific investments (investments in the relationship) conducted are referred to as asset specific investments.

⁹¹ For example, a supplier can invest in developing spare parts that can only be used by a single manufacturer. Thus, when the relation splits up, the value of the investment is sacrificed.

⁹² Employees of the acquired firm cannot be forced to work.

achieved with complete contracts. It is assumed that integration yields the outcome that would arise under complete contracts (Grossman and Hart, 1986).

2.3.5 The relationship between the venture capitalist and the entrepreneur in the incomplete contracting theory

Aghion and Bolton (1992) extended the model created by Grossman and Hart (1986) and Hart and More (1990) to explain the ex post allocation of control under different financial structures. The focus here is upon the relationship between an entrepreneur (the agent) and a venture capitalist (the principal). In contrast to the model produced by Hart and his colleagues, Aghion and Bolton introduce a wealth constraint on the part of the agent. In addition, there are no relationship specific investments (as in the model of Hart and his colleagues).

In Aghion and Bolton (1992) the entrepreneur derives utility from both i) private benefits, e.g. an entrepreneur's desire to keep a family owned business going, even though it is not very profitable, and perk consumption⁹³, and ii) monetary benefits, whereas a venture capitalist's utility is a function of the monetary benefits he receives. Since conflicts of interest can arise due to an entrepreneur's desire for private benefits, control must be shared between the venture capitalist and the entrepreneur.

When making an investment, the control rights a venture capitalist acquires depend upon the investment instrument utilized. The control rights are voting power (voting rights) and the percentage of seats on the board of directors (board rights).

In a case where funds are raised by issuing;

- i) voting equity (common stock): the entrepreneur will have to share control with the venture capitalist,
- ii) non-voting equity (preferred stock): the entrepreneur will gain full control (in most cases an unacceptable arrangement for a venture capitalist)
- iii) debt: the entrepreneur maintains control as long as he can fulfill his debt obligations (see Aghion and Bolton, 1992)

In Aghion and Bolton (1992) contingent control or unilateral control dominates joint control, because under joint control the hold-up problem may arise. The hold-up problem, in the venture capital context, arises when one of the parties threatens to back out, leaving a project at a standstill.

The allocation of control is dependent upon the external financial capacity of the investee company. When the financial capacity improves, more control is transferred to the entrepreneur, whereas when there is a financial constraint, the entrepreneur has to give up control to the venture capitalist. Then, the allocation of control is much like a debt arrangement, with an allocation of control contingent on the signal of the state of the nature. Short term financial performance is commonly used as a signal of the state of the

⁹³ See section 2.2.2 "Moral hazard"

nature (e.g. Aghion and Bolton, 1992; Kaplan and Strömberg, 2003a and Vauhkonen, 2003).

In other words, in Aghion and Bolton (1992) the realization of the signal determines how control is allocated between an entrepreneur and a venture capitalist. The underlying assumption in the model is that the venture capitalist holds a security with a senior claim, such as ordinary debt⁹⁴. The control is allocated in the following manner. When the performance of the investee company is low, the venture capitalist will gain control of the investee company, in the case of default, by virtue of the seniority of his claim. The venture capitalist can force the investee company into liquidation or provide additional funds in exchange for voting and board rights (control rights). Conversely, when the performance is good the entrepreneur will gain more control, since he will be able to repay the debt obligation. Venture capitalists can, through utilizing securities of multiple classes or securities triggering an automatic conversion, affect the allocation of control in accordance with their desires.

The convertible security (convertible debt and convertible preferred stock) is the most used investment instrument among venture capitalists (see e.g. Tyebjee and Bruno, 1984; Sahlman, 1990; Norton, 1995; Kaplan and Strömberg, 2003a). The conversion of debt and preferred equity to common equity can be triggered by a superior performance, providing the entrepreneur with the right to purchase the control of the investee company (see e.g. Black and Gilson, 1998). If the investee company's performance reaches a pre-specified level, the investor gains only those rights associated with their ownership of common stock, whilst a poor performance will transfer control to the investor(s) (Kaplan and Strömberg, 2003a). With a poor performance the financial constraint becomes binding and the entrepreneur has to give up control to the investor in exchange for additional funding, or alternatively the venture capitalist(s) holding a senior claim can force the investee company into liquidation. This implies that the venture capitalist obtains the residual rights, which assigns them ownership of the assets.

Vauhkonen (2003) constitutes an extension of Aghion and Bolton (1992). Instead of the two control-signal framework of control or non-control of the investor in Aghion and Bolton (1992), Vauhkonen (2003) applies a three control-signal framework, in which joint ownership is feasible⁹⁵. Vauhkonen (2003) introduces stochastic control in his model, meaning that in case of a dispute between the contracting parties, each party gains control with a probability of 50 percent. In situations of disagreement or conflict between two contracting parties with joint ownership, the party in control can be chosen by e.g. tossing a coin. Also the empirical findings in Kaplan and Strömberg (2003a) deviate from Aghion and Bolton (1992) in demonstrating that joint control is feasible. The findings in Kaplan and Strömberg (2003a) provide support for the incomplete contracting theory in explaining the allocation of control in the relationship between a venture capitalist and an entrepreneur. They suggest that the assumption of contingent control is valid in the venture capital framework.

⁹⁴ Also preferred equity holds a senior claim to the common equity of the entrepreneur(s).

⁹⁵ In the models of Grossman and Hart (1986), Hart and Moore (1990), Hart (1995b) and Hart and Holmström (2002) joint ownership (control), as described above, provides a non-optimal outcome.

The incomplete contracting model developed by Dewatripont and Tirole (1994) is similar to the model of Aghion and Bolton (1992), in that it recognizes that the allocation of control is contingent on the performance of the firm. It considers the relationship between the management and multiple outside investors owning diverse securities and highlights the importance of selecting a suitable capital structure when the actions of managers (agents) are non-contractible. In line with Aghion and Bolton (1992), Dewatripont and Tirole (1994) show that debt holders (investors holding securities with a senior claim) are likely to take over in times of difficult.

Both the incomplete models of Hart and his colleagues and Aghion and Bolton (1992) highlight the importance of gaining control of the underlying fixed tangible assets. In Grossman and Hart (1986), Hart and Moore (1990) and Hart (1995b) control of the assets can be gained through integration (acquiring all the residual rights), whereas Aghion and Bolton (1992) provide a framework where the control of assets is contingent on financial performance.

The two theoretical lenses, agency theory and the incomplete contracting theory, are applied in the following section for deriving research hypotheses. In deriving the research hypotheses the two theories are adjusted to suit the arena of business angels.

2.4 Hypotheses derived from the theoretical framework

The first part of this section focuses on the adverse selection problem. In the first part hypothesized notions are derived from the underlying theory and previous research in the domain of venture capital and business angels. They build on the agency theoretical assumption that a higher degree of uncertainty is associated with a greater need to perform comprehensive due diligence up front.

In the second part, the focus switches from adverse selection to moral hazard and the theory of incomplete contracts. Hypothesized relationships are built, from the underlying theory and previous research, to explore how the level of ownership, the fixed tangible assets, level of indebtedness and covenants mitigating the hold-up problem influence the degree of control through active involvement. The hypothesized relationships, in the first and the second part, aim at answering the research questions derived in the introductory chapter.

2.4.1 Part 1: An examination of the relevance of agency theory in explaining the due diligence procedures of business angels

The inability of an investor to determine the quality of an entrepreneur and a business opportunity when making an investment is due to asymmetric information. In the presence of asymmetric information, the entrepreneur has an information advantage vis-à-vis the investor. This means that the entrepreneur is more aware of his qualities and the qualities of the business opportunity than the investor. Thus, investors have to engage in risk reducing activities to mitigate the uncertainty stemming from asymmetric information. To reduce this information gap investors conduct due diligence pre

investment. As been stated in the introductory chapter, the due diligence constitutes an assessment of the external environment (the market), the internal environment (the firm) and the entrepreneur and management.

Previous research that has enhanced our understanding of the due diligence of venture capitalists and business angels has utilized measures such as the number of hours spent on due diligence (Wiltbank, 2005), the amount of industry sector research conducted up front (Van Osnabrugge, 1998a), the duration of the due diligence process (e.g. Freear and Sohl, 1995; Mason and Harrison, 1996a and Sohl, 2003), the costs of due diligence (Van Osnabrugge, 1998a) and the percentage of time in the investment process consumed by the analysis of the investment proposal (Ardichvili et al., 2000). Instead of focusing on the entire due diligence process and using such proxy measures, this study aims at estimating the comprehensiveness of due diligence by assessing three ingredients in the due diligence process:

- i) the information sources used for due diligence
- ii) the valuation methods used for due diligence
- iii) the valuation of the human capital of an entrepreneur and management

The information gathered, *ex ante*, aims to reduce the information gap between an investor and an entrepreneur, resulting in sound decision making. Having more information to build on tends to increase the reliability of an investor's valuation of the investment opportunity. As the investor's valuation determines the price he has to pay for shares in the entrepreneurial venture examining the valuation methods used for due diligence gives an indication of how a price is established and what factors determine the usage of different valuation methods. Although previous studies have highlighted that the most important criteria when making an investment decision relate to the quality of an entrepreneur and management team (e.g. Mason and Harrison, 1996a and Lumme et al., 1998; Ardichvili et al., 2000), only Smart (1999) appears to have investigated how much time is actually spent on the assessment of these qualities. Building on Smart (1999), this study measures the time spent on the valuation of the human capital of an entrepreneur and management.

The purpose of the first part is to shed some light on the question: are riskier opportunities driving an increase in the due diligence effort? For the agency theoretical assumption to hold, higher uncertainty should be associated with a stronger effort with regard to due diligence. Therefore, it is assumed that a higher degree of uncertainty results in an increase in the use of sources for information and valuation methods, as well as in the time allocated to the valuation of an entrepreneur's (management's) human capital⁹⁶. The question then is how should we assess the degree of uncertainty in an investment?

First, the degree of uncertainty is related to the stage of development of the venture. The degree of uncertainty decreases with the maturity of the venture. The level of uncertainty

⁹⁶ This study, however, acknowledges that comprehensiveness in due diligence is not synonymous with effort consumed in due diligence. For a critique of the study see section 5.5.

is greatest in the nascent stages of development (seed, startup and early stage), when the company is not yet revenue generating and lacks tangibles to secure the investment as well as a track record. In the seed stage the business angel is sometimes only investing in an entrepreneur with a good business idea and business plan. Later stage investments are safer and have a stronger liquidity⁹⁷. These companies can even sometimes show profits from their operations.

Second, a source of uncertainty is commonly the level of innovativeness. A high level of uncertainty derives from the fact that i) an idea is technically advanced and cannot easily be communicated to investors, ii) market acceptance is unknown *ex ante* and from iii) an entrepreneur's unwillingness to reveal trade secrets to business angels.

Third, the degree of uncertainty is a function of the level of experience of an investor. When an investor lacks relevant industry sector experience, the risk that an entrepreneur will misrepresent key information relating to his skills and capabilities as well as the quality of the venture, increases. Furthermore, it will be difficult for the investor to verify the truthfulness of this information. The lack of experience of an investor causes uncertainty, since the investor is unfamiliar with how to successfully conduct the due diligence procedures. The degree of uncertainty decreases as the investor learns from previous successes and failures.

The adverse selection framework builds on the assumption that the entrepreneur can reduce uncertainty by signaling his high ability level and the quality of the investment opportunity. The agency theoretical assumption is that the entrepreneur's signaling up front should relate to a lower due diligence effort. This is because a credible signal of high ability and quality decreases the level of uncertainty in an investment.

Another way to reduce uncertainty is through syndicating investments. Co-investing with other business angels or alongside venture capitalists provides a business angel a second opinion regarding the quality of an entrepreneur and his investment opportunity, thus reducing the degree of uncertainty involved. Therefore, syndication should, similarly, be associated with a lower due diligence effort by an investor.

Finally, the first part of the dissertation examines the relationship between the perceived accuracy of the assessment of market risk and the comprehensiveness of a due diligence procedure. The degree of uncertainty is lower when the investor is able to foresee competitive conditions affecting the size, growth and accessibility to the market. Thus, an increased accuracy in the assessment of these competitive conditions (market risks) should highly influence the (other) due diligence procedures of business angels.

The relationships investigated, in the first part, are summed up below and hypothesized in the followed sections.

⁹⁷ Stronger liquidity implies that in later stage investments an exit can generally be achieved in a considerably shorter period of time than in an early stage investment, where investments often have investment horizons that go beyond five years.

Stage of development

1a) the relationship between the use of sources for information and the stage of development
 1b) the relationship between the valuation methods applied and the stage of development
 1c) the relationship between the amount of time allocated to the valuation of an entrepreneur's (management's) human capital and the stage of development

2a) the relationship between the use of third party information and the stage of development
 2b) the relationship between the use of valuation methods projecting the future and building on the financial history and the stage of development of a company
 2c) the relationship between the time allocated to interview related techniques and background checks and the stage of development

Level of innovativeness

3a) the relationship between the use of sources for information and the perceived level of innovativeness
 3b) the relationship between the valuation methods applied and the perceived level of innovativeness
 3c) the relationship between the time allocated to the valuation of an entrepreneur's (management's) human capital and the perceived level of innovativeness

Industry sector experience

4a) the relationship between the use of sources for information and the degree of industry sector experience
 4b) the relationship between the valuation methods applied and the degree of industry sector experience
 4c) the relationship between the time allocated to the valuation of an entrepreneur's (management's) human capital and the degree of industry sector experience

Experience as an investor

5a) the relationship between the use of sources for information and the degree of experience as an investor
 5b) the relationship between the valuation methods applied and the degree of experience as an investor
 5c) the relationship between the time allocated to the valuation of an entrepreneur's (management's) human capital and the degree of experience as an investor

Signaling

- 6a) the relationship between the use of sources for information and the magnitude of an entrepreneur's (management's) relationship specific investment
- 6b) the relationship between the valuation methods applied and the magnitude of an entrepreneur's (management's) relationship specific investment
- 6c) the relationship between the time allocated to the valuation of an entrepreneur's (management's) human capital and the magnitude of the entrepreneur's (management's) relationship specific investment

Syndication

- 7a) the relationship between the use of sources for information and syndication
- 7b) the relationship between the valuation methods applied and syndication
- 7c) the relationship between the time allocated to the valuation of an entrepreneur's (management's) human capital and syndication

Type of co investor

- 8a) the relationship between the use of sources for information and co-investing alongside other business angels or with venture capitalists
- 8b) the relationship between the valuation methods applied and co-investing alongside other business angels or with venture capitalists
- 8c) the relationship between the time allocated to the valuation of an entrepreneur's (management's) human capital and co-investing alongside other business angels or with venture capitalists

The assessment of the market environment

- 9a) the relationship between the use of sources for information and the perceived accuracy of the assessment of a market environment
- 9b) the relationship between the valuation methods applied and the perceived accuracy of the assessment of a market environment
- 9c) the relationship between the time allocated to the valuation of an entrepreneur's (management's) human capital and the perceived accuracy of the assessment of a market environment

2.4.1.1 The stage of development

The degree of uncertainty in an investment is strongly influenced by the stage of development of the investment. It tends to decrease with the maturity of a venture and is greatest in the seed and startup phases where the companies are not yet revenue generating and do not have a proven track record. Van Osnabrugge (1998a) states that conducting due diligence is especially important in a startup situation, where the venture has no track record or asset base and the market opportunity and competitive advantage of the product needs to be verified. At the early stage the investee company is already

revenue generating and it often experiences strong growth. In this study all seed, startup and early stage companies are treated as a single unit of analysis, i.e. categorized as early stage companies⁹⁸.

Investments in later stage companies are relatively safe investments, involving less uncertainty. In later stage companies the financial information available for decision making is much more accurate than in early stage companies. When companies can show profitability, the investments are much less of a gamble. The key reason for performing due diligence is to identify risks the venture will be exposed to. Due to the fact that early stage companies are in general more exposed to risks than later stage companies, more time should be spent on due diligence in early stage than later stage deals. The study by Lu et al. (2006) found a significant relationship between early stage deals and due diligence effort.

On the one hand, when companies have reached the later stage, the information provided to potential investors by an entrepreneur (who has at this stage often been replaced by a CEO in charge of business operations) and management is considerably more reliable and accurate, in both describing the current status of the business and projecting the future, than the information available on early stage companies. In early stage investments substantially more effort is, therefore, assumed to be allocated to verifying information in the business plan, through e.g. interviews with different stakeholder groups (employees, suppliers, employees etc). This suggests a negative relationship between the sources used for due diligence and the stage of development.

On the other hand, much of the uncertainty in early stage investments arises from an inability to compile information about the investment proposal. Mature firms and large firms have more existing information, decreasing the uncertainty of the investment (Wong, 2002). This implies that information is more easily available for business angels investing in later stage than in early stage companies and indicates that the relationship between the sources used for due diligence and the stage of development is positive.

A priori, there is no reason to believe that one interpretation outweighs the other in terms of significance. Therefore, this study does not expect to find any relationship between the use of sources for information and the stage of development.

Hypothesis 1a: There is no relationship between the use of sources for information and the stage of development

In the face of uncertainty the performing of an accurate valuation of a venture is difficult. In later stage investments financial information is of significantly greater reliability, as such companies already have an established trading record (e.g. Wright and Robbie, 1996). In later stage companies there is much less divergence in the projections performed by the entrepreneur and the investor(s) than in early stage companies. High uncertainty tends to result in increasing error forecasts (Wright and Robbie, 1998). For an investor it is much easier in later stage deals to determine whether an entrepreneur's

⁹⁸ See section methodological limitations for arguments in behalf of the categorization.

forecast is realistic, as the recorded cash flows clearly provide an indication of what can be expected for the future.

In early stage companies a high percentage of the assets are often intangible. Assigning a value to intangible assets, such as intellectual property rights, is extremely challenging. It is especially so in the assessment of the value of intangible assets that the entrepreneur(s) and investor(s) don't see eye to eye on. As a consequence of the difficulty of ascertaining the value of intangible assets in early stage companies, it is assumed that investors have to rely on several valuation methods in order to establish a value for a business.

The projections made by entrepreneurs in later stage companies are often seen as fairly reliable. This is assumed to decrease the need to use several valuation methods for investment appraisal. Therefore, it is expected that there is a negative relationship between the use of valuation methods and the stage of development.

Hypothesis 1b: There is a negative relationship between the use of valuation methods and the stage of development

The ability to generate profit can be considered to provide an indication of the capabilities of the entrepreneur. Thus, the entrepreneurs in later stage companies have, already, proven that they are capable of running the company. However, as has been pointed out earlier, in later stage companies the entrepreneur has sometimes been replaced with a CEO. In such cases, the entrepreneur has often been removed and placed in charge of the technical development, instead of the business side.

Those entrepreneurs that have managed to build a profitable company already have an established a track record. In early stage companies there is, still, uncertainty regarding their skills in turning a revenue generating, growing company, into a solid and mature company. As there is greater uncertainty in early stage companies related to an entrepreneur's ability level than in later stage companies, the agency theoretical assumption is that more time is spent in verifying the qualities of the entrepreneur in early stage companies than in later stage companies. Therefore, it is expected that there is a negative relationship between the time allocated to the valuation of an entrepreneur's human capital and the stage of development.

Hypothesis 1c: There is a negative relationship between the time allocated to valuation of an entrepreneur's (management's) human capital and the stage of development

Previous research has suggested that different information sources are utilized for early and later stage deals (e.g. Wright and Robbie, 1996, 1998, Fried and Hisrich, 1994, Lockett et al., 2002 and Harrison and Mason, 2002). In early stage companies, involving greater uncertainty, the inability to obtain accurate financial information shifts the investors' focus to subjective information gathered through interviewing the entrepreneur and different stakeholder groups. Early stage investors are assumed to rely on their own abilities more than late stage investors who are expected to outsource due diligence tasks to experts and make use of third party information (such as financial advisors and independent reports on the company's financial condition) more often than early stage

investors (Harrison and Mason, 2002). This suggests that late stage investors contact consultants to assess the technology, lawyers for legal due diligence and accountants for financial due diligence. Thus, it is hypothesized that business angels investing in later stage companies are more reliant on third party information than business angels investing in early stage companies.

Hypothesis 2a: Business angels investing in later stage companies are more reliant on third party information than business angels investing in early stage companies

Similarly, previous research has suggested that different valuation methods are utilized for early and later stage deals (e.g. Wright and Robbie, 1996, 1998; Manigart et al., 2000 and Reid and Smith, 2001). In early stage deals, sometimes lacking a financial history, basing a valuation on a company's historical development is meaningless and sometimes impossible. Instead the value of the company should then be based on future expectations, as high growth is anticipated for the future. Thus, it is assumed that early stage investors use valuation methods for projecting the future more often than late stage investors (see Wright and Robbie, 1996).

When a company has reached the later stage its development has matured. This means that its growth has declined. Thus, basing the valuation on future expectation may not always be the best suited approach for valuation. Asset based valuation methods might be preferable in later stage deals where the book value of the assets can easily be determined from the balance sheet. In early stage companies, with mostly intangible assets, it is not easy to put a value on the assets. Therefore, it is expected that late stage investors use valuation methods building on the financial history more often than early stage investors.

Hypothesis 2bi: Business angels investing in early stage companies are more reliant on cash flow based valuation methods than business angels investing in later stage companies

Hypothesis 2bii: Business angels investing in later stage companies are more reliant on asset based valuation methods than business angels investing in early stage companies

As has been noted earlier, entrepreneurs in early stage companies often lack a track record, which makes the conducting of background checks more difficult. Serial entrepreneurship is, relatively, uncommon in Finland (see Paasivirta and Valtonen, 2004), which is why entrepreneurs rarely have previous entrepreneurial experience. As later stage companies have, already, established themselves in their respective target markets, it is easier to find articles and online information about their entrepreneurs than those of early stage companies.

Due to a shortage of background information on early stage deals, more time is assumed to be spent in discussions with an entrepreneur. The role of interview related techniques, as tools for verifying the entrepreneur's ability level, increases⁹⁹. The availability of

⁹⁹ The specifications of skills and capabilities prior to interviews and the interviews relating to an entrepreneur's (and management's) experiences are, in this study, referred to as "interview related

background information, in later stage deals, is assumed to alleviate the need to consume time i) in performing specifications of skills and capabilities and ii) in interviews with the entrepreneur.

Consequently, it is expected that early stage investors allocate more time to the specifications of needed skills and capabilities and in interviews with an entrepreneur, while making a valuation of his human capital, than late stage investors do. In contrast, late stage investors spend more time on conducting background checks on an entrepreneur in the valuation of his human capital, than early stage investors.

Hypothesis 2ci: Business angels investing in early stage companies are more reliant on interview related valuation techniques than business angels investing in later stage companies

Hypothesis 2cii: Business angels investing in later stage companies are more reliant on background checks than business angels investing in early stage companies

2.4.1.2 The perceived level of innovativeness

Innovative ventures tend to be more informationally opaque than the average ones, because they tend to involve high uncertainty and secrecy (Hyytinen and Pajarinen, 2003a). As been pointed out earlier, new ventures in need of finance might be reluctant to reveal their trade secrets to external investors, even under the protection of non-disclosure agreements.

That high uncertainty originates from the fact that the market acceptance of an innovation is unknown ex ante as well as the pace at which imitation will erode the extraordinary profits gained from the innovation (Amit et al., 1990a,b). The ventures may be unable to convert technologies into viable products that can be sold in the market (Camp, 2002). The high uncertainty involved impairs the ability to raise external finance (Van Auker, 2001; Hyytinen and Pajarinen, 2003a), as the investors may not completely understand the core technologies of the venture (Sapienza and Amason, 1993). Lumme et al. (1998) state that business angels are looking for technologically advanced and innovative products, but add that they do not invest if the business idea cannot be easily communicable.

On the one hand, from an investor's perspective, much of the uncertainty that relates to highly innovative projects derives from the fact that entrepreneurs are not willing to give up technical details during a business angel's due diligence (e.g. Cable and Shane, 1997). This will have its effect in decreasing the information available for the investment decision and suggests a negative relationship between the sources used for due diligence and the perceived level of innovativeness.

techniques" for the valuation of an entrepreneur's (and management's) human capital. The specifications formed in advance impact on the design of the interview questions.

On the other hand, the high uncertainty increases the importance of the due diligence *ex ante*. To overcome the inherent risks in highly innovative ventures, a business angel is expected to interview stakeholders and use external experts, to gather sufficient information on an investment proposal. The information is crucial in enhancing a business angel's understanding of an innovative product and/or service. Gathering information facilitates learning by investors. This would indicate a positive relationship between the sources used for due diligence and the perceived level of innovativeness.

A priori, there is no reason to assume that one of the interpretations will outweigh the other in terms of significance. Consequently, this study does not expect to find any relationship between the perceived level of innovativeness and the sources used for due diligence.

Hypothesis 3a: There is no relationship between the use of sources for information and the perceived level of innovativeness

It is difficult for investors to ascertain the quality and potential value of technological innovations. By contrast, however, entrepreneurs, who are often the innovators themselves, understand the quality of innovations (Denis, 2004: 310). Diaz and Guild (2003) strongly suggest that financial indicators, such as the proposed balance sheet and predicted cash flows, do not accurately reflect all the possibilities of success that highly innovative companies offer. The value of highly innovative companies is more difficult to assess than for any other companies (e.g. Sapienza and de Clercq, 2000).

The value of the highly innovative companies is strongly dependent on the value assigned to an innovation (intangibles in the balance) as well as on future expectations. The value of the innovation (intangibles) is commonly based on the perceived value of the intellectual property rights: patents, copyrights and trade secrets providing legal protection. As an innovation's value is rather difficult to ascertain, entrepreneurs commonly assign their innovation, in their valuation, a much higher value than investors do. To mitigate the high uncertainty relating to the value of innovative companies, business angels are expected to use several valuation methods to establish a value for the business. Thus, it is assumed that there is a positive relationship between the use of valuation methods and the perceived level of innovativeness.

Hypothesis 3b: There is a positive relationship between the use of valuation methods and the perceived level of innovativeness

In highly innovative ventures, the entrepreneur is the most important factor in the risk appraisal (e.g. Reid and Smith, 2001). The success of a company can be seen to be a function of an entrepreneur's skills and capabilities, as the foundation of a business often lies in an entrepreneur's human capital. This makes the entrepreneur very difficult or even impossible to replace.

Because of the high degree of uncertainty involved and the fact that the success of a business is highly dependent on the entrepreneur's skills and capabilities, more effort is expected to be spent in verifying these through conducting interviews and background

checks. Therefore, it is expected that there is a positive relationship between the amount of time allocated to the valuation of an entrepreneur's human capital and the perceived level of innovativeness.

Hypothesis 3c: There is a positive relationship between the time allocated to the valuation of an entrepreneur's (management's) human capital and the perceived level of innovativeness

2.4.1.3 The industry sector experience

The degree of uncertainty is also strongly affected by the level of the industry sector experience of the investor. Previous research has shown that both venture capitalists and business angels in their initial screening commonly apply either a specialization or diversification strategy with respect to the industry sector, geography and stage of development (see e.g. Tyebjee and Bruno, 1984; Sweeting 1991; Norton and Tenebaum, 1993; Fried and Hisrich, 1994; Landström, 1995 and de Clerq et al., 2001). The specialization strategy implies minimizing industry specific risk by investing in industry sectors fitting ones expertise, whereas the diversification strategy implies eliminating firm specific risk (idiosyncratic risk) through investing in companies in different industry sectors.

For investors specializing with respect to industry sector, the perceived uncertainty of an investment is lower (e.g. Landström, 1995). When an investor does not possess relevant industry sector experience, the adverse selection problem is more difficult to mitigate. The risk of an entrepreneur misrepresenting key information, relating to his skills and capabilities as well as the quality of the venture in the due diligence phase, increases, as the investor will, often, be unable to verify the truthfulness of the information. Investors lacking industry sector experience will therefore have difficulties understanding the technical information related to the product and/ or service.

Investors that do not possess the industry sector experience face difficulties in judging the credibility and trustworthiness of the information provided by an entrepreneur in a business plan. This means that the importance of verifying the information provided by an entrepreneur through interviewing various stakeholders and experts is highlighted. Gathering information on an entrepreneur and his investment proposal will reduce the uncertainty originating from low experience in the field of the investment. Therefore, it is assumed that there is a negative relationship between the use of sources for information and the degree of industry sector experience.

Hypothesis 4a: There is a negative relationship between the use of sources for information and the degree of industry sector experience of an investor

Investors with relevant industry sector experience are assumed to a greater extent to rely on intuitive judgment when making their decision to invest (e.g. Mason and Harrison, 1996b). Their experience within the field they are investing in also enables them to make a better judgment of the reliability of an entrepreneur's projections. Business angels

familiar with the field may have the needed experience to determine the potential of a technology and/or innovation. They are better equipped to tell whether the entrepreneur's projections represent a realistic prognosis of the future.

The lack or shortage of relevant industry sector experience makes the valuation of a venture more difficult to perform. The uncertainty arising from low industry sector experience is expected to result in an investor having to rely on several valuation methods to calculate a value for a venture. Therefore it is assumed that there is a negative relationship between the use of valuation methods and the degree of industry sector experience of an investor.

Hypothesis 4b: There is a negative relationship between the use of valuation methods and the degree of industry sector experience of an investor

One of the hardest parts for investors unfamiliar with the industry sector of a venture is to ensure that an entrepreneur possesses the skills and capabilities required for successfully running their business. For an investor with no experience in the field of the investment the adverse selection problem is a great concern, as the entrepreneur might claim to possess certain characteristics and the investor might be unable to judge whether this is the case (Van Osnabrugge, 1998a).

Investors short of industry sector experience may have to use background checks to verify some of the information gathered from the interviews with an entrepreneur. In addition, due to the higher degree of uncertainty involved, arising from an investor's low industry sector experience, it is assumed that the investor will need to allocate more time to discussions with the entrepreneur about his skills and experience, prior to investing. Therefore, it is expected that there is a negative relationship between the time allocated to the valuation of an entrepreneur's human capital and the degree of industry sector experience.

Hypothesis 4c: There is a negative relationship between the time allocated to the valuation of an entrepreneur's (management's) human capital and the degree of industry sector experience of an investor

2.4.1.4 Experience as an investor

Another source of uncertainty is an investor's lack of experience as an investor. Then, the investor might be unaware of how to structure an investment. Kelly and Hay (2000a) point out that investors need to learn the tricks of the trade (i.e. the techniques of successful venture investing). The more experience investors have the greater their confidence in their own insights and judgments.

The agency theoretical assumption is that uncertainty resulting from a lack of experience as an investor results in a higher due diligence effort, to secure the investment. Following this line of thinking, less experienced business angels are assumed to be more reliant on different sources for information in order to conduct the task of due diligence, while more experienced investors have a higher confidence in their own ability to assess the quality

of an entrepreneur and their business. Consequently, it is expected that there is a negative relationship between the use of sources for information and the degree of experience as an investor.

Hypothesis 5a: There is a negative relationship between the use of sources for information and the degree of experience as an investor

Calculating a value for a venture is surely one of the most challenging tasks for novice investors. Strong experience of being an investor makes the task of performing a valuation much easier. More experienced investors are expected to have a better understanding of the applicability of the various valuation methods than less experienced ones. This implies that they are better in selecting the most suitable valuation method for a specific investment.

Experienced investors, also, have a stronger confidence in the reliability of their valuation, and are therefore presumed to be less likely to make use of several valuation methods in order to establish a value for the venture. In other words, the uncertainty emerging from a lack of experience as an investor is, in line with agency theory, expected to be associated with a stronger dependence on several valuation methods. Using more than one valuation method can strengthen a relatively inexperienced investor's perception of the value of a venture. In addition, investors short of experience might face difficulty in determining whether the entrepreneur's projections reflect reality. Thus, it is expected that there is a negative relationship between the use of valuation methods and the degree of experience as an investor.

Hypothesis 5b: There is a negative relationship between the use of valuation methods and the degree of experience as an investor

The ability to ask the right questions in the interviews with the entrepreneur, prior to investing, is a hugely valuable investor characteristic. This builds on extensive experience as an investor. Another characteristic that evolves from experience as an investor is the ability to rely on gut feeling in the assessment of the quality of an entrepreneur.

Most experienced investors have talked to hundreds of entrepreneurs and developed a capacity to intuitively make a difference between high ability and low ability entrepreneurs. This aids in reducing the agency risks pre investment. Therefore, it is suggested that the tendency to rely on intuition, among experienced investors, decreases the time allocated to the valuation of an entrepreneur's human capital. Less experienced investors are more in need of data on an entrepreneur for their assessment of human capital. Hence, it is expected, that there is a negative relationship between the time allocated to valuation of an entrepreneur's human capital and the degree of experience as an investor.

Hypothesis 5c: There is a negative relationship between the time allocated to the valuation of an entrepreneur's (management's) human capital and the degree of experience as an investor

2.4.1.5 Signaling through relationship specific investments

In the presence of asymmetric information, an entrepreneur might find it worthwhile to invest in information that will communicate his true abilities (Amit et al., 1990a,b) and the quality of the investment opportunity to investors. This information may take the form of a well conceived business plan, a product prototype (Amit et al., 1990a,b), substantial investments made by the entrepreneur from his personal savings (Barney et al., 1996; Prasad et al., 2000), the percentage of the firm's equity held by the entrepreneur and the number of years the entrepreneur has spent working in the business (Barney et al., 1996; Florin, 2003). These relationship specific investments indicate that the entrepreneur has more to lose in the case of failure. The entrepreneur is therefore seen to be sharing the risk with the business angel and thereby reducing the agency risk borne by investors (see e.g. Barney et al., 1996). When an entrepreneur has made substantial relationship specific investments, he is less likely to take actions that reduce the value of the company (Barney et al., 1996). Arthurs and Busenitz (2003) reinforce this by noting that an entrepreneur's wealth tied up in a venture is a relationship specific investment that cannot be redeployed or recouped if the venture fails. Thus, the greater an entrepreneur's relationship specific investment, the more he is willing to risk losing, in the case of failure.

One of the assumptions of this study is that signaling on the part of the entrepreneur will decrease business angels' need to conduct due diligence pre investment. As the ventures the business angels invest in sometimes lack tangible assets, do not yet generate revenue and have no track record, a signal of commitment is crucial in alleviating the high degree of uncertainty involved.

Such signaling is assumed to reduce the due diligence effort of business angels. When an entrepreneur is committed to a venture, his incentive to act opportunistically diminishes. Therefore, business angels will have a stronger confidence in the truthfulness and reliability of the information provided by the entrepreneur in the business plan. Less effort is expected to be consumed in gathering information, to verify what is stated in the business plan. Consequently, the need to interview stakeholders and collect third party information decreases. Thus, it is expected that there is a negative relationship between the sources utilized for due diligence and the entrepreneur's signaling, ex ante, through relationship specific investments.

Hypothesis 6a: There is a negative relationship between the use of sources for information and the magnitude of an entrepreneur's (management's) relationship specific investment

The fact that an investor is unable to determine the quality of an entrepreneur and his entrepreneurial venture might have an adverse effect on an investor's valuation. If that is the case then external funding presents a costly solution for the entrepreneur (Amit et al., 1990a,b). As has been highlighted previously, through signaling his commitment, an entrepreneur is assumed to be able to convey information regarding the quality of a venture. The indication that the entrepreneur has a strong belief and faith in the success of the venture may reduce the divergence in the projections of the entrepreneur and the

investors. A signal of commitment may imply that some of the optimism in the prognosis prepared by an entrepreneur is well founded.

Without a credible signal of commitment, the uncertainty involved is assumed to be more substantial. A higher degree of uncertainty is expected to result in the need to use several valuation methods to calculate a value for a venture. Conversely, since an entrepreneur's commitment is expected to reduce the degree of uncertainty regarding the quality of a venture, it should decrease the need to make use of several valuation methods. Thus, it is assumed that there is a negative relationship between the use of valuation methods and an entrepreneur's signaling, *ex ante*, through relationship specific investments.

Hypothesis 6b: There is a negative relationship between the use of valuation methods and the magnitude of an entrepreneur's (management's) relationship specific investment

Those entrepreneurs aware of their high ability level are likely to be those who are most willing to commit themselves to a venture. They are confident in their ability to successfully manage the venture. Thus, it is suggested that the magnitude of a relationship specific investment can serve as an indication of the quality of an entrepreneur. Amit et al (1990a,b) supports this by arguing that if the cost of signaling is not too high, then the higher ability entrepreneurs will find it beneficial to signal their ability.

As an entrepreneur's signaling is assumed to provide an indication of his high ability level, it should reduce a business angel's need to spend time in the valuation of an entrepreneur's human capital. Therefore, it is expected that there is a negative relationship between the time allocated to the valuation of an entrepreneur's human capital and the magnitude of an entrepreneur's relationship specific investment.

Hypothesis 6c: There is a negative relationship between the time allocated to the valuation of an entrepreneur's (management's) human capital and the magnitude of an entrepreneur's (management's) relationship specific investment

2.4.1.6 Syndication

Pooling together investors facilitates risk sharing (see e.g. Steier and Greenwood, 1995; Wong, 2002) and should result in an improved assessment of investment opportunities (Lumme et al., 1998). By syndicating an investment, business angels obtain a second opinion regarding the quality of an investment proposal (see e.g. Gompers, 1994; Lerner, 1994 and Branden et al., 2002). Two independent investors are assumed to screen projects more effectively than one, because each learns something about the project from the other's evaluation (Brander et al., 2002).

The investment syndicate often consists of a lead investor, sometimes referred to as an investment champion (e.g. Payne, 2002), that holds the responsibility for originating the deal and bringing the investors together (Gompers, 1994). Investment syndicates are

often formed at business angel networks¹⁰⁰. The lead investors may send the investment proposal to other investors for their review (Lerner, 1994). Each investor will be able to compare his assessment of the investment proposal with the other investors'. This will improve the accuracy of the decision making, reducing the agency risk that stems from asymmetric information. Brander et al. (2002) argue that the second opinion is, particularly, valuable when the quality of an investment proposal is in the intermediate range after an investor's initial assessment. Then an investor should pursue syndication. The second opinion becomes valuable and may be decisive for the investment decision.

The syndication of investments should imply the sharing of due diligence tasks (e.g. Van Osnabrugge and Robinson, 2000). This, however, necessitates effective and open communication between the investors in a syndicate. The adverse selection problem is mitigated when information flows freely within a syndicate. In other words, the efficient transfer of information between investors in a syndicate improves the ability to verify the qualities of an entrepreneur and a new venture prior to making an investment decision.

On the one hand, because syndication may imply sharing the due diligence tasks, the need to gather information prior to the investment decision is reduced. Moreover, business angels that feel that the presence of co-investors provides an assurance of the quality of an investment proposal, may place less effort in gathering information about the investment proposal. This suggests a negative relationship between the use of sources for due diligence and syndication.

On the other hand, as previously noted, information may be transferred between investors in an investment syndicate. A business angel will then access more information for the investment decision and might even be able to utilize sources in the co-investors' network of contacts. This would imply a negative relationship between the sources used for due diligence and syndication.

A priori, there is no reason to expect one of the interpretations to outweigh the other in terms of significance. Therefore, this study does not expect to find any relationship between the use of sources for information and syndication.

Hypothesis 7a: There is no relationship between the use of sources for information and syndication

The second opinion is assumed to be, especially, valuable when an investor is uncertain about the true value of an investment proposal. Since asymmetries of information may have a huge impact on the perceived value of the venture, as a valuation is sensitive to changes in the assumption upon which it is built, it is important for each investor to compare his own assessment of the value with their co-investors'. Thus, a strong similarity enhances the confidence in a valuation made by a syndicate, and reduces the need to apply several valuation methods in the assessment.

¹⁰⁰ The formation of a business angel network (SITRA) and a business angel club (the Finnish Business Angel Association) has improved the conditions for co-investing, as investors are introduced at different events and meetings. This alleviates the inefficiency related to the anonymity of the population.

The responsibility of performing a valuation might be delegated to one investor within the investment syndicate, if the other investors feel that he is the most capable one to perform an accurate valuation of the venture, e.g. possessing strong industry sector and investment experience. Therefore, it is expected that there is a negative relationship between the use of valuation methods and syndication.

Hypothesis 7b: There is a negative relationship between the use of valuation methods and syndication

In angel investing the valuation of an entrepreneur's human capital is built to a great extent on the impression business angels get from discussions prior to investing. If the impression of several investors, after talking to an entrepreneur, is consistent, this may reduce the need for a detailed background check. In other words, when several investors, within an investment syndicate, share the view that an entrepreneur can be trusted and that he possesses sufficient skills and capabilities for successfully running the business, this will mitigate the need to perform comprehensive data gathering.

In addition, when one of the investors in a syndicate has gathered data on an entrepreneur, other investors are assumed to be able to utilize the data for their decision making, decreasing the time allocated to the valuation of the entrepreneur's human capital. It is needless to double the task. One investor in an investment syndicate can be assigned the main responsibility for the valuation of the entrepreneur's human capital and limit the other investors' effort required for this task. Thus, it is assumed that there is a negative relationship between the time allocated to the valuation of an entrepreneur's human capital and syndication.

Hypothesis 7c: There is a negative relationship between the time allocated to the valuation of an entrepreneur's (management's) human capital and syndication

2.4.1.7 Type of co-investor

The business angel can choose to co-invest with other business angels or alongside venture capitalists. Since business angels have been shown to be less comprehensive in their due diligence than venture capitalists (e.g. Van Osnabrugge, 1998a), it is assumed that business angels can gain from collaborating with venture capitalists. The studies by Freear and Wetzel (1990) and Harrison and Mason (2000a) have studied the complementary roles of venture capitalists and business angels, introducing different ways for the two types of investors to collaborate.

Through investing with venture capitalists, business angels can invest in more mature companies with higher investment requirements. The venture capitalists that usually make more substantial investments than business angels are, in Harrison and Mason (2000a), seen as gaining from business angels assisting in the due diligence process and post-investment relationships. Venture capitalists are generally more reliant on experts in their due diligence process than business angels are (consultants to assess the feasibility of the technology, accountants to assess the financial statements and perform a valuation

of the performance of the investee company and lawyers to make sure that no legal difficulties emerge) (e.g. Van Osnabrugge, 1998a).

On the one hand, assuming strong collaboration between venture capitalists and business angels, business angels are able to utilize expert advice for their decision making and are able to approach experts belonging to the venture capitalists' network of contacts. When information is transferred within a syndicate, this increases the amount of information that is available when making a decision to invest. This suggests that when co-investing with venture capitalists, business angels use more sources for information than when co-investing with other business angels.

On the other hand, venture capitalists are known to conduct more rigorous due diligence than business angels (e.g. Van Osnabrugge, 1998a), whereas business angels take a more active role in the business of the investee company, post investment (e.g. Ehrlich et al., 1994 and Van Osnabrugge, 1998a). This implies that a natural way to collaborate would be to rely on venture capitalists to conduct the lion's share of the due diligence, while business angels would, instead, engage themselves more actively in monitoring the investment, through hands-on involvement. Consequently, business angels' need to mitigate risk by gathering information about an investment proposal would be reduced. This would indicate that when co-investing with venture capitalists business angels use less sources for information than when co-investing with other business angels.

A priori, there is no reason to predict that one explanation outweighs the other in terms of significance. Thus, this study does not expect to find any difference in the use of sources for information when co-investing with venture capitalists and other business angels.

Hypothesis 8a: There is no difference in the use of sources for information when co-investing with venture capitalists and other business angels

Venture capitalists are under pressure to produce sufficient returns on their invested capital, to be able to attract additional funding from their institutional backers (e.g. Van Osnabrugge, 1998a and Van Osnabrugge and Robinsion, 2000, 2001). Venture capitalists typically use more than one valuation method for their analysis of the investee company (Wright and Robbie, 1996). Several studies have shown that some business angels rely on their gut feeling, and do not always calculate returns on their investment (e.g. Mason and Harrison, 1996a; Van Osnabrugge, 1998a and Prowse, 1998).

Since venture capitalists have more experience of different valuation methods than business angels, and commonly apply more than one valuation method in their investment appraisal, their valuation of the investee company is expected to be more profound than a business angel's. Business angels collaborating with venture capitalists are assumed to have the possibility to delegate the task of performing a valuation to venture capitalists (who may use experts whenever they are uncertain about their own ability to perform a valuation). Therefore, it is expected that business angels use less valuation methods when co-investing with venture capitalists than they use when co-investing with other business angels.

Hypothesis 8b: Business angels use less valuation methods when co-investing with venture capitalists than they use when co-investing with business angels

Even though previous research has demonstrated that business angels are more concerned about risks related to opportunistic behavior by entrepreneurs than venture capitalists are (e.g. Fiet, 1991, 1995 and Harrison and Mason, 2002), venture capitalists' assessment of entrepreneurs and management appears to be highly data driven (see Smart, 1999). Therefore, when co-investing with venture capitalists, it is expected that business angels within a syndicate can rely on e.g. the background checks performed by venture capitalists. This will reduce the time business angels need to allocate to the valuation of an entrepreneur's human capital.

Hypothesis 8c: Business angels allocate less time to the valuation of an entrepreneur's (management's) human capital when co-investing with venture capitalists than they do when co-investing with business angels

2.4.1.8 Perceived accuracy of the assessment of the market environment

In Harrison and Mason (2002) market risk is defined as risk that is due to unforeseen competitive conditions affecting size, growth and accessibility. To assess the degree of market risk, involved in an investment, investors focus on assessing the size, growth and accessibility to the market as well the existence of a market need (see e.g. Tyebjee and Bruno, 1984; Sweeting, 1991). Several studies rank market size and growth rate among the most important factors when making an investment (e.g. MacMillan et al., 1985 and Kaplan and Strömberg, 2004). This shows that the criteria on which an investment proposal is evaluated strongly correlates with the perceived risks involved.

Business angels are less concerned with market risks than venture capitalists in general (e.g. Fiet, 1991, 1995 and Harrison and Mason, 2002). Business angels have been argued to lack competence with sophisticated analytical tools when evaluating a market environment (e.g. Fiet, 1995). An accurate assessment of market risks would imply environmental scanning, where investors commonly assess both competitor profiles and environmental opportunities and risks (Harvey and Lusch, 1995).

Information gathering, ex ante, is a means to get a better picture of potential risks affecting the size, growth and accessibility to a market. Being aware of how changes in these conditions affect the profitability of a new venture can help investors to safeguard themselves against these risks. Shepard (1999) notes that a business environment will change in unexpected ways and argues that it is important that a new venture is able to recognize those changes and respond to them. This means that an awareness of changes and their effect will enable investors to mitigate market risks through alertness and responsiveness. The changes may be due to obsolescence arising from changing technology and/or sensitivity to macroeconomic conditions (e.g. recession) (see Tyebjee and Bruno, 1984).

Interviews with key personnel and stakeholders, as well as expert opinions are likely to be utilized in producing a more accurate assessment of a market environment. In particular, interviews with customers and potential customer can turn out to be fruitful in determining the future potential of a venture. Therefore, it is expected that there is a positive relationship between the use of sources for information and the perceived accuracy of the estimation of a market environment.

Hypothesis 9a: There is a positive relationship between the use of sources for information and the perceived accuracy of an assessment of a market environment

When investors can better foresee future changes in a market environment, the ability to assess the value of the investee company improves. Then the investors are better equipped to reliably project e.g. future sales and expenditures (see Harvey and Lusch, 1995). In other words, a reduced asymmetry of information makes the estimation of the future considerably easier.

As has been highlighted earlier, the agency theoretical assumption is that higher uncertainty should result in a stronger due diligence effort. For the agency theoretical assumption to hold, the ability to more accurately foresee changes in a market environment should reduce the need to use several valuation methods. As the degree of uncertainty is reduced, less effort is consumed in investment appraisal.

Moreover, the possibility to determine the reliability of an entrepreneur's projections, in their business plan, increases as asymmetric information is reduced through a more accurate assessment of a market environment. Then investors do not necessarily have to perform a valuation of their own and are able to rely on the entrepreneurs' projections. It is, therefore, expected that there is a negative relationship between the use of valuation methods and the perceived accuracy of the estimation of a market environment.

Hypothesis 9b: There is a negative relationship between the use of valuation methods and the perceived accuracy of an assessment of a market environment

One of the key conclusions in Zacharakis and Shepard (2001) is that more information appears to shift the importance from an entrepreneur to their market. This indicates that when an investor is able to perform an accurate assessment of market risks less time is consumed in the valuation of an entrepreneur's human capital, or, alternatively, that the investor being unable to accurately assess market risks feels a stronger need to rigorously assess the characteristics of the entrepreneur.

Through an accurate assessment of an external environment, an investor should be able to obtain the same information as the entrepreneur in question (Kaplan and Strömberg, 2004). When the changes in the environment cannot (easily) be foreseen, by the investors, the capabilities of the entrepreneur are of paramount importance, as the entrepreneur's role in managing the market risks increases. Then investors have to rely on the entrepreneur to take the correct course of action when unexpected changes occur. Alertness and responsiveness are, then, expected of an entrepreneur. Thus, it is assumed that there is a negative relationship between the time allocated to the valuation of an

entrepreneur's human capital and the perceived accuracy of the estimation of the market risks.

Hypothesis 9c: There is a negative relationship between the time allocated to the valuation of an entrepreneur's (management's) human capital and the perceived accuracy of the assessment of a market environment

2.4.1.9 Summary of hypothesized relationships

Through testing the hypothesized notions, in the first part, this study contributes to the explanation of how the degree of uncertainty in an investment affects the use of sources for information, valuation methods as well the amount of time consumed in the valuation of an entrepreneur's and management's human capital. The hypothesized relationships for the first part of the study are summed up below (and in the following two pages) and in figures 3 and 4.

Stage of development

Hypothesis 1a: There is no relationship between the use of sources for information and the stage of development

Hypothesis 1b: There is a negative relationship between the use of valuation methods and the stage of development

Hypothesis 1c: There is a negative relationship between the time allocated to the valuation of an entrepreneur's (management's) human capital and the stage of development

Hypothesis 2a: Business angels investing in later stage companies are more reliant on third party information than business angels investing in early stage companies

Hypothesis 2bi: Business angels investing in early stage companies are more reliant on cash flow based valuation methods than business angels investing in later stage companies

Hypothesis 2bii: Business angels investing in later stage companies are more reliant on asset based valuation methods than business angels investing in early stage companies

Hypothesis 2ci: Business angels investing in early stage companies are more reliant on interview related valuation techniques than business angels investing in later stage companies

Hypothesis 2cii: Business angels investing in later stage companies are more reliant on background checks than business angels investing in early stage companies

Perceived level of innovativeness

Hypothesis 3a: There is no relationship between the use of sources for information and the perceived level of innovativeness

Hypothesis 3b: There is a positive relationship between the use of valuation methods and the perceived level of innovativeness

Hypothesis 3c: There is a positive relationship between the time allocated to the valuation of an entrepreneur's (management's) human capital and the perceived level of innovativeness

Degree of industry sector experience

Hypothesis 4a: There is a negative relationship between the use of sources for information and the degree of industry sector experience of an investor

Hypothesis 4b: There is a negative relationship between the use of valuation methods and the degree of industry sector experience of an investor

Hypothesis 4c: There is a negative relationship between the time allocated to the valuation of an entrepreneur's (management's) human capital and the degree of industry sector experience of an investor

Degree of experience as an investor

Hypothesis 5a: There is a negative relationship between the use of sources for information and the degree of experience as an investor

Hypothesis 5b: There is a negative relationship between the use of valuation methods and the degree of experience as an investor

Hypothesis 5c: There is a negative relationship between the time allocated to the valuation of an entrepreneur's (management's) human capital and the degree of experience as an investor

Signaling through relationship specific investments

Hypothesis 6a: There is a negative relationship between the use of sources for information and the magnitude of an entrepreneur's (management's) relationship specific investment

Hypothesis 6b: There is a negative relationship between the use of valuation methods and the magnitude of an entrepreneur's (management's) relationship specific investment

Hypothesis 6c: There is a negative relationship between the time allocated to the valuation of an entrepreneur's (management's) human capital and the magnitude of an entrepreneur's (management's) relationship specific investment

Syndication

Hypothesis 7a: There is no relationship between the use of sources for information and syndication

Hypothesis 7b: There is a negative relationship between the use of valuation methods and syndication

Hypothesis 7c: There is a negative relationship between the time allocated to the valuation of an entrepreneur's (management's) human capital and syndication

Type of co-investor

Hypothesis 8a: There is no difference in the use of sources for information when co-investing with venture capitalists and other business angels

Hypothesis 8b: Business angels use less valuation methods when co-investing with venture capitalists than they use when co-investing with business angels

Hypothesis 8c: Business angels allocate less time to the valuation of an entrepreneur’s (management’s) human capital when co-investing with venture capitalists than they do when co-investing with business angels

Perceived accuracy of the assessment of an external market environment

Hypothesis 9a: There is a positive relationship between the use of sources for information and the perceived accuracy of the assessment of a market environment

Hypothesis 9b: There is a negative relationship between the use of valuation methods and the perceived accuracy of the assessment of a market environment

Hypothesis 9c: There is a negative relationship between the time allocated to the valuation of an entrepreneur’s (management’s) human capital and the perceived accuracy of the assessment of a market environment

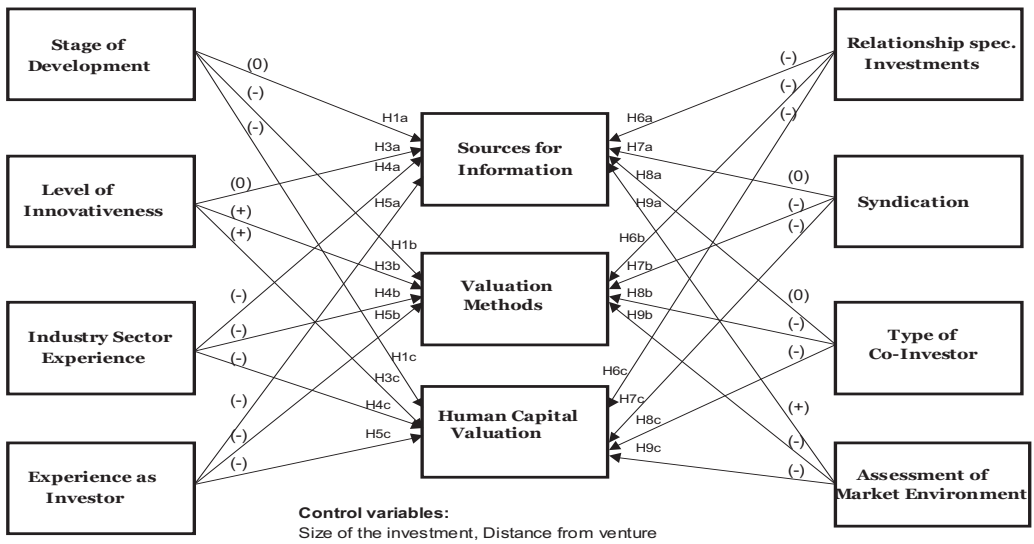


Figure 3 Summary of research hypotheses for part 1

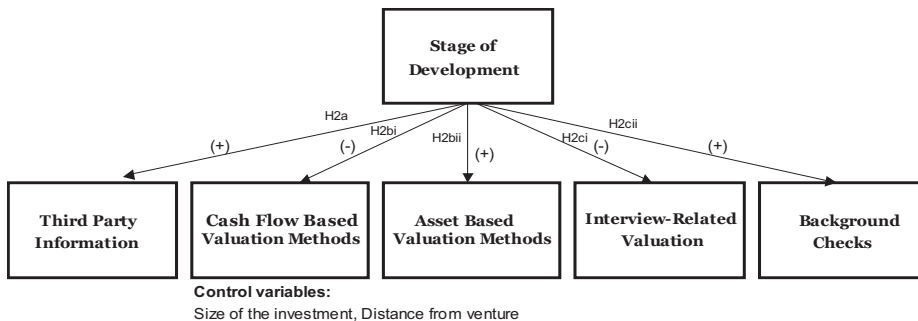


Figure 4 Summary of research hypotheses for part 1

2.4.2 Part 2: An investigation of the power of agency theory and the incomplete contracting theory in explaining business angels' involvement post investment

The involvement post investment of business angels is studied by using two theoretical lenses: agency theory and the incomplete contracting theory. The contract is the central ingredient in the two theories. The incomplete contracting theory aims at adding realism to the agency theoretical framework by holding the assumption that contracts are incomplete and continuously renegotiated as uncertainty unfolds over time.

The relationship between ownership and control is studied. Agency theory suggests that a principal can transfer some of the risk to an agent through the use of incentives (outcome based contracting) (e.g. Shavell, 1979, Harris and Raviv, 1978, 1979; Holmström, 1979). When a principal and an agent share risk, the agent's incentives to behave opportunistically decrease. This results in the convergence of the interests of the two parties, and is expected to alleviate the need for the investor to engage in monitoring activities. Active involvement is considered to be the best way for business angels to gain control of their investment (see e.g. Landström, 1992; Van Osnabrugge, 1998a; Kelly and Hay, 2000a).

This study will examine the relationship between the entrepreneur's level of ownership and the degree of involvement. If assuming that a principal is risk neutral, he is indifferent to the level of risk he carries. However, the risk neutrality assumption is challenged in this study. When a business angel is risk averse his equity stake in a business matters. Consequently, this study will, also, investigate the relationship between business angels' level of ownership and their degree of involvement.

The incomplete contracting theory stresses that when the contracts are incomplete it is the owner who possesses the residual rights who gets to decide (gains control) (e.g. Grossman and Hart, 1986; Hart and Moore, 1990; Hart, 1995b). In accordance with this theory, the relationship between an entrepreneur and a venture capitalist builds on control through ownership of the investee company's assets (e.g. Aghion and Bolton, 1992; Vauhkonen, 2003; Kaplan and Strömberg, 2003a,b, 2004; Kaplan et al, 2007; Lerner and Schoar, 2005). It is, nevertheless, only the tangible assets the investors can gain control of, as the entrepreneur can make his human capital unavailable and cannot be forced to work (e.g. Hart, 1995b). This study thus assumes that an investor has to involve himself, in order to gain control, when assets are mainly intangible. It investigates the relationship between the fixed tangible to total assets and the degree of business angel involvement. Also the capital structure matters because a business angel's investment, usually in the form of common equity, holds a subordinated claim to debt as well as preferred equity. The order of claim determines the degree of security of an investor. In highly indebted companies, business angels have to involve themselves to gain control, since, in the case of default, the liquidation value of an investee company's assets may not suffice to cover both the repayment of the loan and a business angel's investments. This study examines the relationship between the degree of involvement and the level of indebtedness.

Even though an entrepreneur cannot be forced to work, covenants can be included in the contract in order to make it difficult for the entrepreneur to leave the company. The hold-

up problem arises when an entrepreneur leaves a company after investments have been made. The inclusion of these covenants is, in this study, expected to relate to a reduced need to gain control through active involvement. The study also examines whether these covenants are included when a business is reliant on an entrepreneur's human capital. The relationships investigated, in the second part, are summed up below and hypothesized in the followed sections.

The relationship between ownership and control through active involvement

10a) the relationship between an entrepreneurs' (managements') level of ownership and the degree of involvement of business angels

10b) the relationship between a business angel's level of ownership and their degree of involvement

The relationship between the asset base and control through active involvement

11a) the relationship between the ratio of fixed tangible assets to total assets and the degree of involvement of business angels

11b) the relationship between the level of indebtedness and the degree of involvement of business angels

Inclusion of covenants mitigating the hold-up problem

12a) the relationship between the inclusion of covenants mitigating the hold-up problem and the degree of involvement of business angels

12b) the relationship between the fixed tangible assets to total assets and the inclusion of covenants mitigating the hold-up problem

2.4.2.1 The relationship between ownership and control through active involvement

Agency theory literature has highlighted that there is a tradeoff between behavior and outcome based contracting. As an entrepreneur's degree of ownership increases, his incentive to maximize his private benefits at the expense of the investors is reduced. Their sharing the risk with the investors mitigates the moral hazard problem. This implies that less monitoring is needed, as the divergence of interests is lower. This study investigates the relevance of this assumption in the domain of business angels. The study by Wong (2002) reveals that one of the primary mechanisms for business angels to control agency risk is through requiring an entrepreneur to take large equity positions. It is expected that there is a negative relationship between an entrepreneur's ownership level and the degree of involvement of business angels.

Hypothesis 10a: There is a negative relationship between an entrepreneur's (management's) level of ownership and the degree of involvement of business angels

The assumption that business angels are risk neutral would imply that they are indifferent to the level of risk they expose themselves to. If the risk neutrality assumption on the part of investors is challenged, not only does an entrepreneur's ownership stake matter, the investor's does too. As many business angels syndicate their investments, their level of

ownership remains small when there are several co-investors. Hence, the risk is shared among a large number of actors and the risk a single investor carries is small. This would imply that the investor's monitoring is not only a function of the entrepreneur's ownership, but is also determined by his own stake in the business.

Although some business angels have deep pockets, they invest their own money, as opposed to venture capitalists who inject the money of their institutional funders. This restricts their ability to diversify away risk through holding large portfolios of investments. In particular, those investors who are not high wealth individuals cannot be seen as risk neutral. Investors holding a larger equity stake have more to lose in the case of failure, and therefore this suggests that they have to exert more effort in monitoring an entrepreneur's behavior. Therefore, it is assumed that there is a positive relationship between the equity stake of business angels and their involvement.

Hypothesis 10b: There is a positive relationship between a business angel's level of ownership and their degree of involvement

2.4.2.2 The relationship between the asset base and the allocation of control through active involvement

Recent empirical work (Kaplan and Strömberg, 2003a,b; 2004; Kaplan et al., 2007 and Lerner and Schoar, 2005) has demonstrated that the theoretical model developed by Aghion and Bolton contributes to explaining the allocation of control in the venture capital setting. Kaplan and Strömberg (2003a) found that the amount of fixed tangible assets to total assets is significantly related to venture capital control, pointing out that such companies are less reliant on the intangible human capital of the original founder, which makes intervention by a venture capitalist more efficient. Venture capitalists are protected against down side risk, as preferred equity and debt has a senior claim vis-à-vis an entrepreneur's common equity. In the case of default, implying a liquidation of the entrepreneurial venture, the senior claim gives the investor control of the investee company's tangible assets¹⁰¹.

Angel investing differs strongly from formal venture capital investing. First, business angels seldom stage their investments. The capital is, instead, infused as a lump sum (see e.g. Lumme et al., 1998). Second, business angels do not always take a seat on the board of directors (e.g. Mason and Harrison, 1996; Lumme et al., 1998, Wong, 2002), and when they do, their one mandate does not facilitate sufficient control. In contrast, venture capitalists are granted the majority of seats on the board of directors, when the performance is poor (e.g. Hellman, 1998; Kaplan and Strömberg, 2003a). Third, business angels commonly invest in the form of common equity (Lumme et al, 1998; Prowse, 1998; Wong 2002), as opposed to venture capitalists who use convertibles and often multiple securities in financing their investments. This means that the claims of business angels are subordinated to all other claims, including taxes, secured debt, unsecured debt, and preferred stock (Camp, 2002).

¹⁰¹ In the US, venture capital securities are almost always senior to common stock (Kaplan et al., 2007). In Kaplan et al. (2007) 97 percent of financings were conducted with a security senior to common stock.

This clearly indicates that the model developed by Aghion and Bolton (1992) building on the allocation of board and voting rights contingent on performance does not contribute to explaining the allocation of control in the arena of business angels. Van Osnabrugge (1998a) advocates that control through ownership is meaningless, because business angels invest in firms that are often highly leveraged and have often no real assets. The incomplete contracting theory highlights that it is control of the non-human assets that can be transferred from one party to another. The human assets cannot be gained control of as any entrepreneur can make his human capital unavailable (see Hart and Moore, 1990 and Hart, 1995b).

Van Osnabrugge (1998a) strongly suggests that the best way for business angels to gain control and exert power over an investment is through active involvement. In other words, the involvement of business angels compensates for control through board and voting rights. The assumption is that the degree of involvement is related to the fraction of fixed tangible assets to total assets. When most of the assets are intangible, the investor has to involve himself to secure his investment. Therefore, it is expected that there is a negative relationship between the ratio of fixed tangible assets to total assets and the degree of involvement.

Hypothesis 11a: There is a negative relationship between the ratio of fixed tangible assets to total assets and the degree of involvement of business angels

The choice of capital structure is important as the financial instruments confer property rights and a firm's capital structure defines how these rights are allocated (Berglöf, 1991). Control of a company through ownership is meaningless, even if the company would possess fixed tangible assets, if it is highly indebted. In the case of default the debtors have a senior claim to the tangible assets vis-à-vis business angels (using common stock as their investment instrument). The tangible assets may have been pledged as collateral, to provide adequate security for the debt holders. This implies that business angels' downside risk is not reduced when a liquidation value of the assets does not suffice to cover both the debtors' loan and business angels' investments. As pointed out earlier, venture capitalists, in contrast to business angels, commonly hold a debt-like claim, which is why business angels are, in the case of default, in an inferior position with regard to venture capitalists. Consequently, when co-investing with venture capitalists, business angels are satisfied with less protection than venture capitalists¹⁰².

Business angels holding common equity receive whatever is left after all other claims have been satisfied (Camp, 2002). Business angels are in an equal position with the entrepreneur. Under these conditions the business angels have to gain control through active involvement to safeguard their investments. Thus, it is expected that there is a positive relationship between the level of indebtedness and control through active involvement.

Hypothesis 11b: There is a positive relationship between the level of indebtedness and the degree of involvement of business angels

¹⁰² Debt in the venture capital context is typically unsecured, meaning that it is not backed by collateral and made junior to other forms of debt in terms of liquidation priority (Camp, 2002).

2.4.2.3 *Inclusion of covenants mitigating the hold-up problem*

The hold-up problem, an integral part of the incomplete contracting theory, arises when an entrepreneur leaves a company at a standstill after an investment has been made in his company (e.g. Neher, 1999). The investor(s) cannot gain control of the human assets by forcing the entrepreneur to stay (e.g. Hart, 1995b). However, he (they) can mitigate the hold-up problem by making it difficult for the entrepreneur to leave the company. The investors can contractually tie the entrepreneur to the company by penalizing him if he decides to leave. Nevertheless, as Neher (1999) points out, an entrepreneur cannot contractually be bound to work.

Covenants are built in the purchase agreement imposing the consequences of contractual breach. When an entrepreneur's decision to leave the company violates the contractual agreement, he will bear financial responsibility. The inclusion of covenants punishing the entrepreneur also signals commitment. Kaplan and Strömberg (2003a) suggest that covenants mitigating the hold-up problem are most common in highly complex environments, where an entrepreneur's human capital is important. Since many entrepreneurial companies are dependent on their entrepreneur's human capital, the venture may have little value if the entrepreneur decides to leave. The covenants examined are the non-compete, the vesting, the stand still and the tag along provision.

The aim of the non-compete provision is to eliminate the risk that an entrepreneur starts a competing company or working for a competitor. The covenant forbids the entrepreneur from working within a related industry sector for a specified period of time. It imposes penalties on the entrepreneur, particularly, if his human capital is closely linked to the venture's industry sector (Sahlman 1990). As Camp (2002) notes, the flight of scientific brains of a company into the arms of a competitor can be a fatal blow to a company, especially when the foundation of the business builds on protected trade secrets.

The vesting provision implies that a company is free to purchase an entrepreneur's shares, if the entrepreneur leaves the company before a pre-specified vesting period. The price paid by the company to the entrepreneur tends to be based on book value, which often is below the market value (Sahlman, 1990). The vesting provisions serve two functions. First, they require entrepreneurs to earn their employment with their companies (by not leaving voluntarily) and, second they require entrepreneurs to maintain a satisfactory job performance (so as to avoid being fired) (Camp, 2002)¹⁰³.

The standstill agreement forbids the entrepreneur from selling his shares within a pre-specified period of time. This locks the entrepreneur in the business for an initial period. The investors commonly have to agree upon signing a similar agreement (see e.g. Isaksson et al., 2004).

Tag along covenants protect investors against opportunistic behavior by an entrepreneur. If an entrepreneur is bailing out by selling his shares, the tag along covenant gives the

¹⁰³ Kaplan et al. (2007) shows that vesting provisions are most common in common law countries, e.g. the US and the UK.

investor the right to sell his shares alongside the entrepreneur at the same price (see e.g. Sahlman, 1990; Landström et al., 1998; Camp, 2002 and Isaksson et al., 2004).

The four covenants introduced make it difficult for an entrepreneur to leave a company. Their inclusion is expected to reduce the need to gain control through active involvement. Besides binding an entrepreneur to a company, the inclusion of these covenants in the purchase agreement provides an indication of commitment. The inclusion of these covenants can be seen as bonding expenditures by the entrepreneur. Jensen and Meckling (1976) argue that an agent's bonding expenditures reduce a principal's monitoring expenditures. Thus, it is assumed that there is a negative relationship between the inclusion of covenants mitigating the hold-up problem and the degree of involvement.

Hypothesis 12a: There is a negative relationship between the inclusion of covenants mitigating the hold-up problem and the degree of involvement of business angels

The covenants are assumed to be more important when the foundation of a business lies in the human capital of its entrepreneur. Then it is more difficult to replace the entrepreneur, which is why the hold-up problem is more severe. A high ratio of intangibles to total assets indicates that an entrepreneur's human capital is decisive for the success of the business. Therefore, it is hypothesized that there is a negative relationship between fixed tangible assets to total assets and the inclusion of covenants mitigating the hold-up problem.

Hypothesis 12b: There is a negative relationship between fixed tangible assets to total assets and the inclusion of covenants mitigating the hold-up problem

2.4.2.4 Summary of hypothesized relationships

Testing the hypothesized notions, in part two of this section, will enhance our understanding of how the business angels gain control post investment. Chapter 3 demonstrates how the hypothesized notions are tested. Chapter 4 reveals which hypothesized relationships are supported or rejected. The research hypotheses are summarized below and in figure 5.

The relationship between ownership and control through active involvement

Hypothesis 10a: There is a negative relationship between an entrepreneur's (management's) level of ownership and the degree of involvement of business angels

Hypothesis 10b: There is a positive relationship between a business angel's level of ownership and their degree of involvement

The relationship between the asset base and control through active involvement

Hypothesis 11a: There is a negative relationship between the ratio of fixed tangible assets to total assets and the degree of involvement of business angels

Hypothesis 11b: There is a positive relationship between the level of indebtedness and the degree of involvement of business angels

Inclusion of covenants mitigating the hold-up problem

Hypothesis 12a: There is a negative relationship between the inclusion of covenants mitigating the hold-up problem and the degree of involvement of business angels

Hypothesis 12b: There is a negative relationship between fixed tangible assets to total assets and the inclusion of covenants mitigating the hold-up problem

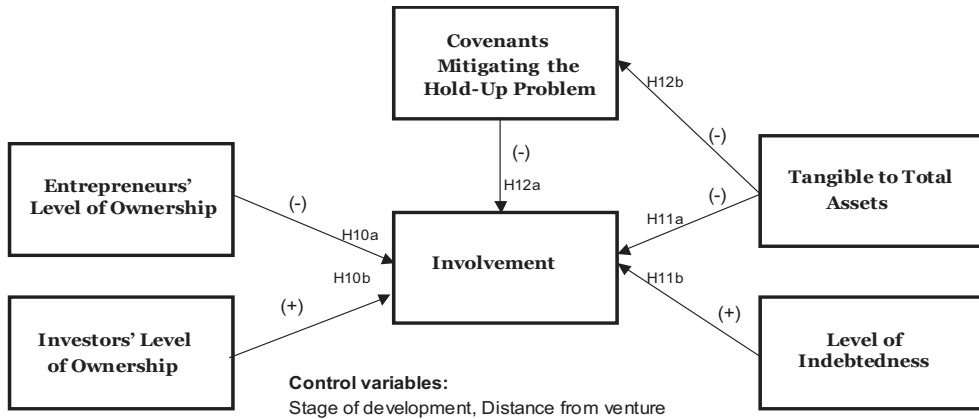


Figure 5 Summary of research hypotheses for part 2

3 METHODOLOGY

The data for this study are cross-sectional, implying that the data were collected at a single point in time. A questionnaire was applied that had been pretested in the pilot phase. Most of the data were gathered at a deal specific level. Business angels were asked to answer the questions with respect to their most recent investment. However, when the most recent investment is an atypical one, they were able to choose an investment that corresponds to their style of investing. This chapter discusses the sample of business angels, the piloting phase, the design of the final questionnaire utilized for this study, the operationalization of the variables in this study, concerns related to validity and reliability and finally highlights the methodological limitations.

3.1 The sample of business angels

Collecting a sample of business angels sufficiently large to facilitate statistical analysis was one of the greatest challenges of this study. There is only one business angel network in Finland, Sitra, matching business angels seeking investment opportunities to propose funding and entrepreneurs in need of funding¹⁰⁴. It had signed a confidentiality agreement with its members, implying it was committed to preserving the anonymity of the business angels using its services. Hence, Sitra was prohibited from disclosing the identity of the business angels in its network of customers. Having access to a register of active business angels would have made the data gathering considerably easier to execute.

Because the business angels want to retain their anonymity, there is no record of the population of Finnish business angels. Thus, the size and characteristics of the population are unknown and probably very difficult to determine (e.g. Wetzel, 1983 and Kelly, 2000). Therefore, it is challenging to obtain a representative sample of business angels. This means that it is not necessarily possible for a researcher to rely on probabilistic sampling techniques, where the sample represents each subgroup of the population under study. In this thesis, the sampling is therefore done by applying non-probabilistic convenience sampling techniques. The difficulties in determining whether the sample obtained is representative make it difficult to generalize from the sample to the population under study. Thus, the external validity cannot be directly confirmed.

The obtained sample was collected during the time period from November 2005 to June 2006. The obtained data comprise 53 business angels. It is in terms of size the largest sample of Finnish business angels. The sample has been collected:

- i) using the snowball method
- ii) approaching members of the Finnish Business Angel Association
- iii) approaching members of the science park Innopoli,

¹⁰⁴ Business angel networks act as “dating agencies”, providing a communication channel that enables business angels to review investment opportunities while preserving their anonymity and allows entrepreneurs seeking finance to present their investment opportunities (Mason and Harrison, 2002).

- iv) asking the industry counselor at the Ministry of Trade and Industry's¹⁰⁵ financing division to identify business angels, and
- v) reading articles on business angels in the business press

Even though there is likely to be a bias in terms of representativeness, as the characteristics of the population are unknown, it is nearly impossible to determine the degree of bias in the sample. The five identification measures used are different forms of convenience sampling.

- i) Snowball sampling refers to the selection of a respondent, or a group of respondents who are known to possess the desired characteristics of the population. They are asked to identify other respondents who belong to the target population (see e.g. Malhotra and Birks, 2003). In other words, business angels are asked to identify other business angels. Two biases are likely to occur using this technique of sampling. The business angels will have demographic characteristics more similar to the persons referring them than would occur by chance (Malhotra and Birks, 2003) and they will commonly be located within the same geographic area.
- ii) In Finland, the Finnish Business Angel Association was established in 1997, to form a meeting place for business angels and entrepreneurs¹⁰⁶. The Chairman of the Finnish Business Angel Association was asked to refer the names of business angels willing to participate in the study.
- iii) The science park Innopoli works to discover new companies and help them grow and succeed¹⁰⁷. Their membership base includes business angels with a technology orientation. The person responsible for the incubation services at Innopoli was asked to refer business angels willing to participate in the study.
- iv) The Ministry of Trade and Industry was able to aid in the identification process. The industry counselor at the Ministry of Trade and Industry's finance division referred names of business angels that were familiar to him from before.
- v) Business angels were identified by conducting an online search in recently published articles in the business press. They belong to the most active and experienced part of the population.

¹⁰⁵ Nowadays the ministry of Employment and the Economy

¹⁰⁶ Retrieved from www.ledi.fi 14.04.2008

¹⁰⁷ Retrieved from www.innopoli.fi 14.04.2008

	N	%
Snowball method	38	71.70 %
The Finnish business angel association	7	13.21 %
Ministry of Trade and Industry	3	5.66 %
Business press	5	9.43 %
Total	53	100.00 %

Table 1 Sampling techniques used for the study

The majority (71.7 percent) of the business angels interviewed were identified using the snowball method. The use of the snowball method had an effect on the geographic distribution of the sample. More than 80 percent of the respondents in the sample were located in the capital region of Finland and the sample does not include business angels in Western Finland. Thus, the sample is evidently overrepresented by investors in the capital region. Nevertheless, that is where there is most business angel activity and therefore it is easier to identify investors located there.

	N	%
Capital region	43	81.13 %
Southern Finland (excluding capital region)	7	13.21 %
Western Finland	0	0 %
Northern Finland	2	3.77 %
Eastern Finland	1	1.89 %
Total	53	100.00 %

Table 2 Geographical distribution of the sample

One reason why the investors were asked to answer the questions with respect to their most recent investment was to reduce the survival bias and self selection bias arising from the investors' unwillingness to talk about failures (see e.g. Weidig and Mathonet, 2004). Only when the most recent investment was an atypical one were the investors given the option to pick an investment that corresponds to their style of investing. This evidently results in the risk that investors prefer to talk about their successful investments, instead of their unsuccessful ones. The study did not attempt at controlling for the effect of survival bias and/or self selection bias on the research findings. Information was not gathered on the performance of the investments represented in the sample. Questions related to the performance were considered to be sensitive questions that might result in an unwillingness to complete the survey.

The sample is likely to be biased towards the most experienced investors in the population of business angels. The business angels that were identified from the business press are investors that are widely known for their professionalism and previous achievements. These business angels were those most willing to identify and refer other investors for interviews. The descriptive findings in chapter 4 reinforce this by clearly demonstrating that the investors participating in the study had considerable experience as investors.

The sample is clearly small in comparison to most studies in the informal venture capital market. However, even if accurate estimates cannot be produced on the size of the different informal venture capital markets, the size of the Finnish business angel

population is undoubtedly much smaller than the size of the corresponding ones in the US, Canada, the UK and Germany. Therefore, the figures on sample sizes of studies conducted in Sweden and Norway provide a better benchmark for this study (see table 3). Two early studies on the Swedish informal venture capital market, Landström (1993) and (1995), were based on a sample size of somewhat more than 50 observations. The most recent study on the Swedish informal venture capital market by Månsson and Landström (2006) comprises a sample of nearly 300 business angels. Questionnaires were distributed to members of 12 different regional business angel networks. Nearly 900 questionnaires were sent to business angels. Even greater in magnitude was the sample size in the study by Reitan and Sørheim (1999) of the informal venture capital market in Norway. The sample size exceeded 400 respondents. The sampling frame of the study comprised 6681 individuals identified by using the mailing lists of three organizations as well as the snowball method.

The current conditions in the Finnish informal venture capital market make it extremely difficult to gather a sample of corresponding size to Månsson and Landström (2006). The membership base of the only existing Finnish business angel network, Sitra, amounts to 350 business angels and part of the membership includes potential investors that have not yet made their first investment (e.g. Lahti, 2007). These members anonymity is protected, which is why no mailing lists are made available for researchers.

Academic Business Angel Studies	Total Questionnaire Response Rate %	Number of BA Respondents
US		
Wiltbank (2005)	23 %	121
Sullivan and Miller (1996)	24 %	214
Fiet (1995)	10 %	83
Canada		
Farrell and Howorth (2002)	29 %	43
Feeney et al. (1999)	24 %	194
UK		
Mason and Harrison (2004)	<13%	127
Mason and Harrison (2002)	18 %	74
Paul et al. (2003)	29 %	140
Kelly and Hay (2000a)	10 %	110
Van Osnabrugge (1998a)	52 %	143
Germany		
Stedler and Peters (2003)	46 %	232
Norway		
Reitan and Sørheim (1999)	16 %	425
Sweden		
Månsson and Landström (2006)	31 %	278
Landström (1995)	56 %	58
Landström (1993)	42 %	52
Finland		
Lumme et al. (1998)	face to face interviews	38

Table 3 Sample sizes and the response rates of the studies

As the questionnaire was nearly eight pages relying on Sitra to distribute it would have involved the risk of obtaining a low response ratio. Thus, it was felt that the best way to ensure obtaining sufficient data was through identification based on the snowball method. Lumme et al. (1998) interviewed 38 business angels and applied the snowball method as the key sampling method.

The minimum requirement for this study was to obtain a sample of more than 50 business angels. Although, the sample size of 53 business angels is relatively small in comparison to the recent studies of the Swedish and Norwegian informal venture capital market, it provides an indication of how Finnish business angels operate and what their characteristics are.

3.2 Piloting the questionnaire

The questionnaire was piloted, in order to ensure that the questions are relevant and easily understandable. Eliminating flaws in the research design from the outset enhances the success of the study. The piloting phase had two key functions: the business angels participating in the piloting phase i) were asked to comment on the overall design of the questionnaire and ii) reflect on the content and relevance of each question presented to them. Even though nearly all of the questions were adopted from previous research, new scales were constructed. Therefore the pre-testing was hugely important.

Two business angels were selected for interviews in the piloting phase. Even though the cases were selected based on convenience¹⁰⁸, one of the investors was clearly much more experienced than the other investor. One of the two investors held a large portfolio of investments and had been investing in privately held businesses for more than ten years, whereas the other investor had only recently started his investment activities. In other words, there was heterogeneity in terms of investor experience.

The first interview was held in two sessions over two days. The duration of the interview was three hours. The second interview was considerably shorter with an overall duration of somewhat more than one hour. The questionnaire was extensive with the aim to gather a lot of interview data to be used for studies on Finnish business angels. Only a part of the data has been utilized for the doctoral work. Since it is in Finland extremely difficult and time consuming to obtain a sample of business angels that is sufficiently large for empirical analysis, a decision was made to collect plenty of data by employing a comprehensive ten page questionnaire. The data that are not represented in the doctoral work will be utilized for future studies on the informal venture capital market.

The piloting is of enormous importance, as flaws in the research design can have a serious damaging impact on the validity and reliability of the study. A discussion of the reliability and validity is conducted in section 3.6. The piloting phase contributed to reshaping the questionnaire.

¹⁰⁸ The criteria for selecting the participants in the pilot phase were geographic proximity and accessibility. The participants had to exhibit a strong willingness to co-operate in piloting.

Several questions that the investors felt were unimportant were omitted during the piloting phase. Some of the questions had been adopted from studies of venture capital funds' investment procedures but were not seen as relevant for business angels. In addition, some of the studies the questions had been adopted from investigated the more mature markets in the US and the UK, which is why revising the set of questions also provided fresh insights into how the Finnish market differs from the two more developed ones. The piloting facilitated an understanding of the Finnish context (see e.g. Stake, 2000).

A large set of valuation methods was presented to the two business angels participating in the piloting phase. From the initial thirteen valuation methods in the pilot questionnaire, only six remained when the pilot phase had been conducted. The omitted ones were: i) the discounted value of free cash flow, ii) recent transaction prices for acquisitions in the sector, iii) an industry's special rule of thumb ratios, iv) the dividend yield basis, v) the liquidation value of the assets, vi) the recent PE ratio of the parent company's shares and vii) responses to soliciting bids for potential investees. The fact that a large number of valuation methods that are commonly used by venture capitalists were discarded after the piloting phase indicates that Finnish business angels are much less reliant on valuation methods than venture capital funds are.

Similarly the piloting phase contributed to eliminating sources of information that are irrelevant in the arena of business angels. Nevertheless, only five of the twenty five sources presented to the business angels in the piloting phase seemed to lack relevance. The five sources discarded in the piloting phase were i) the financial press, ii) trade journals, iii) statistical and information services, iv) the opinions of other companies in the investment portfolio and v) the investee's competitors. The investors commented that they never use those five sources for information and added that their usage is sure to be highly limited among Finnish business angels in general.

An entire set of questions was also discarded based on the piloting phase. The business angels in the pilot phase were asked: for how many investments in their portfolio had they carried out the following set of activities when evaluating them: i) a tour of the facilities, ii) contacting existing outside investors, iii) contacting potential customers, iv) contacting current customers, v) investigating the market value of comparable companies, vi) having informal discussions with experts on the product, v) conducting in depth reviews of pro forma financials prepared by the company, vi) contacting competitors, vii) contacting bankers, viii) soliciting the opinion of managers in other portfolio companies, ix) contacting accountants, x) soliciting the opinions of other investors, xi) contacting lawyers and xii) conducting an in depth library research. Since the business angels were also asked to report on the sources for information utilized for the specific investment under study, asking business angels to separately evaluate their engagement in the activities listed above would have resulted in a redundancy in the survey design. The business angels participating in the piloting felt that asking questions that are partially overlapping can markedly decrease the respondents' willingness to continue the task of filling out the questionnaire. Even though the literature on triangulation highlights the advantages of using multiple ways to measure a phenomenon, so that the variance reflects the measure and not the method (multiple operationalization)

(e.g. Jick, 1979), this would entail the risk of obtaining a low response ratio as a consequence of decreasing the enthusiasm and motivation of the investors. The business angels participating in the piloting phase recommended the exclusion of the above set of questions.

The questionnaire was translated from English to Finnish, as it was assumed to be less time consuming for the investors to respond to the questions in their mother tongue. The investors participating in the pilot interviews aided with the wording as well as grammatically correcting translations that were inaccurate. The questionnaire was edited in accordance with requests of the respondents. Their contribution in the pilot phase cut down the length of the questionnaire by nearly two pages. Their role resembles that of a “key informant” described in Yin (2003). Yin (2003) sees “key informants” as persons that provide their own insights into a subject and suggest other persons to be interviewed.

Studies on triangulation (e.g. Brannen, 1992; Bryman, 1988, 1992 and Bryman and Bell, 2003), i.e. the advantages of using qualitative and quantitative methods for a study, argue that qualitative interviews prior to a case study can help in identifying new measures and scales. However, the two business angels participating in the pilot phase did not consider there to be a need to add further questions and saw that the questions fully reflected the research topics and the subject under study. In addition, they did not advise a revision of the scale of any of the questions in the survey.

3.3 The design of the questionnaire

The piloting of the questionnaire facilitated cutting down the length of the questionnaire by two pages. The final questionnaire used in the interview process comprised two parts. The first part focused on questions related to the investment procedures of business angels. The second part focused on questions related to tax incentives¹⁰⁹. A study on the efficiency and importance of tax incentives has been conducted using the data from the interviews (see Lahti, 2007).

The aim was to gather a plethora of data to be used for the dissertation as well as for further studies on the Finnish informal venture capital market. Since it is extremely difficult as well as time consuming to obtain data on business angels, it was considered wise to collect a lot of rich data at once. This was done because business angels that have participated once might be unwilling to take time off from their business activities to participate in future interview sessions.

The length of the first part of the questionnaire focusing on business angels’ investment procedures was seven pages. To ensure that the investors completed the rather lengthy questionnaire and understood the questions, the data were gathered using face to face interviews. It was thought that distributing the questionnaire to the business angels via the post may have resulted in plenty of blank responses to questions. The presence of a

¹⁰⁹ The questionnaire related to the investment procedures of business angels is included in appendix 2. It is the survey instrument this doctoral dissertation builds on. Appendix 2 includes in addition to the questionnaire used in the interviews (the version in Finnish), a version in English.

researcher may, however, entail the risk of business angels presenting themselves in a more favorable light and answering the questions in accordance with what they believe the researcher wants to hear. While the business angels filled the questionnaire, they were asked to comment on the questions and the research topics. A recorder was used to store the qualitative data accessed alongside the obtaining of responses to the questionnaire¹¹⁰.

The questionnaire had the following structure. First, the investors were asked to answer questions related to their personal characteristics, thereafter a set of questions related to their most recent investment (or a typical investment) and finally a set of questions addressed the investors' general investment preferences. The first questions related to their most recent investment (or typical investment) were on a general level and describe the characteristics of the deal. These questions were followed by more specific questions grouped into twelve categories. The categories are:

- A. Financial criteria,
- B. Sources used for evaluating the investment opportunity,
- C. People involved in due diligence,
- D. External factors,
- E. Internal factors,
- F. Valuation methods,
- G. The valuation of an entrepreneur's (management's) human capital,
- H. Their involvement in an investee company,
- I. Criteria related to active involvement,
- J. Other investment criteria,
- K. Reporting the requirements of investee companies, and
- L. Contractual provisions

Of these twelve categories six are a part of the doctoral dissertation: namely the sources used for evaluating the investment opportunity, external factors, valuation methods, the valuation of an entrepreneur's (management's) human capital, their involvement in an investee company and contractual provisions.

Similarly, the questions related to the investors' general investment preferences were ordered in categories. The four categories are:

- A. Non-financial criteria,
- B. Financial criteria,
- C. Criteria related to active involvement
- D. Criteria measuring the strength of commitment

Only the criteria measuring the strength of commitment were included in the doctoral dissertation.

Most questions were measured on an ordinal scale. Data on an ordinal scale were obtained by asking business angels to indicate their degree of agreement or disagreement

¹¹⁰ See appendix 3 for an overview of interviews with business angels cited in this research

with a series of statements and by measuring the degree of importance, accuracy and experience. This was done by applying a seven-point Likert scale (e.g. one equals not important and seven very important). A common problem with using a Likert scale is that respondents may answer every question with the same number and/or there might be a bias towards the central value. Thus, the study aimed at using the ratio scale whenever possible as this is more accurate and entails a higher variance in the obtained data. The ratio scale was utilized to measure the characteristics of the investors. The ratio scale captures quantitative information and possesses an absolute zero point.

Relying on questions on the ratio scale is, however, not without concerns. There exists a recall bias when an individual cannot remember. Then the accuracy is offset by the business angels' inability to give answers to the specific questions. To provide accurate, truthful information is, especially, cumbersome, when the information relates to an investment made in a previous time period (see e.g. Sudman and Bradbrun, 1982). This explains the relatively limited use of questions on a ratio scale. To alleviate the recall bias, data were gathered using multiple choice questions. Alternatives are presented as a range of values for the respondent to choose between. The type of multiple choice question where the alternatives have an order (e.g. ranging from lower to higher values) are on an ordinal scale.

Much of the data were collected using the nominal scale, meaning that the data were grouped and/or classified by assigning each group a number. The different categories are not ordered. Nominal data were gathered via multiple choice questions, where the categories are mutually exclusive, and via a binary scale with the alternatives constituting yes or no.

The questionnaire was carefully designed, since the data gathered by the questionnaire determine the methods of analysis that are feasible. In the next section, the different methods of analysis are presented which were applied using the data obtained from the questionnaire.

3.4 Methods

The regression analysis is the key method of analysis for this study. Factor analysis is applied for the purpose of reducing data. The factors formed are used as predictor variables in the regression analysis.

3.4.1 Factor analysis

Factor analysis is applied in this study to reduce the data. The purpose is to reduce the number of variables by defining a set of common underlying dimensions, known as factors (Hair et al. 1998). The scores calculated using factor analysis substitute for the original variables. The factors formed are subsequently used in regression analysis.

The factor is a function of the underlying variables in the analysis. The principal component analysis applied in this study considers i) the common variance (the variance

shared with all other variables), ii) the unique or specific variance (the variance associated with a single variable) and iii) the error variance (reflecting the measurement error in the data) (see e.g. Afifi and Clark, 1984; Sharma, 1996; Hair et al., 1998).

Factor analysis is applied to construct measures for industry sector experience, experience as an investor and the degree of involvement. The aim is to form one factor to measure industry sector experience, another factor to measure experience as an investor and a third one to measure the degree of involvement. The objective is to extract factors accounting for at least 60 percent of the variance.

3.4.2 Regression analysis

The multiple regression analysis is a statistical technique for analyzing the relationship between a single dependent (criterion) variable and several independent (predictor) variables (Hair et al., 1998). Regression analysis is applied in the first part of the chapter “findings and interpretations” to explain the use of sources for information and valuation methods as well as the time consumed in the valuation of an entrepreneur’s and management’s human capital¹¹¹. In the second part regression models aim at explaining the degree of involvement of business angels in investee companies. The independent variables have been constructed using agency theory and the incomplete contracting theory as a framework as well as previous research in the domain of venture capital and business angels.

The regression models include two control variables, to ensure the correct interpretations of the research findings. As the regression models are used to test the theoretical assumptions behind the hypothesized relationships it is crucial to control for effects that do not correspond to the underlying theories investigated in this study. Most of the regression models established, based on the gathered data, include one or two independent variables as well as two control variables.

3.5 Operationalization

The operationalization has been done by utilizing measures from previous research and relying on the two pilot interviews performed for the purpose of identification and specification of new measures and scales. Some measures are adopted directly from previous studies, whereas other measures are modified (e.g. with respect to scale or wording), to better measure the underlying constructs. The sources are listed below the various dependent, independent and control variables. New measures were constructed where existing measures were not available. The operationalization of the study variables for part 1 and part 2 of the study is depicted in this chapter. First, the focus is on the dependent variables, then the independent variables and finally the control variables.

¹¹¹ Correlations are examined between the independent variables and the sources for information, the independent variables and the valuation methods as well as the independent variables and the techniques for the valuation of human capital. This adds explanatory power through gaining knowledge of how the independent variables impact on the different components forming the dependent variables.

Part 1: An examination of the relevance of agency theory in explaining the due diligence procedures of business angels

The first part of the study uses an agency theoretical framework, to explain the use of sources for due diligence and valuation methods in the due diligence phase as well as the time consumed in the assessment of an entrepreneur's and management's human capital. Consequently, the sources for due diligence, the valuation methods and the assessment of an entrepreneur's and management's human capital constitute the key dependent variables.

Dependent variables

- Sources for due diligence:

The sources used for due diligence in the most recent (or typical) investment were counted for each business angel in the sample to form the additive measure i.e. the number of sources used for due diligence. The scale has been constructed by applying the sources examined in previous research.

- i) own due diligence report
- ii) business plan (balance sheet, income statement, planned data)
- iii) curriculum vitae of entrepreneur (management)
- iv) interviews with the entrepreneurs (management)
- v) interviews with other company personnel
- vi) management projections
- vii) proposed exit timing and method
- viii) sales and marketing information
- ix) product capacity/ technical information
- x) product information
- xi) market research study
- xii) due diligence by accounting and/or consulting firms and/or lawyers
- xiii) independent reports on the current financial situation
- xiv) other investors
- xv) financial advisors
- xvi) investee's current customers
- xvii) investee's potential customers
- xviii) investee's bankers
- xix) investee's accountants
- xx) investee's suppliers¹¹²

Sources: Fried and Hisrich (1994), Wright and Robbie (1996), Karsai et al. (1998), Manigart et al. (2000), Harrison and Mason (2002) and Locket et al. (2002)

¹¹² The dependent variable third party information is formed by counting the use of external due diligence reports (prepared by accountants/ consultants/ lawyers), financial advisors and independent reports on the financial situation (see Harrison and Mason, 2002).

- Valuation methods:

Similarly, the valuation methods utilized for the investment appraisal were counted for each business angel in order to form the additive measure i.e. the number of valuation methods. Previous research was utilized to form a representative list. The piloting phase ensured that the valuation methods presented below are the most relevant ones for the business angels interviewed.

- i) estimation of future earnings before interest and taxes
- ii) capitalized maintainable earnings (P/E multiple)
- iii) payback period
- iv) discounted future cash flow
- v) historic cost book value
- vi) replacement asset value¹¹³

Sources: Wight and Robbie (1996), Manigart et al. (1997), Karsai et al. (1998), Manigart et al. (2000) and Lockett et al. (2002)

- Assessment of the entrepreneur's (management's) human capital:

The measure, time allocated in the valuation of an entrepreneur's and management's human capital, is composed by summarizing the number of hours consumed in the five activities listed below.

- i) specification of qualities and competencies needed prior to talking to the entrepreneur (management)
- ii) talking with the entrepreneur (management) about his (their) previous experiences,
- iii) reviewing resumes of the entrepreneur (management)
- iv) reviewing articles on the entrepreneur (management)
- v) using the Internet to gather data on the entrepreneur (management)¹¹⁴

Sources: Smart (1999)

The independent variables introduced in this section are utilized to explain the variation in the use of sources and valuation methods as well as the time allocated in the valuation of the entrepreneur's and management's human capital. As the previous chapter confirms, the independent variables relate to the degree of uncertainty in an investment. Their operationalization is described below.

¹¹³ The dependent variable cash flow based measures is composed by counting the use of discounted future cash flows and the pay back period, whereas the asset based valuation methods are the historic cost book value and the replacement asset value (see subsection 4.1.8).

¹¹⁴ As has previously been noted, the specifications of qualities and competencies and the interviews with the entrepreneur and management are in this study referred to as "interview related techniques", whilst the review of resumes, articles and the use of the Internet to gather data are considered to be "background checks". They have been applied as separate dependent variables and apply the logic of summarizing hours.

Independent (explanatory) variables

- Stage of development:

Measured as a dummy variable (0 = early stage; 1 = later stage). All seed, startup and early stage investments are categorized as early stage.

- Perceived level of innovativeness:

Business angels were asked to determine the level of innovativeness of the product or service of the investee company on a seven point Likert scale ranging from 1 = very low to 7 = very high.

- Industry sector experience:

The two following measures are reduced to one factor:

- The number of years of experience of the business angel in the industry relevant to the investment in question. Investors were provided with a mutually exclusive set of alternatives: 0-5 years, 6-10 years, 11-15 years, 16-20 years, >20 years (ordinal scale)
 - The investor's perceived experience in the industry sector: measured on a seven point Likert scale ranging from 1 = no experience to 7 = extensive experience
- Experience as an investor:

The measures listed below are reduced to one factor.

- The number of years the investor has invested in unquoted, entrepreneurial ventures (as a private investor)
- The number of investments made in unquoted companies

Sources: Gorman and Sahlman (1989), Van Osnabrugge (1998a), Smart (1999) and Kelly and Hay (2000a)

- Signaling commitment through relationship specific investments:

Investors were first asked to determine whether and how strongly different relationship (transaction) specific investments signal an entrepreneur's and management's commitment. The investors' agreement was assessed with the statement: that the following factor signals a strong commitment on the part of the entrepreneur and the management team. This was measured on a seven point Likert scale ranging from one = I fully disagree to seven = I fully agree. The relationship specific investments compared in this study are listed below.

- The existence of a comprehensive and well thought out business plan
- The size of the entrepreneur's (management's) investment

- iii. The share of the new ventures initial financing that comes directly from the entrepreneur's (management's) personal savings
- iv. The entrepreneur's (management's) personal wealth as collateral
- v. The existence of a patentable prototype
- vi. The number of years the entrepreneur (management) has spent working in the firm

The investors in the sample rated the percentage of an entrepreneur's (and management's) savings invested in the venture to be the best indicator for the strength of his (their) commitment¹¹⁵. In other words, the averages revealed that the entrepreneur and the management can best signal their commitment through investing a substantial share of their net worth in their business. As it is difficult to obtain information on the entrepreneur's wealth, it was decided that the best way is to use a subjective estimate building on the investors' perceptions.

Therefore, the investors were asked to rate their agreement with the statement: the entrepreneur and the management invested a substantial share of their net worth in the entrepreneurial venture, which was measured on a seven point Likert scale ranging from one = I fully disagree to seven = I fully agree. The measure was then included as a predictor (independent) variable for measuring an entrepreneur's and management's signaling of commitment through relationship specific investments.

Sources: Barney et al. (1996), Van Osanbrugge (1999), Kelly and Hay (2000a), Koski (2000) and Florin (2003)

- Syndication/ co-investing:

Investors were provided with a mutually exhaustive set of alternatives: on my own, alongside venture capitalists, alongside other business angels, as part of both venture capitalists and business angels

Sources: Kelly and Hay (2000a)

- Perceived accuracy of the assessment of the market environment:

Investors were asked to determine the accuracy of their assessment of four items related to the market environment of the investee company on a seven point Likert scale ranging from 1 = very inaccurate to 7 = very accurate. The construct "perceived accuracy of the assessment of the market environment" was established by calculating an average for the four items listed below.

- i) size of the market
- ii) market need
- iii) market growth potential
- iv) access to market

¹¹⁵ see appendix 5 for obtained averages on the relationship specific investments

Sources: Tyebjee and Bruno (1984), Lumme et al. (1998), Van Osnabrugge (1999), Seppä (2000) and Kaplan and Strömberg (2004)

Control variables

In explaining the due diligence procedures, the study controls for an investor's distance to the investee company and the size of the investment. Proximity to the investee company makes the due diligence procedures easier to conduct, since it is less costly to obtain information when the distance is negligible (e.g. Wong, 2002). Thus, the aim is to control for the impact of distance on the dependent variables. In addition, in the first section, the study will control for the effect of the size of an investment on the research findings. Many of the costs in due diligence are fixed and create economies of scale (Berger and Udell, 1998). The costs are then the same regardless of the size of the investment, which is why the comprehensiveness of due diligence may, instead, become a function of the size of an investment. Therefore, by controlling for the size of an investment, it is easier to separate the effect arising from uncertainty.

- Distance to the investee company:

Investors were provided with a mutually exhaustive set of alternatives: <50 km, 60-250 km, 260-500 km, >500 km

- Size of the investment

The size of the investment is measured in euros.

Sources: Landström (1992) and Kelly and Hay (2000a)

Part 2: An investigation of the power of agency theory and the incomplete contracting theory in explaining an investor's involvement post investment

In the business angel context being actively involved is commonly seen to be the best way to monitor an investment and gain control post investment. As opposed to business angels, venture capitalists are more reliant on control through board membership. The study uses the degree of involvement as a measure for monitoring and control.

Dependent variable

- The degree of post investment involvement of investors:

The two measures listed below are reduced to a factor.

- i) The number of visits per year times the length of each visit
- ii) The number of telephone calls per year times the length of each call

Sources: Landström (1992), Van Osnabrugge (1998a) and Kelly and Hay (2000a)

Independent variables

Agency theory assumes a relationship between the level of ownership and the degree of involvement.

- The level of ownership of a business by the entrepreneur and management:

The level of ownership is measured in percentages.

- The level of ownership of a business by the business angel:

The level of ownership is measured in percentages.

Sources: Landström (1992) and Kelly and Hay (2000a)

The relationship between fixed tangible to total assets and the degree of involvement as well as the financial structure and the degree of involvement are examined.

- The fixed tangible assets to total assets (of the investee company):

The investors were provided with a mutually exhaustive set of alternatives: 0-15%, 16-30%, 31-45%, 46-60%, 61-75%, 76-90%, >90%

Sources: Kaplan and Strömberg (2003; 2004) and Kaplan et al. (2007)

- The financial structure (the equity ratio):

The investors were provided with a mutually exhaustive set of alternatives: 0-15%, 16-30%, 31-45%, 46-60%, 61-75%, 76-90%, >90%

There is a set of covenants that makes it difficult for an entrepreneur and management to leave their company after an investment has been made. It is assumed that their inclusion in the deal struck mitigates the need to gain control through active involvement.

- Covenants mitigating the hold-up problem:

The investors were asked to report on their agreement with the following statements:

- i) an entrepreneur (manager) cannot start a competing business, another company with a similar idea/ line of business (non-compete provision)
- ii) an entrepreneur/CEO (management) has (have) to remain in the company (for a minimum time period) in order to receive a portion of the stock (vesting provision)
- iii) no shares can be sold by an entrepreneur (management) during an initial period (stand still provision)
- iv) if an entrepreneur (management) receives an offer for his (their) shares, the investor(s) should be able to sell his (their) shares at the same price (tag along provision)

Their agreement was measured on a seven point Likert scale ranging from one = I fully disagree to seven = I fully agree¹¹⁶. An average was calculated for the investors' agreement with the statements to form the construct "inclusion of covenants mitigating the hold-up problem".

Sources: Landström et al. (1998), Isaksson et al. (2004), Kaplan and Strömberg (2003a; 2004) and Kaplan et al. (2007)

Control variables

In investigating the power of agency theory and the incomplete contracting theory in explaining the post investment involvement of business angels the study controls for the stage of development and the distance to the investee company.

The use of fixed tangible assets to total assets as a measure, in this study, imposes some problems. Companies in seed and startup stages short of tangibles may obtain relatively higher values for the measure (if they are also short of intangibles) than more mature companies in early and later stages with a solid asset base. In these specific cases the high ratios for tangible to total assets reflect more the stage of development than the existence of underlying tangible assets. Controlling for the stage of development can remedy this problem.

Distance can create a significant barrier for face-to-face interaction between investors and entrepreneurs (Kelly and Hay, 2000a). When the venture is local business angels are more capable of participating actively in the operations of the investee company. As in Kelly and Hay (2000a), the inclusion of distance as a control variable aims at minimizing the risk of misinterpreting the correlation between the explanatory (independent) and dependent variables.

- Stage of development:

Investors were provided with a mutually exhaustive set of alternatives: seed, startup, early and later stage

- Distance to the investee company:

Investors were provided with a mutually exhaustive set of alternatives: <50 km, 60-250 km, 260-500 km, >500 km

Sources: Landström (1992) and Kelly and Hay (2000a)

¹¹⁶ High values (strong agreement) imply that the covenant is included and perceived as important for the deal, whereas low values (disagreement) imply that the covenant has not been included and is perceived as unimportant. The middle range value, 4, was given in cases when the investor was unsure whether the specific covenant was included or not included. The instructions were given to improve the reliability of the scale.

3.6 Validity and reliability

Validity is concerned with whether an indicator measures what it is supposed to measure (e.g. Bollen, 1989). Perfect validity requires that there are no measurement errors (Malhotra and Birks, 2000). There are different types of validity, but they all have to do with threats and biases which would undermine the meaningfulness of research¹¹⁷. Although the researcher can develop a strong support for validity, the question of validity can never be answered with certainty (Bollen, 1989). In the following section different types of validity are evaluated.

A: Internal validity

Internal validity has to do with defending against sources of bias which would affect the causal relationship being studied. If there is a lack of internal validity the cause effect relationship might be to large extent affected by an extraneous variable¹¹⁸. The introduction of control variables in the regression models aim at controlling for effects influencing the predicted causal relationship.

B: Construct validity

Most authors give a great deal of consideration to questions of internal and external validity, but far less to issues related to construct validity (MacKenzie, 2003). Construct validity refers to how well the operationalization complies with the underlying theory. The measures, in this study, have been derived from theory and previous research in the domain of venture capital and business angels. Thus many of the measures have been validated in previous research. In addition, the piloting of the survey instrument ensured that the questions measure what they are supposed to measure. To make sure that the involvement is a means for business angels to mitigate risk related to the investments business angels were asked to report on their agreement with the following statement: frequent interaction is a very effective way to manage risk¹¹⁹.

Constructs were formed by using factor analysis, additive measures and calculating averages for measures. The objective was to build unidimensional constructs, which imply strong intercorrelations between the measures forming a construct. The construct is a function of the underlying measures, which is why the indicators, as a group, jointly determine the conceptual and empirical meaning of the construct (Jarvis et al., 2003).

C: Content validity

The content validity is a qualitative, subjective criterion for validity (Bollen, 1989), for estimating whether all the relevant indicators measuring a construct have been taken into account (Malhotra and Birks, 2000). Bollen (1989) notes that content validity is a

¹¹⁷ Retrieved 18.09.2007, <http://www2.chass.nscu.edu/garson/pa765/validity.htm>

¹¹⁸ Retrieved 18.09.2007, <http://www2.chass.nscu.edu/garson/pa765/validity.htm>

¹¹⁹ Their agreement was measured on a seven point Likert scale ranging from one (I fully disagree) to seven (I fully agree). A high average entails that the involvement is a key risk management tool for Finnish business angels. see subsection 4.1.10

qualitative type of validity where the domain of a concept is made clear and the researcher will judge whether the measures fully represent the domain. Content validity is often referred to as face validity. The content validity is controlled for by i) applying measures derived from the theoretical review and existing research on venture capitalists and business angels and ii) using the piloting phase to identify relevant variables, as well as to ensure that the measures derived from previous research are suitable for the Finnish context.

D: External validity

External validity refers to the ability to generalize from findings. As noted previously, the population of business angels is virtually invisible, which explains why it would be highly difficult to eliminate the bias of non-representativeness. Convenience sampling methods are used to access data from business angels, making valid generalizations unfeasible, and causing low external validity.

Even if all Finnish business angels were a part of the sample, the deal specific level of the study would also impose limits on the ability to generalize, as there is sure to be much heterogeneity in the ventures the business angels have invested in. The findings of the study are interpreted in the light of the constraints on external validity.

E: Conclusion validity

Conclusion validity is the degree to which we can draw credible inferences based on the findings. A significance level is chosen that is appropriate for the statistical tests. In the statistical tests there are two types of errors; error I and error II. A Type I error is when the researcher thinks there is a relationship when there is not and a Type II, correspondingly, is when the researcher thinks there is no relationship but in actual fact there is¹²⁰.

The study will apply a significance level of ten percent, instead of the conventional one or five percent. This increases the risk of making an error of type I. The reason for selecting a ten percent level of significance is twofold. First, the beta values are a function of the size of the sample. With a sample of somewhat more than 50 observations it is more difficult to achieve significance than if there was a more extensive study sample to build on. Second, the study has an exploratory nature in that it builds on new scales (to e.g. measure information usage and use of valuation methods). Also the shortage of previous research in the Finnish informal venture capital market adds explorative elements to this study. In exploratory research work a higher significance level than the conventional five percent is commonly applied and tolerated (see Labovitz, 1970).

The risk of making type I and II errors is high in studies of the informal venture capital market due to the invisible nature of the population. Thus, any interpretations made and conclusions drawn must be made with caution. There is a need to be aware of the

¹²⁰ Retrieved 18.09.2007, <http://www2.chass.ncsu.edu/garson/pa765/validity.htm>

shortcomings that relate to conclusion and external validity originating from an inability to ensure representativeness.

F: Reliability

The issue of reliability is concerned with the consistency of an indicator. Consistency is taken to comprise two distinct questions, namely the internal consistency and consistency over time (Bryman, 1988). Reliability is not the same as validity, since we can have consistent but invalid indicators (Bollen, 1989). The most common test for internal consistency is the Cronbach (coefficient) alpha. The Cronbach alpha considers the variance of the individual measure in the group, the variance of the group of measures in the data, and the number of measures in the group (Yli-Renko, 1999). The constructs formed in this study are seen to have a sufficient internal consistency when the value for the Cronbach alpha exceeds the satisfactory level of 0.5¹²¹.

Consistency over time measures the change in the responses of an individual when presented with the same question at two separate points in time. For consistency to be ensured a respondent should give the same answer to the question when the question is repeated. To test for consistency over time, two business angels belonging to the sample were asked to answer three questions that were included in the survey. The new answers were compared with the original ones. The answers were homogenous implying that consistency over time is achieved. Consistency over time implies that when the study is replicated using the same sample the findings should be in line with the previously obtained ones.

3.7 Methodological limitations

In this section the methodological limitations of this study are highlighted. Since this study is limited to the Finnish informal venture capital market, the conclusions do not apply to any other country as such. In collecting the data, convenience sampling techniques were utilized. This means that the sample may not be representative of the population of Finnish business angels. The sample is likely to be biased towards including the most active and experienced part of the population of investors. Interpretations are made bearing in mind the limitations with respect to sampling¹²².

The sample size of 53 observations places its limitations on the applicability of statistical methods for analyses. Regression models are established with maximally four variables as the limited sample size does not enable the inclusion of all the independent variables in one model. The size of the sample has a direct and sizeable impact on power, i.e. the probability of detecting significant relationships (Hair et al., 1998). As the probability of

¹²¹ see appendix 4 for assessment of the reliability of the constructs formed in this study

¹²² see section 3.1 "the sample of business angels"

detecting significant findings is a direct function of sample size, the relatively low sample size will make it difficult to obtain significant values¹²³.

Another limitation is that the analysis studying the impact of the type of co-investor on due diligence was performed with less than 40 observations, as 72 percent of the deals were co-invested. Consequentially, the model established does not fulfill the criteria of ten observations per parameter, commonly seen as a requirement in regression models (see e.g. Hair et al., 1998). In investigating how the type of co-investor affects the due diligence performed, some of the deals co-invested with venture capitalists also include business angels as co-investors. Thus, the study in fact compares deals syndicated with venture capitalists as well as venture capitalists and other business angels to ones where only business angels are present as co-investors. As the number of syndicated deals comprises less than 40 observations excluding the deals which contained both venture capitalists and business angels would have further decreased the sample size¹²⁴.

In this study statistical outliers have not been (detected and) excluded in the regression analysis. These extreme values may influence the relative importance of the independent variables in the regression models because they are significantly different from the other observations in the sample. Since the population is highly invisible and its characteristics unknown, extreme values in the sample are not removed from the regression analysis. Although these observations are extreme values in the sample, they may represent a part of the population that is not sufficiently represented (underrepresented) in the sample¹²⁵. Another conscious choice was to not transform the values for the variables with the purpose of reducing the variance arising from heterogeneity in the sample observations. Transforming values has the effect of reducing the impact of outliers in the sample. Even though previous studies (e.g. Kelly and Hay, 2000a) have used transformed variables, the fact that there is almost no previous knowledge on the characteristics of Finnish business angels may impose the risk of homogenizing an extremely heterogeneous, fragmented population of investors.

In the analysis the impact of the stage of development on business angels' due diligence all seed, startup and early stage deals are categorized as early stage. The reason behind the categorization is twofold. First, investors are not always able to determine with certainty whether their investment is in a company in the seed or startup stage or the startup or early stage of development. Second, the degree of uncertainty is significantly reduced when a company enters the later stage, and is able to show profit. Therefore, the

¹²³ The R-square values will not be emphasized in this study as the predictive power of the models is not of interest in this study and because their values are highly sensitive to the size of the sample.

¹²⁴ Excluding these observations would have resulted in less than 30 observations subject to analysis, which would have not facilitated statistical testing.

¹²⁵ However, in section 4.1 "descriptive findings" this study also reports (in footnotes) an average after the exclusion of the extreme values in the sample.

analysis is based on a comparison of relatively safe investments and investments in companies still involving considerable uncertainty¹²⁶.

The construct of the perceived accuracy of the assessment of the market environment focuses on different aspects in determining market attractiveness (see Fiet, 1991; 1995). It comprises four ingredients: an assessment of i) market size, ii) market need, iii) market growth potential and iv) the accessibility to the market. A more elaborate estimate would have encompassed items that estimate the competitive situation in a market and the presence of substitution.

¹²⁶ The categorization can also be motivated by the fact that the Finnish Venture Capital Association applies a similar categorization in making a difference between early stage investments (seed, startup and early stage) and expansion stage investments (later stage) (see www.fvca.fi).

4 EMPIRICAL FINDINGS AND INTERPRETATIONS

This chapter presents the empirical findings of the study. In section 4.1 the descriptive findings are addressed. They will provide a general overview of:

- i) the personal characteristics of Finnish business angels,
- ii) their style of investing,
- iii) what information sources have been used for due diligence purposes,
- iv) how investment appraisal is performed,
- v) how much time is allocated to the valuation of an entrepreneur's and management's human capital and
- vi) the magnitude of business angels' involvement in the companies they fund¹²⁷.

The findings examining the hypothesized relationships are described in section 4.2. Based on the strength of the obtained relationships, the hypothesized notions are either supported or rejected. In section 4.3 the explanatory power of the underlying theories is assessed in the light of the empirical findings. Interpretations are made for enhancing the understanding of what factors influence the due diligence procedures of investors and their degree of involvement in investee companies. When the predicted hypothesized relationships do not hold, the study aims at finding explanations for the lack of theoretical support.

4.1 Descriptive findings

The descriptive findings are compared to previous studies in the formal and informal venture capital market. They will help to understand how the Finnish business angels' investment approach differs from venture capitalists' and business angels' in other countries. However, it is especially important to compare the findings to the study by Lumme et al. (1998) in order to show how the Finnish informal venture capital market has evolved over a time period of somewhat more than ten years.

This chapter forms an understanding of the types of investors. Their use of sources for information, valuation techniques for investment appraisal and the number of hours allocated to the valuation of an entrepreneur's and management's human capital, provide an indication of how professional the investors are with respect to risk management pre investment, whereas their degree of involvement, post investment, suggests how actively the investors engage themselves in the businesses they fund. The presentation of the descriptive findings will also demonstrate the degree of heterogeneity of the obtained sample. Qualitative data are employed to add depth to the statistical findings.

¹²⁷ A summary of the descriptive findings is found in subsection 4.1.11.

4.1.1 Entrepreneurial experience

Many of the business angels in this study had derived their net worth from selling their successful firm. This coincides with findings in previous studies (e.g. Månsson and Landström, 2006; Lumme et al., 1998; Landström, 1993 and Van Osnabrugge, 1998a). 73.6 percent of the business angels reported that they had worked in a small business (see appendix 6; table 1). This figure, however, is considerably lower than the corresponding one in the UK (Van Osnabrugge, 1998a). In Van Osnabrugge (1998a) nearly all (99.2 percent) the business angels had previously worked in a small business.

The business angels had been actively involved in the founding of new business. In total, 83 percent of the business angels had founded at least one company, or had been a member of the founding team (see appendix 6, table 2a). The business angels in the study by Lumme et al. (1998) of the Finnish informal venture capital market had a more extensive entrepreneurial experience. Even 95 percent of the investors in Lumme et al. (1998) had started an entrepreneurial business.

The finding suggests that the population of business angels in Finland, nowadays, also includes investors that have accumulated wealth from sources other than the selling of their business, even though strongly dominated by previous entrepreneurs. One possible explanation is that, the surge in the stock market in the late 90s presented an opportunity for investors to obtain fortunes, through cashing in on holdings from quoted investments. The findings show that some business angels in this study have been involved in founding a business, even though they have not been involved themselves in running it. The number of investors that have started a business exceeds the number of investors that have worked in a small business. The interviews revealed that the business angels include senior management in large corporations that have participated in the founding of new businesses, while not being able to take part in running the operations (working there) because of their responsibilities to their bread and butter business (thus not jeopardizing their current income).

On average the investors had started 2.81 companies (median 2). Less than 10 percent of the business angels had started more than 5 companies (see appendix 6, tables 2a and 2b). The business angels in Lumme et al. (1998) had started a median of 5 companies. Comparing the findings to those in Lumme et al. (1998), the conclusion can be drawn that this study comprises business angels with less entrepreneurial experience.

The entrepreneurial experience, in terms of founding new business, of business angels in the UK seems to be on a similar level to that in Finland. In the UK 80 percent of the business angels had started a company, and respectively been involved in starting 2.3 companies. Studies of business angels in Scandinavian countries demonstrate that Swedish business angels are more entrepreneurial than the Finnish ones, whereas Norwegian business angels are far less entrepreneurial. Up to 90 percent of the Swedish business angels, in Månsson and Landström (2006), had previous founding experience¹²⁸.

¹²⁸ In an earlier study of the Swedish informal venture capital market, Landström (1993), this figure was 96 percent.

They had started on average 4.4 businesses (median 3). Less than half (46 percent) of the Norwegian business angels had experience as business founders.

4.1.2 Experience as an investor

The business angels interviewed for this study had extensive experience as investors. 79.2 percent of the investors are “serial investors”, implying that they have invested in more than three unquoted businesses. The business angels had invested on average in 10.47 unquoted businesses (see appendix 6, table 4a and 4b)¹²⁹. Nevertheless, somewhat above half of the business angels had made 6 or less investments previously (median 3).

In terms of previous investment activity, the business angels in the sample are more frequent investors than the business angels in Norway (Reitan and Sørheim, 1999) and the UK (Van Osnabrugge, 1998a). Reitan and Sørheim (1999) found that Norwegian business angels had invested on average in 6.9 unquoted businesses, whereas the corresponding figure for business angels in the UK was merely 4 unquoted businesses. In Månsson and Landström (2006) 48 percent of the investors had made more than three investments during the previous three years. The average amount of investments over a five year time period was 5.6. As the time period under study in Månsson and Landström (2006) is restricted to five years, it is difficult to determine whether there is a significant difference with respect to experience as an investor between Finnish and Swedish business angels.

Another measure that reveals that the Finnish investors in the sample possess considerable investor experience is the number of years they have made angel investments. In fact, the most experienced part of the sample (including 5 business angels) has been investing for over 20 years. An average of 8.21 years is surprisingly high, considering that the 1990s can be seen to mark the birth of the venture capital industry in Finland (see appendix 6, tables 3a and 3b)¹³⁰.

4.1.3 Investment activity

The average portfolio of an investor comprised 5.34 investments (median 2). However, over half (50.9 percent) of the investors held portfolios comprising four or less investments (see appendix 6, tables 5a and 5b). Furthermore, 84.9 percent of the investors had invested the previous year. The interviews revealed that some of the investments were follow-on investments. The sample is enormously heterogeneous, with respect to investment activity. The amount invested the previous year ranged from € 5000 to € 4 million, with € 381 471.70 constituting the average amount. Altogether the business angels in this sample had invested close to € 20 million (€ 19 468 000) the previous year. In spite of the fact that 15.1 percent (8 investors) of the business angels had not invested

¹²⁹ Excluding an extreme observation (a business angel that had conducted 110 investments) the average drops to 8.56.

¹³⁰ see Seppä (2000) for a documentation of the historical development of the Finnish venture capital industry

the previous year, the investment activity can be considered very high amongst investors (see appendix 6, tables 6a and 6b).

Bearing in mind the considerable investor experience of the business angels in the sample, it was not surprising to see that their portfolios were more sizeable than those in Lumme et al. (1998). Since the Finnish informal venture capital market is small some of the business angels interviewed in the current study are likely to be the same as in Lumme et al. (1998). Consequently, they have received more experience as investors, having been in the business of investing for more than 10 years longer.

In Lumme et al. (1998) the average portfolio had three investments, respectively 4.4 investments in Månsson and Landström (2006)¹³¹. In Månsson and Landström (2006) the median amount invested per investor in the past three years was € 200 000¹³². Similarly, Reitan and Sørheim (1999) reported that the average amount invested per investor in the last three years was approximately \$ 292 000 (US). Comparing these amounts to the amounts invested the previous year by Finnish investors in the current study, it can be seen that the average amount invested the previous year exceeds the median amount invested by the Swedish investors and the average amount invested by the Norwegian investors over those three years.

4.1.4 Style of investing

The findings show that syndication is very common among Finnish business angels. 71.7 percent of the investors had invested alongside other business angels, venture capital funds or business angels and venture capital funds. This is significantly higher than the figure (52 percent) in Lumme et al., (1998). In particular, the business angels investing through business angel networks frequently syndicate their investments. Consortiums are formed of investors with similar investment preferences. In most cases (73.68 percent of the syndicated investments) the co-investors were other business angels. In 52.63 percent of the cases the business angels invested alongside venture capital funds, and in 26.32 percent of the cases business angels invested alongside both business angels and venture capital funds. In total, 56.6 percent of the business angels in this study considered themselves to be in the role of lead investor in their most recent investment. The lead investor is the one with the most active role in the investment syndicate. This does not mean that he/she is, necessarily, the one accounting for the greatest amount of invested capital (appendix 6, tables 8a, 8b, 8c, 8d and 8e).

Syndicating investments is also a common model in Norway, although somewhat less utilized. Reitan and Sørheim (1999) state that more than half of the business angels have experience with syndication, and two thirds of all projects have been financed by co-investment involving a number of parties. In Månsson and Landström (2006) even 91 percent of the investors had syndicated their investments. Syndication seems to be a common form of investing in Scandinavian countries. This is also the case in the US (see

¹³¹ The corresponding figure in Landström (1993) was 3.8.

¹³² The median amount invested per investor in the past three years was € 150 000 in Landström (1993), indicating that the investment activity has increased in Sweden from 1992 to 2004.

e.g. Wong, 2002). In the UK, business angels are commonly referred to as “lone wolves”, since they often invest alone (see e.g. Mason and Harrison, 1996b; Mason and Harrison, 2000b). Only 29 percent of the investors in Mason and Harrison (1996a) syndicated their investments. Kelly and Hay (1996) reveal that serial investors are more prone to syndicate their investments¹³³.

56 percent of the business angels invested through an investment company. The corresponding figure in Månsson and Landström was 63 percent. Investors choose this mode of investing for fiscal purposes as it facilitates income equalization. The investor is, within the unit of the limited company, able to deduct losses and other expenses that are related to the investment activity from capital gains¹³⁴. This gives a considerable advantage to investors with sizeable investment portfolios. Not surprisingly, there was a positive relationship between the size of the investment portfolio and the use of investment companies for investing ($r=0.316$; $p<0.05$). In total, 28 percent of the investors invested directly and through an investment company (see appendix 6, tables 7a and 7b). One investor claimed that “*direct investments are easier to administer, since establishing a company includes a lot of paper work and bureaucracy*”. (Ba17)

4.1.5 Stages of development of the investee companies

The investments studied had been made in companies in all four development stages. About half of the investments (50.9 percent) had been made in investee companies in seed (24.5 percent) and startup stages (26.4 percent). The distribution differs markedly from the one in Lumme et al., (1998), where all the investments were made in companies in either the seed or startup stage, with the focus clearly on startups¹³⁵.

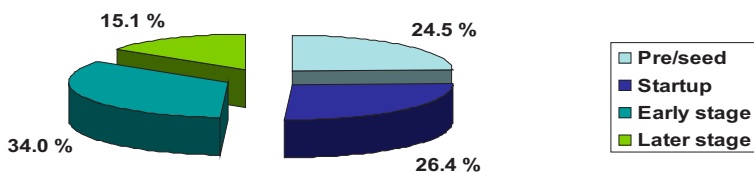


Figure 6 The stages of development of the investee companies in this study

In the current study even 15.1 percent of the investments were made in companies at the “later stage”, that is the stage more typical for venture capital funds to invest in. This could partly be explained by the relatively high degree of investments syndicated with venture capital funds (37.7 percent of the investments). Another possible explanation may

¹³³ Syndicating investments seems to be a common form of investing in Germany. Stedler and Peters (2003) show that business angels had favorable experiences from co-investing.

¹³⁴ see section subsection 1.8.2

¹³⁵ In Lumme et al. (1998) 72 percent of the investors had made investments in startups, and 38 percent in seed companies.

lie in the strong investment activity and investor experience. The business angels with large investment portfolios may want to diversify with respect to the stage of development through holding shares in companies with varying degrees of risk.

In Månsson and Landström (2006) less than half of the investments were made in seed and startup firms. This would suggest that the reluctance to invest in the seed and startup stages is even stronger among Swedish business angels than among Finnish business angels.

4.1.6 Deal flow and screen out ratio

Because business angels want to retain their anonymity, the amount of investment opportunities they come across tend to be significantly smaller than the amount of investment opportunities venture capital funds receive. Two approaches are utilized for identifying investment opportunities. The passive approach to investing, entails receiving the business descriptions on the desk or “cold calls” from entrepreneurs in need of funding. The investment opportunities can also be referred to investors by their personal network of friends or business associates. This contrasts with the proactive approach where the investor is actively seeking lucrative investment opportunities to invest in, reading articles in the business papers (press), revealing his interest to invest whenever finding a project of sufficient quality, meeting his investment preferences (see e.g. Tyebjee and Bruno, 1984 and Sweeting, 1991).

The investors in the sample were asked to estimate how many investment opportunities they receive per year (the passive approach) and how many investment opportunities they approach each year to propose funding to (the proactive approach). In total, 34 percent of the business angels did not apply the proactive approach to investing. On average the business angels approached 3.79 businesses to propose funding (appendix 6, tables 10a and 10b). Those that were most active in seeking investment opportunities also received the largest amount of proposals from entrepreneurs in need of funding ($r=0.631$, $p<0.01$). In other words, these two approaches to investing can rather be seen as supporting each other rather than as substitutes. The most active, professional investors minimize the risk of making bad investment decisions by allocating time to the identification of suitable investment opportunities.

The most significant difference to previous studies is in the size of the deal flow. While the average business angel in Lumme et al. (1998) became aware of six investment opportunities per year, almost half (47.2 percent) of the investors in the current study received more than 20 investment proposals per year. The heterogeneity among the investors is substantial. The most active investors received more than 100 investment opportunities per year, and the least active investors less than three. Business angels using business angel networks estimated that they become aware of around 30 investment opportunities annually. The average of 33.62 proposals is extremely high (appendix 6, tables 9a and 9b)¹³⁶. The Swedish business angels in Månsson and Landström (2006)

¹³⁶ Excluding an extreme observation (a business angel that received 300 investment proposals) the average falls to 28,50.

came into contact with an average of eight investment opportunities a year¹³⁷. Also the business angels in Germany (Stedler and Peters, 2003) and Norway (Reitan and Sørheim, 1999) received less than ten investment opportunities on an annual basis¹³⁸.

Business angels were asked to report on how many investment opportunities, they become aware of are subject to serious consideration and how many received funding. Of the investment proposals the business angels came across, 19.06 percent were subject to serious consideration and 8.32 percent received funding (median 5 percent) (see appendix 6, tables 11a, 11b, 12a and 12b). The similarity of the two ratios suggests that projects that are considered in detail have a good chance of getting funding. Since costs incur in conducting due diligence, the high selectiveness in (seriously) considering investment proposals can result from a cost minimizing strategy. Since due diligence is also time consuming, the business angels save time as well as money.

Clearly, the investors that come across the greatest amount of investment proposals are those with the best possibility to reject received proposals ($r=0.367$; $p<0.01$). The screen out ratios (or rejection ratios) of the investors in this sample resemble those in Lumme et al. (1998). The screen out ratio was slightly higher than in Lumme et al. (1998), even though the amount of investments seriously considered differs markedly. Lumme et al. (1998) report that, on average, investors gave serious consideration to three or four out of every 10 investment opportunities that they received but invested in just one of those opportunities. The screen out ratio was somewhat lower in Månsson and Landström (2006). Of the eight investment opportunities they became aware of one got funding, pointing to a screen out ratio of 87.5 percent. Stedler and Peters (2003) found that more than 84 percent of the investment opportunities German investors came across were rejected, whereas the screen out ratio in Riding et al. (1997), studying the Canadian informal venture capital market, was approximately 90 percent.

4.1.7 Sources for information

This section investigates the sources for information utilized for the investment appraisal and the decision to invest. Investors would generally like to have all relevant information available for their investment decision (Zacharakis and Shepard, 2001). The findings in Zacharakis and Shepard (2001) as well as Farrell and Howorth (2002) reveal that investors' accuracy does not necessarily improve as more information becomes available. They may, however, believe that their assessments are improving, which increases their confidence in their projections (Farrell and Howorth, 2002). An information overload may cloud an investor's decision making process (Zacharakis and Shepard, 2001) as well as result in investor overconfidence (Farrell and Howorth, 2002).

¹³⁷ This is more than in the previous study, Landström (1993), where the business angels came across ten investment opportunities in a three year period.

¹³⁸ The investors in Reitan and Sørheim (1999) received 20 investment proposals in a three year period.

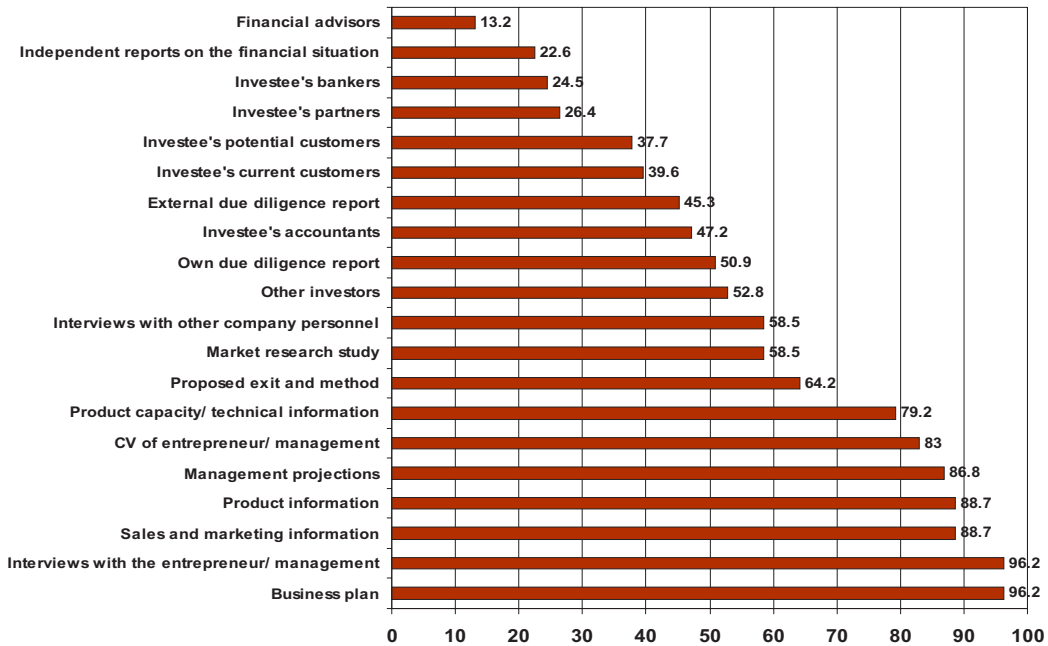


Figure 7 Sources used for gathering information about the investment

Figure 7 depicts the use of sources for information for due diligence purposes. The business angels in this study had utilized on average 11.58 sources for information (see appendix 6, tables 13a and 13b). Not surprisingly, business plans and interviews with an entrepreneur and the management were the two most common sources for information. Mason and Harrison (1996a) state that a business plan is a necessary, but not a sufficient condition for raising finance. One investor, nevertheless, pointed out that “*the majority of the deals have been made without a business plan*”. (Ba1)

As been noted previously, for many business angels due diligence simply entails verifying the information in the business plan. Then, the adverse selection problem is pronounced. This is because investors have to rely greatly on information about an enterprise’s state of affairs as supplied by the entrepreneur (Wright and Robbie, 1996). Verification of the information in a business plan is performed by asking current and potential customers, employees and other stakeholders questions about the investment opportunity (see e.g. Fried and Hisrich, 1994). The information from the interviews is compared to the information included in the business plan. This is one way of ensuring that the entrepreneur in question is honest and that the information is accurate and true.

It appears that the most common information sources are business plans and information related to an entrepreneur and management, because also an entrepreneur’s and management’s curriculum vitae is among the most commonly available and verifiable sources. The study by Manigart et al. (2000) examining information usage and the valuation methods applied by European and Anglo-Saxon venture capitalists found that

the curriculum vitae of the management team and interviews with entrepreneurs were just slightly less important than the business plan, which strengthens this suggestion.

Harrison and Mason (2002) studied the informal venture capital market in the UK and found that business angels are reliant on independent information and limitedly use third party sources. In other words, they use a personalized approach to investing and are reliant on their knowledge and experience, instead of using formal expert opinion on the product and the market. Van Osnabrugge (1998a) argues that many business angels cannot afford to use lawyers and accountants for due diligence purposes and have to perform the due diligence themselves. In large business acquisitions the investors almost always utilize experts to perform legal and financial due diligence (Blomquist et al., 1997).

The findings in this study demonstrate that financial advisors and independent reports on the financial situation are the least common information sources. However, nearly half of the investors turn to lawyers, accountants and/or consultants to prepare a due diligence report. Somewhat more than half of the business angels conduct their own due diligence report. A self-conducted due diligence report builds on the information gathered from interviews, and often includes an investment appraisal. The reason for the relatively high usage of external due diligence might be partly explained by the fact that business angels belonging to the business angel network obtain these services affordably. One business angel remarked that *“the business angel network (Sitra) is helpful in making sure that the company gets good lawyers. This reduces the barrier for making an investment. The services can be found at a decent price”*. (Ba16)

Despite the long term nature of informal venture capital, entrepreneurs had in 64.2 percent of the cases determined the exit period and exit vehicle. Business angels are generally known to be patient investors less concerned about the length of their investment than venture capitalists, who want to realize their investment through a rapid exit (see e.g. Landström, 1993; Van Osnabrugge, 1998a; Sohl, 1999)¹³⁹. Two investors expressed their concerns about entrepreneurs that are too eager to produce a fast exit, stating that:

“I was bothered some years ago when a couple of entrepreneurs explained that when we do like this and like that we can exit within three years. This does not increase the credibility of the business opportunity. It is very difficult to make a good exit in three years, especially, in the case of very small companies”. (Ba12)

“It is good that the business plan includes some kind of exit plan, but if the timing and vehicle of the exit is in the first sentence and the aim is to make an exit in three years this is not necessarily a good signal”. (Ba13)

In almost 90 percent of the cases the entrepreneur and/or management team had produced financial projections. In chapter 2 it was stressed that these projections commonly diverge

¹³⁹ Regardless of the fact that business angels are generally less concerned about exiting their investments than venture capitalists, some studies have demonstrated that the length of the exit horizon is similar for business angels and venture capitalists (see e.g. Freear et al., 1995 and Van Osnabrugge, 1998a).

from those made by the investors, as they often tend to be seen as overly optimistic. In addition, as Diaz (2002) points out, financial information is highly susceptible to manipulation and unethical practices, and therefore investors should be alert to the possibilities of fraud and deception.

Subjective information from discussions with stakeholders is utilized by many investors to test the robustness of the financial projections (Wright and Robbie, 1996). Besides decreasing the asymmetric information, this improves the accuracy of the valuation performed by the investor. One investor remarked that *“I utilize the management projections for my own valuation, but I don’t trust them”*. (Ba4)

The findings show that business angels sometimes consult other investors during the due diligence process. Somewhat more than 50 percent of the investors reported that they consulted other investors when making the decision to invest. Information sharing is a common practice when the investment is syndicated¹⁴⁰.

Even though the investee’s bankers were seldom utilized as a source for information, their opinion can turn out to be crucial for the investment decision¹⁴¹. One business angel felt that *“if it is the kind of investment where you enter with a substantial investment, you have to talk to bankers that are regular funders. It is important that you don’t invest in a business where the banker has remarked that something is wrong”*. (Ba5) This is a way for the investor to protect himself against credit risk. The investors tend to be in contact with the bankers, if they need to negotiate the financial structure of the deal.

Current and potential customers were interviewed in somewhat less than 40 percent of the investments. As one investor states, *“one cannot always ask for information from customers, as this is very sensitive information and can easily burn bridges”*. (Ba5) This may partly contribute to explaining why this information source is not utilized to a greater extent. However, the current and potential customers can often provide valuable feedback on the quality of the product/service.

Information related to the product/service is included in a well conceived business plan. Business angels may, however, need to contact an expert in investment proposals of a high technology nature (see Sweeting, 1991), and when they lack sufficient knowledge and experience to fully understand the product and/or service. Technology experts from university departments, technology consultants, patent advisers and market research consultants may be involved (Heying, 1999). When asking technology experts questions related to the product/ service, an investor has to make sure that he does not violate the non-disclosure agreement by spilling trade secrets. Manigart et al. (2000) found that the information on sales and marketing, product information and production or technical information is generally speaking unimportant in European and Anglo-Saxon countries. This study does not measure the importance of the information gathered during the due diligence process, but demonstrates that product as well as sales and marketing

¹⁴⁰ see subsection 2.4.1.

¹⁴¹ The relatively low usage of opinions from bankers might be explained by the fact that many ventures have not reached the phase of qualifying for funding from banks and/or decided to remain solvent in their early stages.

information was utilized in almost 90 percent of the investments under study. Also technical information ranked high in usage. One business angel highlighted that *“sales and marketing information is very important. If the company is not performing well there is an immediate need to do something about sales and marketing, e.g. developing new sales channels”*. (Ba7) Another business angel indicated that the best way to collect information regarding the feasibility of a product is through testing it, stating that *“free samples are an easy way to get a picture of the possibilities of the product to make a market breakthrough, and reveals how well the product can capture a substantial share of the target market”*. (Ba11)

Nearly half of the business angels had asked for a statement from the investee’s accountant. Two investors held contrasting views on the role of the investee’s accountant. While one of the two investors pointed out that *“the first thing I do is change the accountant of the venture”*, (Ba18) the other investor thought that *“if I continue with the old accountant I get much more information,”* adding that *“continuing with the old accountant contrasts to the practices of most other investors”*. (Ba9) Similarly to the investee’s banker, the accountant can comment on whether there is something wrong.

Other personnel were interviewed in close to 60 percent of the ventures. They may provide valuable information not only about the business, but also about the entrepreneur and management. It is crucial that the interests of the personnel and the management are aligned.

In over half of the cases a market research study had been conducted. The relatively high percentage may reflect to some extent the fact that the personnel in charge of managing the business angel network (Sitra) sometimes conduct research on a venture’s target market. One business angel explained this by saying that *“when investment opportunities have been accessed through Sitra’s business angel network, some kind of market research has already been conducted”*. (Ba15) Sometimes investors rely on the research that the entrepreneur has undertaken.

4.1.8 Valuation methods

Reaching a value for an unquoted firm is much more difficult than for a quoted firm, where the demand for the company’s shares, being publicly listed, provides an indication of the current value of the company. The ventures the business angels invest in are highly illiquid and the real value depends on what at least one buyer is willing to pay for share ownership (Van Osnabrugge and Robinson, 2000). The value is subjectively determined by using a set of valuation methods.

Even though it is not possible to come up with exact predictions for a company’s first five years, it is possible to come up with somewhat realistic estimates (Camp, 2002). As was pointed out in chapter 2, investors have an interest in obtaining the lowest possible valuation, whereas entrepreneurs have a strong desire to obtain the highest possible valuation. When the entrepreneur’s and the investor’s perception of the value of a firm diverges substantially an investor is reluctant to invest. Proposals are rejected when the

entrepreneur's projections of the firm value lead to a share price investors perceive as too high. Unrealistic valuations were one of the key deal breaking criteria of business angels in Mason and Harrison (1996b), Lumme et al. (1998) and Feeney et al. (1999). Fried and Hisrich (1994) showed that since totally unrealistic initial pricing proposals by an entrepreneur may lead to a quick turn-down, some entrepreneurs submit proposals without a price to avoid influencing the investors (venture capitalists) in the initial screening. If the perceived high price of the shares does not lead to an immediate rejection in the initial screening, it will render subsequent negotiations more difficult (Mason and Harrison, 1996a)¹⁴².

Considerable effort might be consumed in verifying the robustness of accounting information, particularly the cash flow forecast (Wright and Robbie, 1998). This task is sometimes outsourced to an accountant. Tyebjee and Bruno (1986) indicate that for venture capitalists to invest, a business plan must include pro forma statements with cash flow forecasts for five to eight years into the future. However, business angels are, in general, much less concerned about issues related to the pricing of an investment (Norton, 1995). Only 30 percent of the business angels in the study conducted by Van Osnabrugge (1998a) estimated return percentages, whilst the majority had not, and were unable to give financial estimates. In contrast, even 90 percent of the venture capitalists, in the study, made these calculations using most often estimates that were based on discounting future cash flows (Van Osnabrugge, 1998a). The valuation methods assessed in this study are presented in this subsection, along with findings on their commonality among the business angels in this study. The valuation methods have been grouped in three main categories – namely; earnings based methods, cash flow based methods and asset based methods.

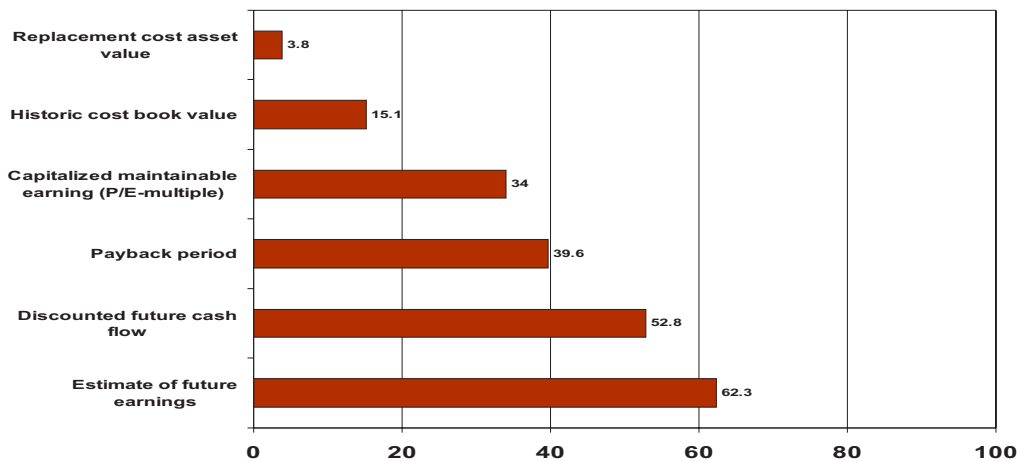


Figure 8 Valuation methods applied for estimating the value of the investments under study

¹⁴² Kaplan and Strömberg (2004) give an example of the extent of divergence in the estimations of the management and investors. In one of the deals reviewed the management forecast of earnings before interest and taxes, for year four was \$11.9 million versus a venture capitalist forecast of \$6.5 million. The difference is seen largely to reflect overoptimism in the management's projections.

Figure 8 depicts the frequency in the use of the valuation methods examined in this study. The business angels in the study had used on average 2.08 valuation methods for investment appraisal. Only 13.2 percent of the investors in the sample did not calculate a value for their investment (see appendix 6, tables 14a and 14b).

A) Earnings based methods

To produce estimates for future earnings before interest and taxes, there should be knowledge of the expected sales for future reporting periods. Investors should also expect an entrepreneur and/or management to describe the product development costs that have been assumed in their expense projections (Camp, 2002). The findings show that most of the investors had projected earnings before interest and taxes for future reporting periods, in order to obtain an indication of the value of the company. Knowledge on future earnings may facilitate calculating (future) earnings per share. This was the most common valuation method for the investors in this sample.

The price to earnings ratio (P/E multiple) considers the present accounting earnings of a venture. The price-to-earnings ratio is defined as the current price of a company's stock divided by its current annual net earnings per share amount (Camp, 2002). In other words, the P/E ratio compares the value of the company (the value of equity with the value of the outstanding debt added to this) with earnings after tax (being the net sum that accrues to shareholders) (Van Osnabrugge and Robinsion, 2000).

The P/E multiple is then compared to peer group firms, i.e. firms in the same line of business with similar financial structures; accounting bases; and policies regarding depreciation, amortization, and capitalization expenses (Van Osnabrugge and Robinsion, 2000). It might sometimes be rather difficult to find companies that fit these characteristics. Approximately, every third company had been evaluated, by business angels, using the P/E ratio. One business angel stated that "*P/E ratios are always used, if we believe that we can reach a certain target level,*" but added that "*the price per sales might be the most preferable method when looking at comparable companies*". (Ba10)

Unlike Van Osnabrugge (1998a), Wright and Robbie (1996) and Manigart et al. (2000) found that variations of P/E ratios were more commonly used and considered more important than discounted cash flow estimates. Wiltbank (2005) stresses that financial ratios and their comparison to peer group firms constitute a major aspect of venture capital due diligence and play an important role in the investment decision.

B) Cash flow based methods

In the discounted cash flow approach, the value of the venture is the future expected cash flow discounted at a rate that reflects the riskiness of the cash flow (Coplan et al., 1995). In venture capital and angel investments the perceived risk is only one of the ingredients making up the discount rate.

Other ingredients affecting the size of the discount rate are i) illiquidity, ii) value added, and iii) adjustment projections (see Sahlman, 1990 and Camp, 2002)¹⁴³. In particular, the companies business angels invest in are highly illiquid and the investors are commonly involved for the long term. Business angels and venture capitalists expect to be compensated for their value added contribution. As has been previously highlighted, investors tend to believe that the entrepreneur's projections are overly optimistic. To correct for this overoptimism, many investors adjust the discount rate (see Sahlman, 1990 and Camp, 2002).

The discount rate reflects the business angels' return requirement. Van Osnabrugge and Robinson (2000) argue that a 50 percent required rate of return might be quite reasonable for such high risk investments. There seems to be a great deal of variation in the business angels' return expectations, as can be witnessed from the qualitative data. Whereas one business angel pointed out that *"if I cannot obtain a return on the investment that is higher than our minimum level of 30 percent I will not invest"* (Ba3), another business angel claimed that *"the minimum return requirement is 100 percent, and only curiosity can lower the requirement level"*. (Ba17)

A high value on this discount rate will lower the valuation of the company, and consequently will increase an investor's equity stake. The percentage of ownership for the investor is calculated by dividing the amount being invested by the company's (terminal) value (Camp, 2002)¹⁴⁴. The problem with cash flow estimates is that they are highly sensitive to the assumption upon which they are based (e.g. sales, price). To deal with this, investors often perform a sensitivity analysis (see e.g. Reid and Smith, 2001).

Over half of the investors applied discounted cash flow estimates when making a valuation. The discounted future cash flow method is the second most common valuation method among the investors in the sample.

The payback period estimate calculates the number of years it takes for cumulative forecasted cash flows to equal the initial investment (Brealy and Myers, 1991). In another words, the payback period estimate calculates the number of years it takes to reach break even. A cut off period is chosen for the project. It is the point in time for determining the economic feasibility of a company.

A problem with the payback period method is that it gives equal weight to all cash flows before the payback date and no weight to cash flows after the cut off period (see Brealy and Myers, 1991). As textbook book examples demonstrate (in e.g. Brealy and Myers, 1991), this may result in, decision making, favoring short lived projects over long lived projects, when the short lived projects generate higher cash flows prior to the cut-off date than the long lived ones. The short lived project is, then, chosen, even though it has a lower net present value (NPV) than the long lived project.

Despite its obvious flaws, the payback period method is commonly utilized among the investors in the sample. Almost 40 percent of the business angels in the sample applied it,

¹⁴³ These adjustments increase the value of the discount factor.

¹⁴⁴ The terminal value is the total value of the company in its terminal year (Camp, 2002).

which points to a surprisingly high popularity among Finnish business angels. One business angel claimed that *“the payback period method is not very relevant, but it is almost always utilized”*. (Ba16) The reason might lie in the apparent simplicity of the method.

C) Asset based methods

Book value is defined as total assets minus total liabilities. This is easily determinable from a company’s balance sheet (Tyejee and Bruno, 1986). Determining a firm’s book value is always a good starting point in the valuation of companies (Van Osnabrugge and Robinson, 2000). The two estimates i) cost/book value and ii) replacement cost asset value are concerned with the past and the present of the company, and do not speak of the future, and are for this reason rarely of interest to the investors (Tyejee and Bruno, 1986). In the cost to book estimate the acquisition costs are compared to the book value of the company’s assets. The replacement cost asset value estimate is an assessment of the value of the company that builds on calculating the costs to replace the company’s assets.

The asset based valuation methods are the least popular ones. The cost/book value was estimated in 15.1 percent of the investments, whereas the replacement asset value estimate was used in only 3.8 percent of the investments. The findings are consistent with findings from previous studies investigating which valuation methods venture capitalists (see e.g. Tyejee and Bruno, 1986; Wright and Robbie, 1996 and Manigart et al. 2000) and business angels (see e.g. Mason and Harrison, 1996a) use to value investment opportunities¹⁴⁵.

In highly innovative early stage firms it is impossible to obtain a fully accurate estimate of the value of the firm. Therefore, there will always remain uncertainty regarding the value of the project. There is not necessarily one method that is best suited, which is why investors may choose to use a multitude of methods to calculate a value for the venture (e.g. Van Osnabrugge and Robinson, 2000). Section 4.2 will enhance our understanding of which factors impact on Finnish business angels’ usage of information sources as well as valuation methods.

4.1.9 Valuation of an entrepreneur’s and management’s human capital

There has been plenty of previous research demonstrating that the quality of an entrepreneur and management is the key investment criteria for venture capitalists and business angels when making an investment (e.g. MacMillan et al., 1985; Hisrich and Jankowicz, 1990; Knight, 1994; Muzyka et al., 1996; Mason and Harrison, 1996a; Lumme et al., 1998; Ardichvili et al., 2000 and Kaplan and Strömberg, 2004). The strong empirical evidence highlighting the importance of the qualities of an entrepreneur and management supports the well known saying that the three most important criteria when

¹⁴⁵ These studies have shown that asset based valuation techniques are the least popular ones among investors.

making an investment are management, management and management. For business angels the qualities of the entrepreneur and the management are also the key reason for rejecting an investment opportunity at the initial screening phase (see e.g. Mason and Harrison, 1996b; Lumme et al., 1998 and Feeney et al., 1999). Some of the characteristics of the entrepreneur and/or management in previous studies that were found to be important include demonstrated leadership capability such as a proven track record (MacMillan et al., 1985; Wright and Robbie, 1996; Ardichvili et al., 2000; Wong, 2002), previous experience and skills in related areas (MacMillan et al., 1985; Wright and Robbie, 1996; Mason and Harrison, 1996b; Ardchvili et al., 2000), evidence of staying power and ability to handle risk (MacMillan et al., 1985).

There are many explanations for the strong importance attached to the characteristics of an entrepreneur and management team. First, the survival and success of a venture is dependent upon thousands of decisions the entrepreneur and management team will make during the life time of the investment (Camp, 2002). Cressey (1996) indicates that human capital is a more important ingredient than financial capital for explaining startup survival. Second, especially in highly innovative companies, the foundation of a business may lie in the human capital of the entrepreneur, which explains why the entrepreneur is, then, virtually irreplaceable (see e.g. Kelly and Hay, 2000a). Third, many business angels have an entrepreneurial background and have made money by successfully backing their own judgment. Thus, the ability and characteristics of an entrepreneur and management are more important than anything else in the search for entrepreneurial talent able to replicate their success stories (Beer, 2006). Finally, due to the limited amount of “hard data” and the inappropriateness of over-sophisticated analytical techniques (Sweeting, 1991), the information related to an entrepreneur and a management team becomes more important than the information related to their market (Zacharakis and Shepard, 2001).

A business plan should demonstrate the relevant experience and abilities of its entrepreneur and management team (Mason and Harrison, 1996b), as well as the existing gaps to be filled. Business angels may contribute to filling the existing gap through being involved in the day-to-day operations of the business and by recruiting personnel. Business angels may possess the general management experience and business knowledge needed for the commercialization of an innovation.

In the US the characteristics of an entrepreneur and/or management are likely to be more important than in Finland for the apparent reason that serial entrepreneurship is not as common in Finland as it is in the US (Paasivirta and Valtonen, 2004). The serial entrepreneur is defined as a person that successfully sets up a string of new ventures, one after another¹⁴⁶. These entrepreneurs have established an extensive track record and proven that they have “what it takes to make it”.

Even though the business angels attach paramount importance to the qualities of an entrepreneur and management, previous research indicates that they seldom utilize a data driven approach to assessing these qualities. The majority of the business angels in Van

¹⁴⁶ Retrieved from: <http://dictionary.bnet.com/definition/serial+entrepreneur.html>

Osnabrugge's (1998a) study met the entrepreneur a few times and made their decision based on gut feeling.

Although business angels are shown to be more concerned with the qualities of entrepreneurs than the venture capitalists (e.g. Fiet, 1991, 1995 and Harrison and Mason, 2002), the business angels' approach to assessing entrepreneur and management is assumed to be more informal than the venture capitalists'. The findings in Mason and Harrison (1996a) support this assumption by demonstrating that despite the importance the business angels give to the characteristics of an entrepreneur and/or management team in an investment decision making process, relatively few investors undertook a detailed investigation of the entrepreneur. Smart (1999) adds further support for this assumption by revealing that the average venture capitalist, in the US, allocates 120 hours to the assessment of an entrepreneur's and management's human capital.

Building on Smart (1999) the business angels were asked to report how much time they allocated to i) the specification of qualities and competencies needed prior to talking to the entrepreneur (management), ii) talking to the entrepreneur (management) about his (their) actual experiences, iii) reviewing resumes of the entrepreneur (management), iv) reviewing articles on the entrepreneur (management) and v) using online or other media to gather information on the entrepreneur (management). The number of hours allocated to these tasks provides a proxy for the business angels' effort in their assessment of the human capital of an entrepreneur and management.

The findings illustrated in table 4 show that Finnish business angels allocate on average approximately 28 hours to the assessment of an entrepreneur's and management's human capital. This compares badly with the average of 120 hours in Smart (1999). It appears that Finnish business angels use considerably less effort in assessing an entrepreneur's and management's human capital, prior to investing than venture capitalists in the US.

	Average	Min.	Max.	Std.
1) Specification of qualities and competencies needed prior to talking to the entrepreneur (management)	6.72	0	100	15.92
2) Talking to the entrepreneur (management) about his (their) actual experiences	17.86	0	100	20.63
3) Reviewing resumes of the entrepreneur and management	1.55	0	10	2.07
4) Reviewing articles on the entrepreneur and management	0.73	0	5	1.25
5) Using on-line data to gather information on the entrepreneur and management	0.84	0	10	1.84
6) Total	27.7	2.5	210.5	36.03

Table 4 Hours spent on the valuation of human capital

However, to be able to state with great comfort that the business angels' approach to assessing an entrepreneur's and management's human capital is more informal than the venture capitalists' similar empirical data should exist on Finnish venture capitalists. The Finnish informal venture capital market is considered to be underdeveloped in terms of size and scale (e.g. Lumme et al., 1998), whereas the venture capital market in the US is the most mature (venture capital) market in the world. Therefore, the more professional and formal approach, adopted by venture capitalists in the US, may to some extent reflect the evolution of assessment practices in developed markets. In addition, as been previously noted, serial entrepreneurship is more common in the US than in Finland. This

suggests that entrepreneurs in the US have more extensive track records and entrepreneurial experience, which produce more data for investors to base their assessment on.

By far the most time is spent in discussions with entrepreneurs (management) about their experiences. These discussions are crucial for the investment decision. The business angel determines whether the entrepreneur (management) is capable of successfully running the business and taking the product and/or service to the market. According to one of the business angels the most important question to ask is: *“who are your competitors? When the reply is that there are no competitors, the entrepreneur is not familiar with the field of business. There are always competitors”*. (Ba12) The discussions will also show if there is chemistry between the entrepreneur and the business angel. During the discussions an impression is formed of the entrepreneur (management) that is often supported by the data.

On average the business angels spent close to 7 hours on the specification of qualities and competencies needed prior to talking to an entrepreneur (management). This assessment approach commonly referred to as job analysis aims at answering the questions *“What human capital is specifically needed for this venture to survive and grow (Smart, 1999: pp. 62-63)”*? Earlier it was suggested that business angels that have been successful entrepreneurs in the past are more aware of the characteristics that are required for the job.

Reviews of resumes and articles on an entrepreneur (management) as well online information gathering are utilized to perform a background check and verify the data from discussions with an entrepreneur (management). *“This background check is important and a key issue for the credibility of the deal”*. (Ba13) As one business angel points out *“there are, however, few absolute facts about the entrepreneur”*. (Ba6) The findings demonstrate that relatively little time is allocated to the three tasks. This might be explained by the fact that business angels cannot always find articles on an entrepreneur (management). In particular, in the case of young entrepreneurs, with little or no previous experience, there is limited data to rely on.

From the high standard deviations, it can be witnessed that there is a strong heterogeneity among the sample in terms of time spent on the valuation of an entrepreneur's and management's human capital. Similarly, Smart (1999) found considerable heterogeneity among venture capitalists in the US and identified seven types of investors with different approaches to human capital valuation¹⁴⁷.

The need to gather data on an entrepreneur diminishes, when business angels know the entrepreneur from before or when the entrepreneur has been referred to a business angel by a person the business angel trusts. The sources of referral are not investigated in this study.

¹⁴⁷ See Smart (1999) for a description of the seven typologies

4.1.10 Degree of involvement in the investee companies

Previous studies have shown that business angels are value added investors who contribute their commercial skills, entrepreneurial experience, business know-how and contacts (e.g. Mason and Harrison, 1996a, and Sohl, 1999). As has been stated previously, the strong general management and new business experience of business angels, as former entrepreneurs, can aid a company overcome the liabilities of newness, nurturing it through its infancy. Many business angels participate in day-to-day operations, often having the role of a mentor and/or consultant. As has been previously stressed, business angels constitute a heterogeneous population. Not all business angels take a hands-on role. Some business angels are relatively passive investors. In such cases, their involvement is limited to work on the board of directors. Freear et al. (1994) and Hale and Hackbert (1998) found that business angels' degree of involvement varies significantly.

Their involvement is a means for business angels to gain control of their investment, while simultaneously injecting their value added contribution. The business angels are known to be more actively involved in the operations of investments than venture capitalists (e.g. Ehrlich et al. 1994; Van Osnabrugge, 1998a). Previous studies have shown that business angels only take a seat on the board of directors in just over more than half of the investments (e.g. Mason and Harrison, 1996; Lumme et al., 1998; Wong, 2002). This does not apply to the business angels in this study. Up to 82.7 percent of the investors held a seat on the board of directors in this study (see appendix 6, table 15)¹⁴⁸. Three investors described the role of the board of directors in the following way. From their comments the conclusion can be drawn that boards and board membership become more important when a company grows and the business matures.

“The board work is a formal way to get involved. You can tie the board involvement to a reporting cycle. The informal side is, however, more important than the formal. To be able to sit down and discuss current problems is crucial. A new investment and a new customer provide opportunities. To restrict involvement to only board meetings would not be enough. In smaller companies the entrepreneur needs a mentor, someone to talk to about current problems. The board meeting forces a certain reporting cycle, but the informal side is more important”. (Ba5)

“The starting point is that the board should see that the company has a well functioning strategy. The board should be responsible for supporting the management, helping it to fulfill the strategy. Support is needed before the entrepreneur and the management team can be monitored. Monitoring is important, but in this kind of company the monitoring is not the key aspect”. (Ba10)

“In early stage companies the boards of directors have no influence, but the persons that participate in the business matter. When one is striving for internationalization, the board becomes very important”. (Ba16)

¹⁴⁸ The fact that half of the investors in Lumme et al. (1998) took a seat on the board of directors shows that board membership has become a more common way to manage investments among Finnish business angels.

Involvement is seen as an efficient way to manage risk by nearly all the investors in the sample. The business angels were asked whether frequent interaction with the management is an effective way to manage risk. The investors' agreement with the statement was measured on a seven point Likert scale ranging from one (I fully disagree) to seven (I fully agree). The findings support this view. The average was 6.06 and more than 90 percent of the investors agreed with the active involvement being an efficient tool for managing risk (appendix 6, tables 16a and 16b)¹⁴⁹. Some of the business angels' comments are consistent with the finding.

"Through active involvement, you can best minimize the risk involved". (Ba8)

Through constant interaction, the investors are aware of what happens in the company. By discussing matters with key personnel, you get that certain feeling of what is going on. When you hear the same things mentioned by many different sources, you know if something is wrong". (Ba15)

"Involvement is the best way to manage risk. In early stage investments, it is difficult to protect oneself against the risk contractually. It is important that one is able to react to changes in the market with the limited amount of money that is available. That reduces the amount of risk". (Ba16)

The business angels were asked to assess their involvement in the businesses they fund. The perceived involvement indicates that the business angels' involvement is far from involvement on a daily basis. The findings reveal that many angels do not take part in day-to-day operations. The perceived involvement was measured on a seven point Likert scale ranging from one (no involvement) to seven (full time job).

An average of 2.19 clearly suggests that the investors do not actively participate in the operations of the investee company. Somewhat more than 40 percent of the investors assessed said that they have no involvement in day-to-day operations, whereas only 1.9 percent assessed their involvement as being full time (see appendix 6, tables 17a and 17b). One business angel remarked that angels should not involve themselves in the operations of the investee company, stating that:

"You cannot be involved hands-on in the business, because it might mess up the business activities. You have to be in regular contact with management and try to find the correct information about how the markets are acting and how the firm is doing". (Ba6)

In Lumme et al. (1998) 20 percent of the business angels reported that they work in the businesses, whereas just 3 percent reported that they were passively involved. This suggests a stronger involvement on the part of the investors in Lumme et al. (1998). The findings in Lumme et al. (1998) are similar to those in Freear et al. (1995). Freear et al. (1995) show that 25 percent of the business angels in the US work full or part time for the companies they fund. Månsson and Landström (2006) found that 25 percent of the

¹⁴⁹ This ensures sufficient construct validity for the use of involvement as a measure for gaining control post investment.

investors act passively, whereas the corresponding percentage of investors in Reitan and Sørhem (1999) was even 32 percent.

The measure for involvement in this study is the number of contacts. The number of contacts is a function of the number of telephone calls and visits to the investee company.

	Average	Min.	Max.	Std. Dev.
Number of calls per year	68	2	800	118.89
Length of each call	15.30	3	60	10.32
Number of visits per year	16.76	0	200	28.05
Length of each visit	3.20	1	14	2.22

Table 5 Number and length of contacts

There is considerable variation in the number of contacts and the length of each contact, as can be witnessed from the high standard deviations. The average for the number of calls per year indicates that business angels appear to be checking on their investments more on a weekly than a daily basis (see also appendix 6, tables 20a, 20b, 21a and 21b). Contacts on a weekly level suggest a sample of business angels that includes investors implementing a relatively passive approach to investing.

The number of visits to the investee company shows a similar variation in the involvement. An average of 16.76 visits points to somewhat more than one visit per month (see also appendix 6, tables 18a, 18b, 19a and 19b). This can hardly be seen as very active involvement. Investors who have extensive portfolios of investments may have to allocate their time evenly among the investments in their portfolio.

Based on the findings in Van Osnabrugge (1998a) and Mason and Harrison (1996a), it seems that investors in the UK are more strongly involved in the businesses they fund than the Finnish investors. In Van Osnabrugge (1998a) the business angels made 3.6 visits and 7.74 phone calls a month, whereas half of the investors in Mason and Harrison (1996a) spend at least one day a week in the investee company. Also, German business angels are highly involved in the businesses they fund. The findings in Stedler and Peters (2003) show that most investors commit several days a month to working at the companies they invest in. The findings in Lumme et al. (1998) do not report on the number of contacts. However, 28 percent of the investors in the study suggest that they are in contact with the investee company almost daily.

Since it is not only the number of contacts but also the length of each contact that determines the level of involvement, the number of contacts was multiplied with the length of each contact. Brief visits can imply a board meeting, whereas lengthier visits facilitate a more extensive gathering of information. The same applies for telephone calls to the investee company. Lengthier phone calls facilitate the gathering of more information on the condition of the investee company.

Even though the empirical findings clearly suggest that most Finnish business angels in the sample are relatively passive, in terms of post investment involvement, some of the investors wanted to portray themselves as investors taking an active role.

“In non-listed investments I don’t want to take a passive role. I only take a passive role in investments in the stock market”. (Ba17)

“The company has to be local, so that it will be possible to visit the company regularly. A rule of thumb is that the company cannot be further than 50 km distance away. I want to be strongly involved in the businesses I fund”. (Ba2)

“You need to feel that you can provide a company value added. This means that you cannot manage too many companies, if you want to be actively involved. You can consume a lot of time managing just one company”. (Ba12)

I don’t think that managing five investments would be possible. If you want to work for a company, you cannot have more than ten investments”. (Ba14)

In summary, the findings seem to imply that Finnish business angels are relatively passive investors relying on board involvement to manage their investments. Nevertheless, the involvement, in terms of the number of contacts, among the sample of business angels varies a lot. The involvement appears to be weaker than in Lumme et al. (1998). Since the investors in the sample hold large portfolios and prefer to syndicate their investments, this might contribute to explaining their relatively limited involvement in their investee companies (see subsection 4.1.3 and 4.1.4). A large number of investments held in a portfolio places a restriction on a business angel’s possibility to be involved in the businesses they fund, whilst syndicating investments provides the opportunity to take a passive role and rely on co-investors monitoring the investment through active involvement. Månsson and Landström (2006) have witnessed a similar trend in Sweden¹⁵⁰.

¹⁵⁰ One of the key findings was that as investment activity has increased over the years, involvement in investments has declined.

4.1.11 Summary of the descriptive findings

The key descriptive findings are summarized in the table below, providing an overview of section 4.1. They point to extensive experience as well as strong investment activity by the investors. Further analyses of the descriptive findings will follow in chapter 5.

Descriptives	Key findings
Entrepreneurial experience	<ul style="list-style-type: none"> - On average investors had started 2.81 companies - 83% had founded at least one company - 73.6% had previously worked in a small business
Experience as investor	<ul style="list-style-type: none"> - On average the investors had invested in 10.47 unquoted businesses and made investments for 8.21 years
Investment activity	<ul style="list-style-type: none"> - The average portfolio consisted on 5.34 investments - The amount invested the previous year ranged from 5000 euros to 4 million euros (with 381 471.50 euros being the average)
Style of investing	<ul style="list-style-type: none"> - 71.7% of investors had invested alongside venture capitalists or other business angels - 56% invested through an investment company
Stage of development	<ul style="list-style-type: none"> - About half of the investments (50.9%) had been made in investee companies in seed (24.5%) and startup stages (26.4%) - Even 15.1% of the investments were made in mature, later stage companies
Deal flow	<ul style="list-style-type: none"> - Investors apply both a passive and active approach to identifying investment opportunities - On average the investors came across 33.62 investment opportunities
Screen out ratio	<ul style="list-style-type: none"> - Of the investment opportunities 19.06% were subject to serious consideration and 8.32% received funding
Sources for due diligence	<ul style="list-style-type: none"> - The most common sources for due diligence are the business plan and the interviews with an entrepreneur and management team - The least common ones are financial advisors and independent reports on the financial situation - External experts were utilized in 45.3% of the investments to prepare a due diligence report
Valuation methods	<ul style="list-style-type: none"> - Earning and cash flow based valuation methods are more frequently applied than asset based valuation methods - Only 13.2% of the investors did not calculate a value for the investment, investors applied on average 2 valuation methods
Valuation of human capital	<ul style="list-style-type: none"> - The time consumed in the valuation of an entrepreneur's and management's human capital ranged from 2.5 hours to more than 200 hours - Considerably more time was spent in talking to an entrepreneur (management team) and in the specification of his (their) qualities than in performing background checks
Degree of involvement	<ul style="list-style-type: none"> - The average involvement is in terms of telephone calls on a weekly basis and in terms of company visits on a monthly basis (the sample includes investors with a passive (hands-off) approach) - Even 82.7% of the investors held a seat on the board of directors

Table 6 Summary of descriptive findings

4.2 Testing the research hypotheses

The research findings are presented in two parts. First, findings are presented that examine the relevance of agency theory in explaining the use of sources for information, valuation methods and the time allocated to the valuation of an entrepreneur's and management's human capital in a due diligence process. Thereafter, findings are presented that investigate the power of agency theory and the incomplete contracting theory in explaining the investors' involvement post investment. In other words, the focus shifts from risk management aimed at mitigating the adverse selection problem to risk management aimed at mitigating the moral hazard problem.

4.2.1 Part 1: An examination of the relevance of agency theory in explaining the due diligence procedures of business angels

The hypotheses derived in the previous chapter were developed from the agency theoretical assumptions and previous literature in the domain of venture capital and business angels. The findings from the regression analyses are presented in table 7 as well as appendices¹⁵¹.

4.2.1.1 The stage of development

Research hypothesis 1a assumes no relationship between the stage of development and the sources for information. On the one hand, much of the uncertainty in early stage ventures stems from an inability to collect information on the investment opportunity. This suggests a positive relationship between the use of sources for information and the stage of development. On the other hand, there is greater need to reduce information asymmetries in the nascent early stage ventures, which means that more effort should be placed on due diligence. This would imply a negative relationship between the sources for information and the stage of development.

The findings reveal that the relationship between the sources for information and the stage of development is positive and highly significant ($\beta=0.422$; $p<0.01$). The research findings suggest that substantially less information sources are used in early stage deals than in later stage deals. **Based on the empirical findings, research hypothesis 1a is rejected.** It seems that less information is available in early stage deals and that uncertainty arises from an investors' inability to reduce risk through information gathering. The research findings suggest that the stage of development of an investment is one of the key ingredients in explaining the use of sources for information for due diligence.

Research hypothesis 1b assumes that in the face of the high uncertainty associated with early stage deals investors have to rely on more valuation methods to establish a value for

¹⁵¹ The tables in appendices 7, 8 and 9 provide a more detailed description of the findings. The regression models have been tested for both multicollinearity and heteroscedasticity.

the new venture. This indicates a negative relationship between the use of valuation methods and the stage of development.

The findings show that the relationship is positive and highly significant ($\beta=0.441$; $p<0.01$). In other words, late stage investors use significantly more valuation methods than early stage investors. **Based on the empirical findings, research hypothesis 1b is rejected.**

In early stage companies the uncertainty regarding an entrepreneur's and management's ability level is pronounced, as an entrepreneur and management have not yet established a track record by running the company in question successfully. Later stage companies are already revenue generating. To reduce the uncertainty related to an entrepreneur's and management's ability level, early stage investors are assumed to allocate more time to the valuation of an entrepreneur's and management's human capital than late stage investors. Research hypothesis 1c assumes a negative relationship between the time allocated to the valuation of an entrepreneur's and management's human capital and the stage of development.

The findings do not support the assumption ($\beta=0.307$; $p<0.1$). Contrary to the expectations of this study, there is a positive and significant relationship between the time allocated to the valuation of an entrepreneur's and management's human capital and the stage of development. **Based on the findings, research hypothesis 1c is rejected.**

Business angels are assumed to be more reliant on their own judgment for assessing investment opportunity in early stage deals, but more reliant on external parties for later stage deals. Thus, research hypothesis 2a predicts a positive relationship between the use of external experts and the stage of development.

The research findings reveal that the relationship has the expected sign and is highly significant ($\beta=0.535$; $p<0.01$). This shows that late stage investors use third party information to a significantly greater extent than early stage investors. The findings support the research hypothesis. **Based on the empirical findings, research hypothesis 2a is supported.**

Examining the correlations between the different information sources and the stage of development, the findings demonstrate that early stage investors only used one of the sources significantly more than late stage investors. This strongly suggests that less information is available for an investment decision. The difference between the late and early stage investors is substantial when it comes to the use of third party information (external due diligence reports, independent reports and financial advisors) and is also substantial in the use of an investee's bankers and accountants as sources of information (see appendix 8, table 1a).

Research hypotheses 2bi and 2bii build on the assumption that early and late stage investors are reliant on different valuation methods. Research hypothesis 2bi assumes that early stage investors use more cash flow based valuation methods when projecting the future than late stage investors.

The findings suggest that this is not the case. Albeit insignificant in magnitude, the relationship between the stage of development and cash flow based measures (the discounted cash flow and payback period) is positive ($\beta=0.211$). It would seem that late stage investors rely more on the two valuation methods. **Based on the empirical findings, research hypothesis 2bi is rejected.**

Research hypothesis 2bii expects a positive relationship between the use of asset based valuation methods and the stage of development. Since some of the early stage companies in their nascent phases of development have not initiated their operations, they might not have an asset base, for investors, to base a valuation on. Consequently a book value might be difficult or impossible to establish for these companies.

The research findings reveal that the relationship between the use of asset based methods and the stage of development is positive as well as highly significant ($\beta=0.352$; $p<0.05$). The findings corroborate the assumption put forth, by suggesting that the asset based valuation methods might not be applicable in some early stage companies, still in their infancy. The findings provide support for the research hypothesis. **Based on the empirical findings, research hypothesis 2bii is supported.**

Examining the correlations between the stage of development and the use of valuation methods shows that late stage investors use all the valuation methods investigated more than early stage investors do (see appendix 8, table 1b). Investing in later stage companies seems to facilitate the use of a multitude of valuation methods. Late stage investors appear to be more professional in their investment appraisal than early stage investors who evidently attach much weight to intuitive judgment rather than a sophisticated analysis of the investee company's value.

Research hypothesis 2ci assumes that in early stage investments the specification of needed skills and capabilities and interviews with an entrepreneur and management are more important than in later stage investments. When background information can seldom be found on an entrepreneur and management, the specifications and interviews may be the only tools applicable for the valuation. Therefore, it is expected that there is a negative relationship between the interview related techniques and the stage of development.

The research findings demonstrate that the relationship is, in contrast to what has been predicted, positive and significant in magnitude ($\beta=0.258$; $p<0,1$). **Based on the empirical findings, research hypothesis 2ci is rejected.** This implies that in later stage deals significantly more time is consumed in the specification of needed skills and capabilities and discussions of an entrepreneur's and management's previous experiences.

In more mature later stage deals information is assumed to be more easily available on an entrepreneur and management from newspaper articles and online sources than in early stage deals. In these companies a track record has been built up, as the company has commonly established a trading history. Thus, research hypothesis 2cii predicts that there

is a positive relationship between time consumed in conducting background checks and the stage of development.

Despite the fact that a positive relationship is obtained, the relationship is insignificant ($\beta=0.117$). **Based on the empirical findings, research hypothesis 2cii is rejected.**

4.2.1.2 The perceived level of innovativeness

Another measure for the degree of uncertainty, applied in this study, is the perceived level of innovativeness of the product/service of the investee company. Research hypothesis 3a assumes no relationship between the perceived level of innovativeness and the sources for information. On the one hand, when the level of innovativeness is high, the investors need to access more information to reduce the uncertainty originating from technological novelty and unproven markets. This suggests a positive relationship between the perceived level of innovativeness and the sources for due diligence. On the other hand, a high level of innovativeness can result in unwillingness by an entrepreneur and management to disclose trade secrets and other sensitive information to investors. This suggests a negative relationship between the perceived level of innovativeness and the sources of information.

The findings reveal a positive relationship between the sources of information and the perceived level of innovativeness. It appears that an increased need to gather information is a more valid explanation for the use of sources for information than a reluctance to convey information by an entrepreneur and management team. The relationship is nevertheless insignificant in magnitude ($\beta=0.169$). **Based on the empirical findings, research hypothesis 3a is rejected.**

The uncertainty arising from a high level of innovativeness in a product and/or service is expected to result in a need to use more valuation methods to establish a value for the entrepreneurial venture. Therefore, research hypothesis 3b predicts that there is a positive relationship between the use of valuation methods and the perceived level of innovativeness.

The findings reveal that the relationship between the use of valuation methods and the perceived level of innovativeness is highly insignificant ($\beta=0.035$). **Based on the empirical findings, research hypothesis 3b is rejected.** The perceived level of innovativeness appears to have almost no power in explaining the use of valuation methods.

In highly innovative businesses success is reliant on an entrepreneur's and management's ability to run a business successfully, as the foundation of the business often lies in the human capital of the entrepreneur and management team. Therefore, the assumption behind research hypothesis 3c is that a stronger focus needs to be placed on the valuation of human capital when the level of innovativeness is substantial. In other words, it is predicted that there is a positive relationship between the time allocated to the valuation

of an entrepreneur's and management's human capital and the perceived level of innovativeness.

The findings demonstrate that the relationship is positive, as expected, but insignificant ($\beta=0.133$). Even though the relationship has the predicted sign, the relationship is not sufficiently strong to provide support for the hypothesized notion. **Based on the empirical findings, research hypothesis 3c is rejected.**

4.2.1.3 The industry sector experience

For investors lacking relevant industry sector experience, it is assumed that they find it more difficult to assess the quality of an investment proposal. In such a case, investors would have to gather more information to reduce uncertainty arising from limited experience within the industry sector of the investment. Research hypothesis 4a predicts that there is a negative relationship between the use of sources for information and the degree of industry sector experience of an investor.

The relationship between the use of sources for information and the degree of industry sector experience of an investor is positive, albeit highly insignificant in magnitude ($\beta=0.094$). The findings do not add support on behalf of the hypothesized relationship. **Based on the empirical findings, research hypothesis 4a is rejected.**

It is assumed that investors with a higher degree of industry sector experience possess the ability to better determine the reliability of entrepreneurs' and managements' projections. When investors have limited relevant experience in the industry sector of the investment, it is expected that they have to rely on more valuation methods to form a value for a business. Therefore, it is predicted that the relationship between the valuation methods applied and the degree of industry sector experience is negative.

The findings do not support the predicted relationship, as a positive relationship was detected ($\beta=0.127$). The relationship is, however, insignificant. **Based on the empirical findings, research hypothesis 4b is rejected.**

For investors unfamiliar with the industry sector of a venture it is more difficult to ensure that an entrepreneur and management possess the required skills and capabilities. Therefore, investors short on industry sector experience are assumed to have to allocate more time to the valuation of an entrepreneur's and management's human capital.

The findings are not in line with the hypothesized assumption. The positive relationship indicates that investors equipped with more industry sector experience allocate more time to these valuation activities ($\beta=0.14$). The empirical evidence results in refuting the hypothesized assumption. **Based on the findings, research hypothesis 4c is rejected.**

4.2.1.4 Experience as an investor

It was assumed that experienced investors can use their insights developed from previous investment activity and are consequently less reliant on different sources for information than the less experienced ones. Thus it is hypothesized that there is a negative relationship between the use of sources for due diligence and the degree of experience as an investor.

The findings do not support this hypothesized assumption. A relatively strong, albeit insignificant, positive relationship was found ($\beta=0.176$). **Based on the empirical findings, research hypothesis 5a is rejected.** Experience from previous investments does not seem to have a significant effect on the use of sources for information. If any effect can be witnessed it is an increased use of sources for information as a function of the degree of experience as an investor.

More experienced investors were assumed to have a stronger confidence in their valuation than less experienced ones, and therefore were seen to be reliant on fewer valuation methods for their investment appraisal. Consequently it was predicted that there is a negative relationship between level of experience and the use of valuation methods.

The findings do not support the assumption. On the contrary, the relationship is strongly positive ($\beta=0.233$). **Based on the findings, research hypothesis 5b is rejected.** The findings indicate that the use of valuation methods increases with the experience as an investor. Investors short on experience as investors may be unfamiliar with some of the valuation methods. The correlations suggest that, in particular, the payback period and cost to book measures are more frequently used among those investors with more extensive experience (see appendix 8, table 4b).

The final prediction related to previous experience is that there is a negative relationship between the time allocated to the valuation of an entrepreneur's and management's human capital and experience as an investor. It was assumed that investors that have talked to hundreds of entrepreneurs previously have the capacity to more intuitively make a difference between high and low ability entrepreneurs (and management). Less experienced investors should then be more reliant on data for their assessment.

The findings do not support the hypothesized assumption. Experienced investors allocate significantly more time to the valuation of an entrepreneur's and management's human capital. The relationship is positive and highly significant ($\beta=0.522$; $p<0.01$). **Based on the empirical findings, research hypothesis 5c is rejected.**

The correlations between the valuation techniques for assessing human capital and the degree of experience as an investor suggest that experience as an investor is strongly associated with more time being allocated to specifications and discussions with an entrepreneur and management as well as to the online search regarding the entrepreneur and management (see appendix 8, table 4c).

4.2.1.5 Signaling through relationship specific investments

The adverse selection framework builds on the assumption that the entrepreneur and the management can signal the quality of their business and their high level of ability by making relationship specific investments up front. By investing a substantial share of their net worth, ex ante, an entrepreneur and management share the risk with investors. Consequently, the research hypotheses 6a, 6b and 6c build on the assumption that a substantial share of the net worth invested in a venture by an entrepreneur and management reduce the need to conduct rigorous due diligence. Research hypothesis 6a predicts that there is negative relationship between the use of sources for information and the share of an entrepreneur's and management's net worth invested in the venture.

The empirical findings reveal that the relationship is highly insignificant, which is why it seems that the share of an entrepreneur's and management's net worth invested in a venture does not have a great impact on the use of sources for due diligence ($\beta=0,009$). **Based on the research findings, research hypothesis 6a is rejected.** Even though the business angels would have stronger confidence in the information provided by an entrepreneur and the management, when a signal to commitment is substantial, this does not appear to have the expected impact of reducing the amount of information utilized for the investment decision.

Research hypothesis 6b suggests that there is a negative relationship between the use of valuation methods and the share of an entrepreneur's and management's net worth invested in a new venture. A stronger signal of commitment is assumed to result in a reduced need to perform an investment appraisal.

The findings point to a negative relationship that is, however, highly insignificant ($\beta=-0.079$). The relationship is weak and therefore the hypothesized assumption is not supported. **Based on the empirical findings, research hypothesis 6b is rejected.** Even if a credible signal would reduce uncertainty regarding the quality of an investment proposal and the entrepreneur and management, it does not seem to affect the use of the valuation methods.

If signaling commitment produces an indication of an entrepreneur and a management team with a high ability level, the share of an entrepreneur's and management's net worth invested in a new venture should reduce the need to perform a valuation of their human capital. Therefore, research hypothesis 6c expects to find a negative relationship between the share of an entrepreneur's and management's net worth invested in an entrepreneurial venture and the time allocated to the valuation of the entrepreneur's and management's human capital.

The empirical findings show a positive significant relationship between the time allocated to the valuation of an entrepreneur's and management's human capital and the share of the entrepreneur's and management's net worth invested in the entrepreneurial venture ($\beta=0.331$; $p<0.05$). As the relationship has the opposite sign to what was expected, the hypothesized assumption is rejected. **Based on the empirical findings, research hypothesis 6c is rejected.** It appears that when an entrepreneur and management team

have invested a substantial share of their net worth in a venture significantly more time is spent in the valuation of their human capital.

The findings reveal that (the indicator for) the share of an entrepreneur's and management's net worth invested in a new venture correlates significantly with the number of hours spent conducting specifications and interviews as well as gathering data online (see appendix 8, table 5c).

4.2.1.6 Syndication

Research hypothesis 7a assumes no relationship between syndication and the sources for information. The effect of syndication on the use of sources for information is assumed to be twofold. On the one hand, syndication is assumed to provide the opportunity to get a second opinion regarding the quality of an investment opportunity. The second opinion and the possibility to delegate tasks to other investors are assumed to mitigate the need to gather information on an investment proposal. This suggests a negative relationship between sources for information and syndication. On the other hand, it is assumed that information is transferred within a syndicate. Hence, an investor can be expected to gain more information for their investment decision. This would imply a positive relationship between sources for information and syndication.

The findings reveal that the relationship between syndication and the use of sources for information is negative, albeit insignificant in magnitude. They imply that the syndication of an investment reduces the need for information gathering. This would support the assumption that investors get a second opinion alleviating the need to reduce asymmetric information through information gathering ($\beta=-0.178$). **Based on the findings, research hypothesis 7a is rejected.**

Syndication provides the opportunity to delegate the responsibility of performing the valuation to co-investors within the syndicate. In addition, investors can compare their assessment with co investors'. Thus, it is expected that syndication reduces the need to use several valuation methods in an investment appraisal. Hypothesis 7b assumes that there is a negative relationship between syndication and the use of valuation methods. The findings strengthen the hypothesized assumption ($\beta=-0.25$; $p<0.1$). **Based on the findings, research hypothesis 7b is supported.**

Syndication is also expected to reduce the need to spend time on the valuation of an entrepreneur's and management's human capital. Investors within the syndicate are expected to be able to share the task of gathering data on an entrepreneur and management. Hence, research hypothesis 7c predicts that there is a negative relationship between the time allocated to valuation of an entrepreneur's and management's human capital and syndication.

The findings do not support the prediction. The relationship between the time allocated to the valuation of an entrepreneur's and management's human capital and syndication is highly insignificant in magnitude ($\beta=0.088$). **Based on the empirical findings, research**

hypothesis 7c is rejected. They strongly suggest that syndication has almost no effect on the amount of time consumed in the valuation of human capital.

4.2.1.7 Type of co-investor

Research hypothesis 8a builds on the evidence from previous studies showing that venture capitalists perform a more comprehensive due diligence than business angels (e.g. Van Osnabrugge, 1998a). It is expected that there is no difference in the use of sources for information when co-investing with venture capitalists and business angels. Following the logic of research hypothesis 8a, on one the hand, it is assumed that syndication with venture capitalists facilitates delegating the main responsibility in information gathering to venture capitalists that are known to conduct profound due diligence prior to making an investment. This would reduce a business angel's need to assemble information and suggests a negative relationship between the sources for information and co-investing with venture capitalists. On the other hand, if information is transferred within the syndicate, the business angels involved should be able to access more sources for information than when they invest alone or alongside other business angels. This would suggest a positive relationship between sources for information and investing with venture capitalists.

The findings suggest that there is a positive relationship between the use of sources for information and co-investing with venture capitalists ($\beta=0.246$). The relationship is strong, albeit insignificant in magnitude. **Based on the empirical findings, research hypothesis 8a is rejected.**

Venture capitalists have been shown to have more experience in using different valuation methods for their investment appraisal than business angels (e.g. Van Osnabrugge, 1998a; Fiet, 1991, 1995). Therefore, business angels co-investing with venture capitalists are assumed to be able to delegate the valuation task to venture capitalists. It is predicted that business angels use less valuation methods when co-investing with venture capitalists than they use when co-investing with business angels.

The relationship is highly insignificant, implying that the hypothesized notion cannot be supported ($\beta=-0.021$). **Based on the empirical findings, research hypothesis 8b is rejected.** The type of co-investor does not seem to influence the use of valuation methods.

Smart (1999) demonstrates that venture capitalists use a data driven approach in the valuation of the human capital of an entrepreneur and management team. This is expected to reduce the need for business angels, co-investing with venture capitalists, to undertake thorough data gathering. Thus, it is predicted that business angels allocate less time to the valuation of an entrepreneur's and management's human capital when co-investing with venture capitalists than they do when co-investing with business angels.

The findings show that the relationship between the time allocated to the valuation of an entrepreneur's and management's human capital and the type of co-investor is highly

insignificant ($\beta=-0.088$). There seems to be almost no difference in the time allocated to the valuation of human capital when co-investing with venture capitalists and business angels. **Based on the empirical findings, research hypothesis 8c is rejected.**

4.2.1.8 Perceived accuracy of the assessment of a market environment

Research hypothesis 9a assumes that there is a positive relationship between the use of sources for information and the perceived accuracy of the assessment of a market environment. This is because performing an accurate assessment of a market environment is assumed to be built on interviews with different stakeholder groups.

The research hypothesis cannot be fully supported, even though the relationship has the predicted sign ($\beta=0.212$, $p=0.131$). **Based on the empirical findings, research hypothesis 9a is supported in sign only.** The correlations reveal that the business angels that perceive their assessment of the market environment to be accurate have utilized current customers significantly more as information sources (see appendix 8, table 8a).

The assumption underlying research hypothesis 9b is that the uncertainty reduced through an accurate assessment of a market environment mitigates the need to use several valuation methods. When the market risks have accurately been assessed uncertainty related to future conditions can better be predicted. In other words, it is assumed that there is a negative relationship between the use of valuation methods and the perceived accuracy of the assessment of a market environment.

The findings do not support the hypothesized assumption. The findings demonstrate that the relationship between the use of valuation methods and the perceived accuracy of an assessment of a market environment is positive ($\beta=0.129$). The relationship is, however, insignificant. **Based on the empirical findings, research hypothesis 9b is rejected.** The perceived accuracy of the assessment of a market environment does not significantly relate to the use of any of the valuation methods investigated. This is shown by examining the correlations between the use of valuation methods and the perceived accuracy of the assessment of a market environment (see appendix 8, table 8b).

Research hypothesis 9c builds on the assumption in Zacharakis and Shepard (2001) that more information appears to shift the importance from the entrepreneur to the market. This means that investors compensate for their inability to perform an accurate assessment of a market environment by focusing more on assessing the qualities of an entrepreneur and management team. It is expected that there is a negative relationship between the time allocated to the valuation of an entrepreneur's and management's human capital and the perceived accuracy of the assessment of the market environment.

The findings do not lend support to this assumption. In contrast, the research findings seem to indicate that there is a positive relationship between the perceived accuracy of the assessment of a market environment and the time allocated to the valuation of an entrepreneur's and management's human capital ($\beta=0.187$). **Based on the research findings, research hypothesis 9c is rejected.**

4.2.1.9 Summary of the research findings

Three of the research hypotheses were supported, one supported in sign only and twenty five rejected. This means that the findings provide limited support for the underlying theoretical assumptions. However, ten of the relationships were significant, four of which were on a significance level of one percent. Based on the empirical findings the stage of development would seem to be the key determinant in explaining the due diligence procedures of business angels.

Dependent variables	Predictor variables	Standardized beta	Sign. value	Hypothesis	Prediction	Outcome
Sources for DD	Stage of development	0.422	0.008***	H1a	0	rejected
Valuation methods	Stage of development	0.441	0.005***	H1b	-	rejected
Human capital valuation	Stage of development	0.307	0.06*	H1c	-	rejected
Third party information	Stage of development	0.535	0.000***	H2a	+	supported
Cash flow based methods	Stage of development	0.211	0.156	H2bi	-	rejected
Asset based methods	Stage of development	0.352	0.015**	H2bii	+	supported
Interview-related techniques	Stage of development	0.258	0.085*	H2ci	-	rejected
Background checks	Stage of development	0.117	0.435	H2cii	+	rejected
Sources for DD	Level of innovativeness	0.169	0.276	H3a	0	rejected
Valuation methods	Level of innovativeness	0.035	0.817	H3b	+	rejected
Human capital valuation	Level of innovativeness	0.133	0.408	H3c	+	rejected
Sources for DD	Industry sector experience	0.094	0.525	H4a	-	rejected
Valuation methods	Industry sector experience	0.127	0.38	H4b	-	rejected
Human capital valuation	Industry sector experience	0.14	0.274	H4c	-	rejected
Sources for DD	Experience as an investor	0.176	0.23	H5a	-	rejected
Valuation methods	Experience as an investor	0.233	0.107	H5b	-	rejected
Human capital valuation	Experience as an investor	0.522	0.000***	H5c	-	rejected
Sources for DD	Share of net worth	0.009	0.95	H6a	-	rejected
Valuation methods	Share of net worth	-0.079	0.58	H6b	-	rejected
Human capital valuation	Share of net worth	0.331	0.018**	H6c	-	rejected
Sources for DD	Syndication	-0.178	0.206	H7a	0	rejected
Valuation methods	Syndication	-0.25	0.073*	H7b	-	supported
Human capital valuation	Syndication	0.088	0.535	H7c	-	rejected
Sources for DD	Type of co-investor	0.246	0.162	H8a	0	rejected
Valuation methods	Type of co-investor	-0.021	0.902	H8b	-	rejected
Human capital valuation	Type of co-investor	-0.088	0.616	H8c	-	rejected
Sources for DD	Assessment of external factors	0.212	0.131	H9a	+	supported in sign
Valuation methods	Assessment of external factors	0.129	0.363	H9b	-	rejected
Human capital valuation	Assessment of external factors	0.187	0.186	H9c	-	rejected

Table 7 Table of research findings for part I

In section 4.3, “interpretations of the research findings”, the obtained findings are analyzed in greater detail. One objective is to find plausible explanations for the insignificant research findings. Even though the due diligence procedures aim at reducing the asymmetric information pre-investment, the use of information sources, valuation methods as well as the time allocated to the valuation of an entrepreneur’s and management’s human capital do not seem to increase with the degree of uncertainty in an investment.

4.2.2 Part 2: An investigation of the power of agency theory and the incomplete contracting theory in explaining business angels' involvement post investment

The research hypotheses for the second part of the study were developed from agency theory, the incomplete contracting theory and previous research in the domain of venture capital and business angels. The research hypotheses related to the incomplete contracting theory build on the assumption in Van Osnabrugge (1998a) that involvement is a means for business angels to gain control post investment. The findings from the regression analyses are presented in table 8 and the appendices¹⁵².

4.2.2.1 The relationship between ownership and control through active involvement

The moral hazard framework in agency theory builds on the assumption that there is a tradeoff between behavior based and outcome based contracting. When an entrepreneur and management have an incentive to increase the economic value of a venture, they are less likely to behave opportunistically. It is assumed that the higher an entrepreneur's and management's level of ownership in a new venture is, the more their interests align with investors'. Therefore, the need for an investor to monitor the entrepreneur and management is expected to decrease, when the entrepreneur's and management's level of ownership increases. Research hypothesis 10a assumes that there is a negative relationship between the level of an entrepreneur's and management's ownership and monitoring by business angels through active involvement.

This assumption is not supported as a strong positive relationship between the degree of involvement and an entrepreneur's and management's level of ownership is obtained ($\beta=0.231$). **Based on the empirical findings, research hypothesis 10a is rejected.** The empirical findings strongly suggest that an entrepreneur's and management's increased ownership is not associated with a lower degree of involvement by business angels.

If it is assumed that investors are risk averse, their stake in a business is one of the key factors in determining their monitoring effort. This should be reflected in their degree of involvement in the businesses they fund. Thus, research hypothesis 10b expects to see a positive relationship between business angels' level of ownership and their degree of involvement.

The relationship is positive and highly significant ($\beta=0.51$, $p<0.01$). This entails that strong support is found for the hypothesized relationship. **Based on the empirical findings, hypothesis 10b is supported.**

4.2.2.2 The relationship between the asset base and the allocation of control through active involvement

The hypothesized notions 11a and 11b are based on the assumption put forth in Van Osnabrugge (1998a) that when the contracts are incomplete the best way to gain control

¹⁵² see appendices 7, 8 and 9

in ventures lacking tangible assets and that are highly leveraged is through active involvement. Control through involvement is then a substitute for control through board and voting rights (see e.g. Aghion and Bolton 1992 and Kaplan and Strömberg 2003a). The assumption is that the lower the level of fixed tangible assets to total assets is in the new venture, the higher the degree of investor control through involvement is. Therefore, it is hypothesized that there is a negative relationship between the ratio for fixed tangible assets to total assets and the degree of involvement of business angels.

The relationship is positive, even though it is highly insignificant ($\beta=0.086$). Therefore, it seems that a business angel's degree of involvement is not greatly affected by the percentage of fixed tangible assets to total assets. **Based on the empirical findings, research hypothesis 11a is rejected.**

The fixed tangible assets alone do not provide business angels security, if a company is highly indebted and business angels holding common stock have a subordinated claim to debtors and other investors. Therefore, it is expected that business angels have to gain control through active involvement when a company is highly leveraged. Hence, this study assumes that there is a negative relationship between an investee company's equity ratio and the degree of involvement of business angels.

The findings show that the relationship is in fact positive, albeit insignificant ($\beta=0.149$). **Based on the empirical findings, research hypothesis 11b is rejected.** The increased financial risk from a higher level of debt does not seem to impinge significantly on an investor's degree of involvement. Contrary to what was expected, business angels appear to be less involved in more leveraged businesses.

4.2.2.3 Inclusion of covenants mitigating the hold-up problem

As been pointed out previously, the hold-up problem arises when a company's entrepreneur leaves after a business angel's investment has been made. The inclusion of four covenants mitigating the hold-up problem is investigated in this study: namely the non-compete, vesting, lock in and tag along provision. They make it more difficult for an entrepreneur and management to leave a company. Thus, it is assumed that when the covenants have been included in the deal struck, the need to gain control through involvement is reduced. Research hypothesis 12a predicts that there is a negative relationship between the inclusion of covenants mitigating the hold-up problem and the degree of involvement of business angels.

Surprisingly, a significant positive relationship is obtained ($\beta=0.279$; $p<0.1$). **Based on the research findings, research hypothesis 12a is rejected.**

In research hypothesis 12b the assumption is that the covenants mitigating the hold-up problem are more important when the intangible assets, which are based on an entrepreneur's and management's human capital, are crucial for the success of a business. Low ratios for fixed tangible assets to total assets indicate that a business is reliant on the human capital of an entrepreneur and management. Thus, it is expected that there is a

negative relationship between the ratio for tangible assets to total assets and the inclusion of covenants mitigating the hold-up problem.

The findings show that the relationship has the expected sign, but that this is insignificant in magnitude ($\beta=-0.127$). It seems that investors use these covenants to bind entrepreneurs and management, whose human capital is crucial, to a company. Nevertheless, the relationship is not strong enough to support the hypothesized notion. **Based on the research findings, hypothesis 12b is rejected.**

4.2.2.4 Summary of research findings

Of the six predicted hypothesized relationships, only one was supported and consequently five rejected based on the empirical evidence. The degree of involvement seems to be related to an investor's stake in the investee company. Two statistically significant relationships were found.

Dependent variables	Predictor variables	Standardized beta	Sign. value	Hypothesis	Prediction	Outcome
Degree of involvement	Level of ownership of the entrepreneur (management)	0.231	0.122	H10a	-	rejected
Degree of involvement	Level of ownership of the investors	0.51	0.001***	H10b	+	supported
Degree of involvement	Tangible to total assets	0.086	0.572	H11a	-	rejected
Degree of involvement	Equity to total capital	0.149	0.325	H11b	-	rejected
Degree of involvement	Covenants mitigating hold up	0.279	0.051*	H12a	-	rejected
Covenants mitigating hold up	Tangible to total assets	-0.127	0.38	H12b	-	rejected

Table 8 Table of research findings for part II

The lack of empirical support for the theoretical assumptions makes it difficult to make valid interpretations of the research findings. Perhaps the most surprising finding is the positive significant relationship between the degree of involvement of business angels and the inclusion of covenants mitigating the hold-up problem. The findings are analyzed in greater detail in the following section “interpretations of the research findings”.

4.3 Interpretations of the research findings

The research findings revealed that most of the research hypotheses were not supported. As relatively few significant relationships were obtained, interpretations must be made with caution. Also the fact that the sample is not likely to be fully representative of the population makes any generalizations difficult. The section is divided into two parts. First, interpretations are made to explain the use of sources for information, valuation methods and the time allocated to the valuation of an entrepreneur's and management's human capital. Then, the emphasis is on explaining the allocation of control post investment.

4.3.1 Part 1: An examination of the relevance of agency theory in explaining the due diligence procedures of business angels

The empirical findings provide very limited support for the predicted relationships derived from agency theory. This suggests that the comprehensiveness of due diligence is not a function of the degree of uncertainty in an investment. When the agency theoretical relationships do not hold, the due diligence procedures investigated are, in some cases, assessed in the light of competing theories that may provide a better understanding of the research findings.

4.3.1.1 The stage of development

The riskier opportunities do not seem to drive an increase in due the diligence effort, as shown in Lu et al. (2006). Although the due diligence effort is not studied, the fewer sources available for information strongly indicate that early stage deals are assessed on a more intuitive basis than later stage deals.

The empirical evidence supports Wong (2002) by pointing out that much of the uncertainty in early stage deals stems from an inability to gather information on the investment opportunity. The entrepreneurial ventures that have not initiated their operations may not contain meaningful financial information (e.g. Camp, 2002). In addition, as the empirical findings imply, sources such as the investee's bankers and accountants are rarely available. Some of the ventures may not have progressed to a stage where they qualify for funding from banks and thus are also financially immature and unlikely to contain detailed financial statements that would lead to a clear-cut assessment. This is consistent with Fried and Hisrich (1994) stating that late stage investors are more likely to talk to accountants than early stage investors, which reflects the application of the financial history available. They add that late stage investors are also more likely to talk to banks.

The business plans provided by an entrepreneur and management to late stage investors are likely to be more complete than those provided to early stage investors. They include most of the relevant information needed for the investment decision. In spite of this, late stage investors appear to a similar extent as early stage investors verify information in the business plan through interviews with company personnel, current and potential

customers. Their usage for an investment decision does not differ markedly. Even though early stage investors use less sources for information, this does not mean that due diligence is not of importance for early stage investors. Van Osnabrugge (1998a) claims that due diligence is especially important in a situation where the venture has no track record or asset base and the market opportunity and competitive advantage of the product need to be verified. The inherent difficulty of accurately assessing early stage deals does not, necessarily, mean that investors would be less concerned about managing the risks involved.

The findings do, however, not lend support to Lockett et al. (2002) pointing out that early stage investment is significantly positively related to the use of sales and marketing information. Their usage among Finnish business angels does not seem to be a function of the stage of development.

It was hardly surprising to find that late stage investors, in accordance with the expectations of the study, use more third party information (i.e. external due diligence reports conducted by lawyers, consultants and accountants, independent reports on the financial situation and financial advisors) than early stage investors. Business angels in Harrison and Mason (2002) were shown to make limited use of third party information. Third party information is highly important in the comprehensive due diligence procedures venture capitalists undertake (see e.g. Camp, 2002). The findings indicate that late stage investors' extensive use of information resembles the due diligence of venture capitalists more than the due diligence of conventional business angels relying on their own ability to assess an invest opportunity (e.g. Harrison and Mason, 2002). The findings are in line with those in Van Osnabrugge (1998a) suggesting that in the large transactions of more established firms, external parties might be utilized to prepare a due diligence report. To make sure that the use of sources for information is a function of the stage of development and not the size of the transaction the study controlled for the size of the investments.

It was assumed that the financial information is of significantly greater reliability in later stage investments as such companies already have an established track record and trading history (e.g. Wright and Robbie, 1996), which is why late stage investors can, to a greater extent than early stage investors, rely on the financial projections made by an entrepreneur and management. This was expected to reduce the need to perform valuations on the entrepreneurial venture. The findings demonstrate that late stage investors use more valuation methods in their investment appraisal than early stage investors. The use of more asset based valuation methods might be explained, to a large extent, by the fact that some early stage ventures lack financial history as well as an asset base. This limits the applicability of these methods among early stage ventures (see Mason and Harrison, 1996a, Wright and Robbie, 1998 and Camp, 2002 and Sohl, 2003). The findings are consistent with Wright and Robbie (1996), Van Osnabrugge and Robinson (2000) and Manigart et al. (2000) who argue that late stage investors place significantly greater emphasis on valuation methods, which make use of past performance information.

Wright and Robbie (1996) suggest that early stage investors place greater emphasis on valuation methods projecting the future than late stage investors. Van Osnabrugge and Robinson (2000) emphasize that cash flow based measures suit the valuation of high growth, early stage firms with little or no income stream and few assets. The findings show that, regardless of their high suitability for early stage firms, late stage investors have also used considerably more cash flow based measures for their investment appraisal. The limited use of cash flow based measures among early stage firms may be explained by the difficulty of accurately determining a future that is hard to foresee. It might be highly challenging to foresee future sales and expenditures. Then business angels may decide to rely on their gut feeling instead of attempting to calculate a value for a venture. When a value is not calculated for a venture, investing in these firms becomes more of a gamble. Reid and Smith (2001) state that in early stage firms, when applying the payback period, long time payback periods are expected, because a long period of time is usually required before an investment is successful. If break even can only be achieved after a very long time period, any calculations may turn out to be highly inaccurate. This may limit the use of the payback period valuation method. Only 20 percent of the investors in Mason and Harrison (1996a) had made any attempts at calculating the value of the venture they invested in. This figure may well reflect an inability to accurately assess future cash flows in companies in their nascent stages of development. In early stage companies the uncertainty involved tends to increase the expected error of the forecast (Wright and Robbie, 1998). The difficulty involved in performing a valuation is likely to be the main reason for the significantly lower use of valuation methods among early stage investors.

Studies have pointed out that early stage investors invest more in entrepreneurs than the business (e.g. Feeney et al. 1999). Sørheim (2003) points out that the trustworthiness of an entrepreneur and management becomes important, as investors investing in early stage companies depend on the information provided by the entrepreneur. When accurate financial information cannot be gathered in early stage deals and there is a shortage of information on the market, the importance of the entrepreneur and management is pronounced. This stronger focus on entrepreneurs and management was assumed to compensate for the inability to access accurate financial and market information. Therefore, a lack of accurate financial information should be associated with more time being allocated to the assessment of the human capital of an entrepreneur and management. Norton (1995) reinforces this assumption by advocating that internal risk, including poor management, is the major risk in early stage deals, whereas in later stage deals external risks (e.g. changes in technology and recession) outweigh internal risk factors.

The findings strongly suggest that substantially more time is allocated in later stage deals to the valuation of an entrepreneur's and management's human capital than in early stage deals. This study produces similar evidence to that of Carter and Van Auken (1994) who indicate that investors who appear to prefer investments in their early stages are less interested in the management of risk of the endeavor than late stage investors.

The reason for the significant relationship between the stage of development and time spent on the valuation of the human capital may lie in the growth of the management

team. In early stage deals less information can be gathered, especially, when there is only one person, an entrepreneur, in charge of a business. A management team grows and develops with the maturity of an investee company (see e.g. Smart, 1999). Then the investee company consists of a management team with a wide diversity of experiences that can be assessed.

The greatest difference between early and late stage investors was in the time spent talking to an entrepreneur and management about their previous experiences and in specifying the qualities needed for running a business. They appear to be the predominant techniques for late stage investors in performing a valuation of an entrepreneur's and management's human capital. In contrast to what might have been expected from the outset, late stage investors do not consume significantly more time in running background checks on an entrepreneur and the management than early stage investors.

Late stage investors appear to utilize more sources for information, apply more valuation methods as well as allocate more time to the valuation of an entrepreneur's and management's human capital, which clearly indicates that a more elaborate due diligence is a function of the stage of development.

4.3.1.2 Perceived level of innovativeness

In hypothesizing the relationship between the perceived level of innovativeness and the use of sources for information two interpretations were highlighted, with divergent effects on the research outcomes. The uncertainty related to a high level of innovativeness was assumed to increase the need to collect information to gain an understanding of the core technology of the product or service (see e.g. Sapienza and Amason, 1993). Much of the uncertainty in innovative businesses stems from the fact that firms' operations are highly complex (Kaplan and Strömberg, 2004).

The other interpretation is an entrepreneur's and management's reluctance to provide technical details (Cable and Shane, 1997) and other information useful for investors, as they are afraid that investors will exploit them. This would point to a limited ability to access information on an investment opportunity when the perceived level of innovativeness is high.

The findings demonstrate a positive relationship that is, however, insignificant in magnitude. This suggests that the increased need to gather information, when the perceived level of innovativeness is high, is the predominant interpretation for the use of sources for information. It might be that investors reject investment proposals when an entrepreneur and management are unwilling to convey information. As the sample comprises investment opportunities that investors have funded, the cases where the investors have not obtained sufficient information, due to an entrepreneur's and management's reluctance to provide it, may not be a part of the study sample. The inability to access information is surely one of the key deal breakers.

The difficulty in determining the value of an innovation is, commonly, affected by, besides the higher level of uncertainty involved, the unreliability of an entrepreneur's and management's projections. Entrepreneurs and management tend to attach a value to their innovation that is hugely overoptimistic. Even if the perceived level of innovativeness commonly relates to an inherent difficulty in establishing a value for an entrepreneurial venture, this does not seemingly lead to an increase in the use of valuation methods. This is a bit surprising as, especially, in innovative companies an entrepreneur (management) and investors commonly have divergent views regarding the value of the investment. None of the valuation methods were significantly more appealing to investors that had invested in highly innovative businesses. The findings in Reid and Smith (2001) demonstrate that nearly all business angels investing in highly innovative companies based their valuation model for a firm on a spreadsheet analysis. This study demonstrates that the use of cash flow based valuation methods commonly built on a spreadsheet model is not significantly greater in highly innovative businesses.

In highly innovative companies, where the foundation of a business is reliant on the human capital of an entrepreneur and management and where it is difficult to find a qualified replacement for an entrepreneur and the management (see e.g. Kelly and Hay, 2000a and Reid and Smith, 2001) there is assumed to be a strong need to reduce agency risks by placing a strong focus on the valuation of the entrepreneur's and management's human capital. The findings demonstrate that a higher perceived level of innovativeness does not contribute to an increase in the time allocated to a valuation of an entrepreneur's and management's human capital. Even though the empirical findings revealed that the relationship has the expected sign, the findings were highly insignificant, which is why they do not provide support in behalf of the hypothesized relationship.

One of the explanations, for the inability to find support for the predicted relationship, might be that entrepreneurs in highly innovative businesses do not have a stronger degree of experience than entrepreneurs in more traditional businesses. Therefore, there is not, necessarily, more data to be gathered through interviews and background checks. Some inventors may be university graduates who have almost no prior working experience and no proven track record to alleviate uncertainty regarding their ability to run a business successfully.

Another explanation may be the difficulty of determining the required qualities of an entrepreneur and management in highly innovative businesses. If the investors are unfamiliar with a core technology this will impair their ability to judge whether an entrepreneur and management are misrepresenting themselves during the interview process. It makes it highly difficult to perform an accurate valuation of their human capital.

4.3.1.3 Industry sector experience

It was hypothesized that investors with higher industry sector experience can utilize their more developed knowledge base to make intuitive judgments on the quality of an investment opportunity. This would relate to a diminished need to consume time and

energy in compiling information for an investment decision. In contrast, investors unfamiliar with the field of the investment were assumed to have to compensate for a lack of industry sector experience by using more sources for information when making the investment decision. The empirical findings show that the degree of industry sector experience does not seem to have any greater impact on the use of sources for information.

Similarly, the lack of relevant industry sector experience was assumed to relate to an increased need to use several valuation methods to establish a value for a venture. When an investor is familiar with the field of an investment, he is better able to foresee how the industry will develop over time and evaluate investment proposals more adequately (e.g. Landström, 1995). The findings show that the use of valuation methods seems to increase with the level of industry sector experience of business angels.

One possible explanation is that investors with a high level of industry experience apply a specialization strategy with respect to investing, whereas investors with a lower level of experience in an industry sector diversify their investment portfolios. Then the investors unfamiliar with the industry sector of the investment do not strive at minimizing the risk by performing an accurate assessment of the value of an entrepreneurial venture. These investors have no desire to become experts in the industry sector of the investment. Therefore, instead of aiming to predict the performance of an investment in an industry sector they are unfamiliar with, the emphasis might be on minimizing the risk related to an entrepreneur and management (e.g. Landström, 1995).

The lack of relevant industry sector experience in the field of an investment makes it more difficult for investors to determine whether an entrepreneur and management possess sufficient appropriate qualities to successfully manage the business in question. This was expected to be reflected in more time being allocated to the valuation of their human capital. The findings were not consistent with the assumption put forth. On the contrary, the empirical evidence points towards a positive relationship between the degree of industry sector experience and the time allocated to the valuation of an entrepreneur's and management's human capital.

In possessing relevant industry sector experience, investors should be better equipped to ask relevant questions and know what kind of skills and capabilities are required. This might have the effect of prolonging discussions related to an entrepreneur's and management's experience. The degree of industry sector experience was strongly associated with more time being allocated to reviewing articles on an entrepreneur and/or management team. Investors with substantial industry sector experience may have the ability to draw inferences regarding the quality of an entrepreneur and management by analyzing the content of articles on them. Those business angels possessing considerable industry sector experience may then have a competitive advantage in line with the resource based view (e.g. Barney, 1991).

The degree of industry sector experience is not one of the ingredients that has a significant impact on the use of sources for information, valuation methods and time allocated to the valuation of an entrepreneur's and management's human capital.

Familiarity with an industry sector does not seem to relate to more intuitive investment decisions. In actual fact, the valuation of an entrepreneur's and management's human capital seems to be more rigorous when investors possess a high level of experience in the relevant industry sector.

4.3.1.4 Experience as an investor

The assumption derived from agency theory suggests that the degree of asymmetric information is higher when business angels do not possess much experience as investors. Therefore, it was predicted that such investors have not yet learned "the tricks of the trade" and have to place greater emphasis on performing due diligence pre investing.

In contrast to the hypothesized predictions, the empirical findings strongly imply that more experienced investors have become more professional in their due diligence and use more sources for information and more valuation methods, as well as allocate more time to the valuation of an entrepreneur's and management's human capital. Increased experience has by far the strongest impact on the effort placed on the valuation of the entrepreneur's and management's human capital. The findings are in line with Wiltbank (2005) and indicate that previous experience improves a business angel's ability to conduct insightful due diligence. Manigart et al. (2000) reinforce this by stating that expertise may develop over time, meaning a greater expertise at evaluating investment proposals. With experience business angels may also build up a knowledge base upon which to conduct due diligence (Van Osnabrugge and Robinson, 2000).

The study by Van Osnabrugge (1998a) suggests that business angels can learn from previous mistakes. If business angels perceive that they have been naïve concerning due diligence this may result in business angels conducting more research and taking a more realistic look at possible investment risks in future investments (see Van Osnabrugge, 1998a,b). Previous failures may then be interpreted as being largely due to insufficient due diligence. Thus, more experience as an investor would relate to an increased awareness of investment risks.

The highly significant relationship between experience as an investor and the time allocated to the valuation of an entrepreneur's and management's human capital implies that the risks related to the characteristics of an entrepreneur and management seem to be highlighted with more experience at hand. Consequently, the finding in Van Osnabrugge's study (1998b), which examined business angels in the UK, suggesting that experienced, serial investors are less concerned with risks related to an entrepreneur and management does not seem to be relevant in explaining the due diligence approach of Finnish business angels.

Feeney et al. (1999) studied the investment process of Canadian business angels and found that active investors identify attributes of the entrepreneurs (owners) as the main weakness of the investment opportunities they come across. Since the more experienced Finnish business angels allocate more time to the valuation of an entrepreneur's and

management's human capital, it may well relate to problems previously experienced that are associated with the attributes of entrepreneurs and management.

The resource based view can be utilized as a framework for addressing the value added contribution of venture capitalists (e.g. Aldrich and Auster, 1986; Sapienza and Timmons, 1989; Goram and Sahlman, 1989; Steier and Greenwood, 1995; Fried and Hisrich, 1995; Sapienza et al., 1996; Wang et al., 2002) and business angels (Mason and Harrison, 1996a, 1999; Lumme et al., 1998, Sohl, 1999 and Ardchvili, 2000) post investment. The studies show how the investors can make use of their previous experiences and networks in order to enhance the investee company's performance. Having extensive industry sector and, especially, experience as an investor seems to facilitate an ability to determine risks up front and mitigate them through conducting rigorous due diligence. Previous experience seems to be equally valuable prior to investment decisions as it is for the post investment activities. Thus the findings seem to be more in line with the resource based view than the agency theoretical assumptions the hypothesized assumptions build on.

4.3.1.5 Signaling through relationship specific investments

When the entrepreneur and management have invested a substantial share of their net worth in an entrepreneurial venture, they have more to lose in the case of failure. Only the entrepreneur and management know their own ability level and the quality of their investment proposal. In the absence of a credible signal of commitment, the investors are assumed to have to spend more time on costly due diligence. If this is the case, signaling on the part of the entrepreneur and management should decrease the need to gather information ex ante, perform a rigorous valuation and allocate time to the valuation of an entrepreneur's and management's human capital.

Previous findings have revealed that an entrepreneur and management can, by making relationship specific investments, reduce the investors' need to monitor the investee company (e.g. Barney et al., 1996; Florin, 2003). In other words, bonding appears to be a substitute for monitoring. However, based on the research findings there is no reason to make the conclusion that a signal of commitment has the effect of reducing the need to gather data up front, perform a thorough investment appraisal or reduce effort in the valuation of an entrepreneur's and management's human capital. The highly insignificant relationship between the use of sources for information and the net worth of the entrepreneur and management invested in the entrepreneurial venture shows that the share of an entrepreneur's and management's net worth invested in an entrepreneurial venture appears to have practically no power in explaining the use of sources for information.

Based on the empirical findings, the use of valuation methods can hardly be seen as a function of the share of the net worth an entrepreneur and management have invested in an entrepreneurial venture. Even if the share of an entrepreneur's and the management's net worth invested in an entrepreneurial venture would imply strong commitment on their part, it is not necessarily a signal of high ability. This suggests that the share of the net

worth invested in an entrepreneurial venture may reduce the risk of opportunistic behavior by an entrepreneur and management, but it may not be an insurance of high ability. Therefore it may be better suited in the moral hazard than in the adverse selection framework. The positive significant relationship between the time allocated to the valuation of an entrepreneur's and management's human capital and the share of net worth invested in an entrepreneurial venture strengthens this assumption.

An explanation for the poor fit of the measure, the share of an entrepreneur's and management's net worth invested in an entrepreneurial venture in the adverse selection framework, is that net worth may be accumulated through previous successes. For wealthier individuals the share of net worth invested is, commonly, on a more moderate level. Hence, even if they have not invested a substantial amount of their net worth they are often individuals who possess considerable experience and have no great incentive to misrepresent themselves to investors. Consequently, a lower share of net worth invested may not imply that an entrepreneur and management are lacking the required qualities.

Relatively inexperienced, young, entrepreneurs may have invested much of their net worth in their entrepreneurial venture but have a stronger need for additional funding. Thus, it might be that these more financially committed and constrained entrepreneur(s) are more willing to involve themselves in lengthy discussions pre investment, to ensure that they can build up trust in the relationship from the outset. Then the degree of commitment might be associated with a willingness to convey information on the part of the entrepreneur and the management team.

In addition, when an entrepreneur and a management team have invested much of their savings in a venture their incentives to misrepresent their qualities may, in fact, increase. This is because their livelihood might be reliant on the success of their entrepreneurial venture. The risk of a bankruptcy, due to an inability to secure funding, results in a more substantial share of the net worth being jeopardized and, often, lost in the case of failure.

The findings suggest that a signal of commitment by an entrepreneur and management team does not reduce the need for an investor to gather information, perform valuations and allocate time to the valuation of human capital. On the contrary, the valuation of an entrepreneur's and management's human capital seems to be pronounced when an entrepreneur's and management's share invested in a new venture is substantial.

4.3.1.6 Syndication

The research findings support the assumption that business angels engage in syndication to reduce risk. Syndication seems to relate to a decreased use of sources for information and valuation methods, pointing to a possibility to share responsibilities within an investment syndicate and an opportunity to get a second opinion for the investment decision. This is in line with the studies by Lerner (1994) and Brander et al. (2002), which argue that the presence of a co-investor increases confidence in the quality of a project. The enhanced confidence in the quality of a project appears to lead to a reduced

need to collect information and use valuation methods for determining the quality of the project.

The findings do not support the assumption that investors within a syndicate share information. Sharing or pooling information would imply that more information is available for the investment decision, as information is transferred from one investor to another (e.g. Norton, 1995, Ardichvili et al. 2000).

The findings reveal that syndicating an investment is significantly associated with a reduced need to apply valuation methods. If one business angel within a syndicate has performed a reliable valuation of the investee company, it is needless for other investors within the syndicate to repeat the task. As has been previously noted, investment syndicates often comprise a lead investor or a so called investment champion (e.g. Payne and Macarty, 2002) taking the main responsibility with regard to assessing the investment proposal.

Investors do not seem to collaborate in the valuation of an entrepreneur's and management's human capital. The time allocated to the valuation task is not reduced when syndicating an investment, which indicates that each investor performs their own valuation. The interviews with an entrepreneur and management are of importance because they shape the relationship between an investor and an entrepreneur (management). The fact that the relationship between the time allocated to the valuation of an entrepreneur's and management's human capital is not affected by the form of investing may, consequently, reflect the importance investors attach to managing risks related to an entrepreneur and management.

The findings indicate that investors within a syndicate do collaborate with respect to information gathering and valuation. In spite of the possibility among the investors in a syndicate to share information, based on the empirical findings, the transferal of information does not seem to occur frequently within investment syndicates. The valuation of an entrepreneur's and management's human capital does not appear to be affected by syndication.

4.3.1.7 Type of co-investor

Previous research reveals that venture capitalists perform a more thorough due diligence than business angels (e.g. Van Osnabrugge, 1998a). Therefore, business angels should be able to benefit from venture capitalists' rigorous due diligence, when co-investing. The findings suggest that business angels use more sources for gathering information when syndicating deals with venture capitalist than they use when they syndicate with business angels.

The empirical findings do not reveal whether this is the effect of the efficient transferal of information within a syndicate or a lack of collaboration between the two types of investors. As venture capitalists often utilize experts (third party information), it was assumed that business angels co-investing with venture capitalists may utilize this

valuable information for making better investment decisions. The findings reveal that external due diligence reports are used to a greater extent when co-investing with venture capitalists than with other business angels¹⁵³.

The study by Harrison and Mason (2000a) argues that both business angels and venture capitalists can benefit from collaboration throughout the investment process. In reality, it might be that collaboration is more difficult to establish when syndicating a deal with venture capitalists, applying a divergent investment approach, than with other business angels. The study by Fiet (1996) argues that business angels and venture capitalists rarely share information.

The highly insignificant research findings show that there is almost no difference in the use of valuation methods and the time allocated to the valuation of an entrepreneur's and management's human capital when co-investing with venture capitalists and business angels. In spite of the fact that venture capitalists have been shown to use a variety of valuation methods in their investment approach, this does not seem to have the expected effect of diminishing business angels' need to perform a valuation.

Similarly, there seems to be almost no difference in the time allocated to the valuation of an entrepreneur's and management's human capital when co-investing with business angels and venture capitalists. The strong data driven approach venture capitalists apply to the valuation of an entrepreneur's and management's human capital (see Smart, 1999) does not contribute to reducing the business angels' need to gather information on an entrepreneur and management team. The findings indicate that business angels do not gain much from co-investing with venture capitalists, in terms of a reduced need to participate in due diligence activities.

4.3.1.8 The perceived accuracy of the assessment of a market environment

A logical connection was found between the use of sources for information and the perceived accuracy of the assessment of the market environment. Accuracy can be achieved through interviews with different stakeholder groups. Of these the most important are the current customers, whose opinions are valuable when assessing current satisfaction with and the potential of the product and/or service. With more information available for the investment decision investors appear to be better at estimating the size of a market, its need, growth potential and the accessibility to the market.

An accurate assessment of a market environment helps to mitigating uncertainty involved. A lower level of uncertainty is expected to have the effect of reducing the need to use several valuation methods for establishing a value for a company. This assumption does not hold. The empirical findings indicate that the perceived accuracy of the assessment of a market environment has a relatively limited effect on the use of valuation methods. If it has any effect at all, the perceived accuracy of the assessment of a market environment relates to the use of more valuation methods. Then the better ability to foresee future changes, which arises from an accurate assessment of the market

¹⁵³ see appendix 8, table 7a

environment, seems to facilitate a more rigorous investment appraisal. Conversely, the difficulty in projecting changes in a market environment may make it difficult to perform a valuation of the entrepreneurial venture. The findings were, nevertheless, insignificant and therefore these interpretations are made with caution.

The perceived accuracy of the assessment of a market environment has, however, a relatively strong power in explaining the amount of time allocated to the valuation of an entrepreneur's and management's human capital. Previous studies have indicated that there is a tradeoff between the valuation of market risks and agency risks (e.g. Fiet, 1991 and 1995). Those investors with a better ability to assess a market environment were assumed to place less emphasis on the characteristics of an entrepreneur and management. Thus, those investors capable of rigorously assessing the market environment are assumed to be less concerned about risks related to an entrepreneur and management. The assumption in Zacharakis and Shepard (2001) is that more information appears to shift the focus from an entrepreneur to a market. The Finnish business angels seem not to behave according to that as an accurate assessment of a market environment is associated with more emphasis being placed on the valuation of the human capital of an entrepreneur and management.

The sample of Finnish business angels evidently seems to comprise investors that are highly professional in their approach to managing risk, as the investors that accurately assess a market environment also spend most time in valuation of human capital. Instead of considering the assessment of market and agency risks to be two substitutes for investors, in this study they seem to have a complementary role. Focusing on one does not mean that any less focus is placed on the other. On the contrary, those investors concerned about market risks seem to be highly concerned about risks related to entrepreneurs and management as well.

The perceived accuracy of the assessment of the market environment does seem to be associated with an increased use of sources for information and more time being allocated to the valuation of an entrepreneur's and management's human capital.

4.3.2 Part 2: An investigation of the power of agency theory and the incomplete contracting theory in explaining business angels' involvement post investment

The empirical findings revealed that most relationships were insignificant. This makes it challenging to come up with sound interpretations. Based on the empirical findings, involvement post investment can best be explained by an investor's stake in a business. The lack of support for the theoretical assumptions indicates that there is scope for future research on the factors that explain the post investment activities of Finnish business angels.

4.3.2.1 The relationship between ownership and control through active involvement

In the presence of asymmetric information, investors are unable to verify the behavior of an entrepreneur and management (e.g. Eisenhardt, 1989). The risk of opportunistic

behavior by an entrepreneur and management is expected to decrease when they share risk with their investors through ownership in an entrepreneurial venture. As the risk of opportunism is reduced investors are assumed to be able to spend less time on monitoring an entrepreneur and management. This implies that an investor's involvement is expected to decrease as a function of the level of ownership of an entrepreneur and management.

Surprisingly, the findings demonstrate that involvement increases with the level of ownership of an entrepreneur and management. Similarly, Landström (1992) studying the relationship between business angels and entrepreneurs in the Swedish informal venture capital market did not find support for a negative relationship between business angels' degree of involvement and the level of ownership of an entrepreneur and management.

The findings show that investors' involvement can be explained by the size of their equity stake in a business. In other words, it is the investors', and not the entrepreneurs', level of ownership that determines the degree of involvement post investment. Kelly and Hay (2000a), who studied the relationship between business angels and entrepreneurs in the UK, also found a positive relationship between investors' ownership and their degree of involvement.

The findings do not support the assumption that business angels are risk neutral and indifferent with respect to the level of risk they carry. Business angels' stake in a business matters as their wealth is restricted and their portfolios not as well diversified as the risk neutrality assumption would presume. Even if business angels, certainly, have deep pockets vis-à-vis entrepreneurs, they are in the business to obtain a return on their invested equity. The non-financial criteria are less important for Finnish business angels than long and short term financial criteria (see Lahti, 2007). Business angels are highly concerned about the equity stake they obtain, as their share in a business determines their share of its profits when an investment is successfully realized.

It seems that when investors feel they are sufficiently rewarded, in terms of an adequate equity stake, they are willing to involve themselves in the businesses of investee companies. In addition, as many of the deals are syndicated the investor with the highest stake in the business might take the role of the lead investor and with that the main responsibility for monitoring an entrepreneur and management. In investment syndicates some investors may obtain a negligible share of the stock of the investee company, which limits their willingness to involve themselves. Another possibility is that business angels require a higher equity stake, in exchange for their invested capital, in businesses where they are able to provide value added benefits through being actively involved¹⁵⁴. Their role in a business seems to increase with their level of ownership.

The findings do not provide support for a negative relationship between the level of ownership of an entrepreneur and management and the degree of involvement of investors. On the contrary, their involvement seems to increase when an entrepreneur and management have a more substantial share of the stock in an investee company. The findings provide significant support for a positive relationship between an investor's

¹⁵⁴ see subsection 4.1.8 for support for this argument

stake in an investee company and their degree of involvement. As the economic return of investors is a function of their stake in an investee company their degree of involvement increases with their opportunity to share the rewards with the entrepreneur and management in question.

4.3.2.2 The relationship between the asset base and the allocation of control through active involvement

It was predicted that there is a negative relationship between fixed tangible assets to total assets and the degree of involvement. The underlying tangible assets provide investors with security, as the fixed tangible assets can be liquidated in the case of default. The intangibles cannot be gained control of as they build on the human capital of an entrepreneur and management (e.g. Hart, 1995b). Thus, investors are assumed to involve themselves, in order to gain control, when investing in companies that are largely built on the human capital of their entrepreneur and management.

The security given from the existence of an asset base does not seem to reduce the degree of involvement. The relationship between the fixed tangible assets to total assets and the degree of involvement is highly insignificant. It might be that in some companies that are highly dependent on intangible assets investors do not have a sufficient understanding of e.g. the technology required to gain control through being actively involved. As an entrepreneur's and management's input is, in these companies, the crucial factor determining their success then the involvement of investors may be distracting and not beneficial. Therefore, investors might prefer a more modest involvement in these companies.

However, when an investee company is highly leveraged, business angels, who commonly utilize common stock as their investment instrument, have a subordinated claim to other investors. Therefore, the tangible assets may not provide protection for business angels, as the liquidation value of these assets may not suffice to repay the debt obligation and cover the invested capital of a business angel. Thus, it is assumed that there is a negative relationship between the equity ratio and the degree of involvement of business angels. However, the findings do not support the hypothesized relationship and instead point to a positive relationship between the equity ratio and the degree of involvement.

A reasonable explanation for the obtained relationship would be that the capacity for a company to qualify for debt is generally higher when a company can pledge assets as collateral and show profitability¹⁵⁵. Even though the study controls for the stage of development, the results may also be partly affected by the size of the company. If a high equity ratio implies that a company has not reached a point where it qualifies for funding from banks, the risk arising from liabilities of its immature stage of business development may be perceived as more severe than the financial risk arising from a high level of debt.

¹⁵⁵ Because a positive correlation was found between the ratio of fixed tangible assets to total assets and the equity ratio of the investee company ($r = 0.158$), this (plausible) interpretation is not empirically supported (see appendix 8, table 12).

These interpretations may, however, not be valid, since they lack empirical support. Thus, they are made with caution.

Even if active involvement would be a measure for gaining control when contracts are incomplete, as suggested in Van Osnabrugge (1998a), it does not seem to be a function of the percentage of the fixed tangible assets and the level of indebtedness of the investee company.

4.3.2.3 Inclusion of covenants mitigating the hold-up problem

The covenants mitigating the hold-up problem are designed to tie an entrepreneur to a business, by making it difficult for him to leave his company. The inclusion of covenants mitigating the hold-up problem is expected to decrease the need for investors to gain control through being actively involved. Contrary to the hypothesized expectation, the findings strongly suggest that involvement is greater when covenants have been included in the deal struck.

An entrepreneur's and management's willingness to include these covenants may have the effect of signaling their good intentions and qualities and help in building trust in the relationship between the two parties. The presence of such safeguards may have the effect of increasing investors' incentives to take part in the investee companies' business activities. The inclusion of these covenants might also be an indication of high professionalism on the part of the investors. Thus, it would seem that professional investors reliant on more comprehensive contracts are also more professional in their post investment activities. As noted previously, involvement provides, besides a measure of control of an investee company, investors with the possibility to inject their value added contribution.

If covenants are included to tie an entrepreneur and management to a company, when their human capital is deemed virtually irreplaceable, then there should be a negative relationship between the inclusion of covenants mitigating the hold-up problem and the ratio of tangible assets to total assets. The findings show that the relationship has the expected sign, but that it is insignificant in magnitude. It seems that there is a connection between the inclusion of covenants mitigating the hold-up problem and the investee company's dependence on intangibles, but as the relationship is insignificant the hypothesized assumption was not supported.

The inclusion of covenants mitigating the hold-up problem does not reduce business angels' involvement post investment. The investors that include these covenants seem to be those that participate most actively in the business of the companies they fund. It appears that a reliance on intangibles may have some power in explaining the inclusion of covenants mitigating the hold-up problem.

5 DISCUSSION AND CONCLUSION

This chapter is organized as follows. Section 5.1 constitutes the scientific discussion, in which the five research questions this study builds on are answered. Each research question is answered in a separate subsection. Then, in section 5.2 conclusions are drawn based on the research findings. Some of the key conclusions are portrayed in a model. Section 5.3 summarizes the theoretical contribution of this study. In section 5.4 practical implications are suggested for entrepreneurs, business angels and policy makers. These suggestions aim at aiding the development of the informal venture capital market in Finland. Section 5.5 critically assesses the research process and the research design of this study. The doctoral thesis ends with section 5.6 providing suggestions for future research.

5.1 Discussion

The discussion is structured around the research questions. They are answered in the same order as they appear in the introductory chapter. The discussion is based on both the descriptive findings and the findings gained from testing the research hypotheses. The descriptive findings are especially important in addressing the first research question. The discussion proceeds from a general level to a more specific and theoretical level.

5.1.1 What are the characteristics of Finnish business angels?

One of the key objectives of this study was to gain an understanding of the characteristics and investment behavior of Finnish business angels. When the findings were compared to previous research on business angels strong similarities were found. Like their counterparts in Sweden (Månsson and Landström, 2006; Landström, 1993), Norway (Reitan and Sørheim, 1999) and the UK (Van Osnabrugge, 1998a), Finnish business angels have strong entrepreneurial experience. Thus, it seems that one of the incentives for taking the step to become a business angel is the opportunity to relive one's previous successes. Doing this enables one to show that they were more than chance. Even though most investors had previous entrepreneurial experience, the findings revealed that the percentage was lower than the corresponding one in Lumme et al. (1998). This suggests that the population of business angels nowadays also comprises individuals that have accumulated wealth from sources other than selling their successful venture. These are individuals that have inherited wealth and made fortunes through cashing in on holdings from quoted investments.

Through the possession of extensive entrepreneurial experience, business angels should be able to contribute more than money to help make an entrepreneurial venture succeed. By being actively involved and performing various hands-on roles an entrepreneurial venture should be able to benefit from an investor's knowledge and experience. The findings, nevertheless, indicate that not all business angels are actively involved in the ventures they fund. There was considerable variation in their degree of involvement,

which indicates that many business angels choose to take a passive role in investee companies. The involvement of Finnish business angels was weaker than among business angels in Germany (e.g. Stedler and Peters, 2003) and the UK (e.g. Van Osnabrugge, 1998a). A comparison of the current findings to those in Lumme et al. (1998) suggests that Finnish business angels' involvement has declined over the years.

The findings are in line with those in Månsson and Landström (2006). Månsson and Landström (2006) indicate that as investment activity has increased the degree of involvement of Swedish business angels has decreased. The findings revealed that Finnish business angels' investment activity, as well as investment experience, is substantial. The most active and experienced part of the population of investors has been investing for more than ten years. These investors hold large portfolios of investments. Having a large number of investments to manage, makes it difficult for an investor to involve himself in all investments in his portfolio.

The findings imply that the some of the Finnish business angels, similarly to their formal counterparts, rely on being members of the investee company's board of directors, whilst having limited involvement in the operations of entrepreneurial ventures. This corroborates the statement in Kelly and Hay (2000a) that "the distinctions between the formal and informal segments of the venture capital market begin to blur". The relatively strong use of investment companies among Finnish business angels bears witness to an increasing degree of professionalism in the market. The use of investment companies is also common in Sweden according to the findings in Månsson and Landström (2006). Investments through investment companies are preferred vis-à-vis direct investment for fiscal purposes, as losses accruing from investments are deductible within the unit of the limited company. This would indicate that tax related issues have a strong bearing on the decision to involve oneself in business angel activity.

The Finnish business angels seem to receive a large number of investment proposals, but the high screen out ratio reveals that only a small share of the proposals are funded. The screen out ratios were higher than the corresponding ones in Germany (Stedler and Peters, 2003), Norway (Reitan and Sørheim, 1999) and Sweden (Månsson and Landström, 2006). This suggests that the problem is not so much the lack of capital available for entrepreneurial ventures as the insufficient quality of the deal flow. Many of the investment opportunities that business angels come across may not be investment ready or match their investment preferences. The fact that only a small share of the investment opportunities the business angels received were subject to serious consideration supports the assumption that business angels are not fully satisfied with the quality of their deal flow.

The findings provide support the argument in Lumme et al. (1998) that Finnish business angels reject a large part of the investment opportunities that their counterparts in other countries would perceive as investable projects. The screen out ratio was slightly higher than in Lumme et al. (1998). This would imply that Finnish business angels have become more selective over the years.

The recent study by Sohl (2006) indicates that business angels in the US have changed strategies after the strong market decline following the IT hype leading into 2000. The findings suggested that the market downturn had a profound effect on market activity, resulting in greater scrutiny with respect to due diligence conducted up front. As the highly experienced business angels, in the current study, have experienced boom and bust cycles their selectiveness, reflected in high screen out ratios, may be partially explained by investors having become more careful and more concerned about the risk involved in investment activity.

This argument seems plausible, as the findings indicate that deal sizes have increased as funds have been injected into companies in the early and later stage of development. In Lumme et al. (1998) all investments were made in seed and startup ventures, with the focus clearly on startups. If Finnish business angels have increased their preference for financing more mature ventures, this may result in an increased difficulty for newly established entrepreneurial ventures to secure funding. It is possible that some business angels may be reluctant to expose themselves to the considerable risk associated with seed and startup investments. This limits the role of angel investing in filling the equity gap, while leaving the Finnish government with an increasingly important role in ensuring initial funding for nascent ventures.

One of the most striking findings was the very strong prevalence for syndicating investments among Finnish business angels. Syndicating investments appears to be a highly utilized tool for managing risk. It allows investors, through the pooling of funds, to invest greater amounts in later stage companies. As syndication facilitates the increase of portfolio diversification it may have the effect of limiting the time available for investors to involve themselves actively. A more passive role is enabled when sharing responsibilities with co-investors.

The findings of this study suggest that the informal venture capital market is highly fragmented, comprising segments of investors with divergent *modus operandi*. However, drawing inferences based on the obtained averages for the examined investor characteristics, it would seem that the business angel population appears to comprise predominantly highly professional investors that seem to have adopted an investment style that resembles that of their formal counterparts. They are highly selective in their initial screening, have a sizeable deal flow, perform rigorous due diligence to manage risk, invest through companies to benefit from a more favorable taxation, co-invest with both other business angels and venture capital funds and take a seat on the board of directors. Their strong investment activity is offset by their limited ability to involve themselves on a daily basis. Comparisons with Lumme et al. (1998) clearly reveal that the business angels seem to have implemented an investment strategy that is more reliant on avoiding high investment risk. This coincides with the recent findings in Månsson and Landström (2006) who explored development trends in the Swedish market for informal venture capital.

5.1.2 How do business angels in Finland conduct due diligence?

This study seeks to understand how business angels conduct due diligence and what factors explain the comprehensiveness of the due diligence procedures. The findings contrast with previous research demonstrating that business angels rely on pure intuition and rarely calculate returns on their investment (e.g. Mason and Harrison, 1996a and Prowse, 1998, Van Osnabrugge, 1998a).

Several information sources were utilized for their investment decisions. Almost half of the investors made use of experts to perform due diligence. This does not necessarily mean that business angels do not possess sufficient experience to conduct due diligence themselves. Expert opinion provides a second opinion, which can corroborate their assumptions and interpretations. The use of several information sources suggests that business angels are diligent in their approach to managing risks. Verifying information in a business plan through interviews with stakeholder groups and experts increases a business angel's confidence in a deal. Farrell and Howorth (2002), however, suggest that too much information may in the worst case result in overconfidence, which may have the negative impact of clouding the investment decision.

The relatively low percentage of the investment opportunities that were taken into serious consideration indicates that when business angels conduct due diligence the projects have a good chance of getting funded. The use of external experts indicates that business angels' due diligence incurs costs, which is why their selectiveness may also be the result of a cost minimization strategy by investors. It would seem that many business angels make use of all relevant information available, in their decisions to invest.

Gathering information to overcome uncertainties regarding the quality of an investment proposal facilitates a more accurate investment appraisal. In the light of the strong use of information sources, the business angels' strong reliance on different valuation methods was not completely unexpected. The fact that most business angels applied several valuation methods indicates that the word "informal" is not appropriate for describing the actors in the Finnish market. Their reliance on valuation methods strongly suggests that financial criteria, such as the expected rate of return and the size of the equity stake, play a critical role in the decision to invest. It would seem that the findings of Stedler and Peters (2003) and Heukamp et al. (2006), which revealed that German speaking business angels' and venture capitalists' interests have become more aligned also hold in describing the development of the Finnish market.

The findings in the current study were consistent with previous research (e.g. Mason and Harrison, 1996a; Wright and Robbie, 1996; Van Osnabrugge, 1998a; Manigart et al., 2000) showing that valuation methods forecasting the future are more popular among venture capitalists and business angels than valuation methods that build on a company's financial history. In business angels' investments there is generally not much financial history to base a valuation on.

The business angels' valuation of an entrepreneur's and management's human capital appears to build on face-to-face interaction. Most of the data on an entrepreneur and

management are collected in discussions relating to their previous experience. Far less time is consumed in conducting background checks. The possibility to use background information is naturally affected by the level of experience of the entrepreneur and the management in question. Young entrepreneurs cannot be expected to have a lot of experience to bring to bear, which limits the possibility to conduct a highly data driven valuation of their human capital.

Although the findings have pointed out a strong rigorousness in Finnish business angels' due diligence, the market cannot be seen to comprise only one type of investor. Based on the obtained findings, the Finnish business angels also include investors whose investment decisions are made intuitively, based on gut feeling. Nevertheless, the business angel population appears to be dominated by highly sophisticated investors who are familiar with different valuation methods and aim at accuracy in their investment decisions through the utilization of the information sources available. The interviews with an entrepreneur and management are of paramount importance to most business angels.

5.1.3 What factors explain the comprehensiveness of the due diligence procedures?

The descriptive findings revealed that there is a great deal of variation in the use of sources for information and valuation methods as well as in the time spent on the valuation of an entrepreneur's and management's human capital. Using agency theory as a framework this study aimed at identifying factors influencing the comprehensiveness of due diligence.

The findings demonstrated that the stage of development has the strongest explanatory power in determining the comprehensiveness of business angels' due diligence. More information seems to be available on companies that have advanced to a later stage. Even though companies in their nascent stages involve more uncertainty, this does not appear to drive an increase in due diligence. Investors might be unable to perform meaningful due diligence and the comprehensiveness of due diligence is, therefore, more a function of convenience than the underlying investment risk. Although a higher uncertainty would entail a higher need to gather data to verify the information in a business plan, some seed, startup and early stage companies may not yet have customers, personnel, bankers, suppliers and accountants, whose opinions can be utilized for the purpose of assessing the truthfulness of an entrepreneur's and management's business plan. In particular, the use of third party information, i.e. due diligence reports prepared by external experts (consultants, lawyers and accountants) and independent financial reports, which all tend to increase with advances in the stages of the development of a company.

The applicability of the valuation methods improves as a company has more financial information available. Companies in their nascent stages of development rarely have an asset base and little or no income stream, which renders asset based valuation methods difficult to perform. Surprisingly, the valuation methods that forecast the future are also more frequently applied in later stage companies. One of the underlying reasons for this might be that it is challenging to foresee future cash flows in seed, startup and early stage firms, which is why a valuation may become highly inaccurate.

Norton (1995) highlighted that internal risk, including poor management, is the major risk in early stage companies. Despite the importance attached to the role of an entrepreneur and management in seed, startup and early stage companies (e.g. Norton, 1995; Feeney, 1999, Sørheim, 2003), the findings surprisingly revealed that most time is consumed in the valuation of an entrepreneur's and management's human capital in later stage companies. The explanation for this could be that more information is available on an entrepreneur and management when a company has matured and they have established a track record for running their business successfully. Furthermore, as a company grows its management team grows which means that more information can be assembled for the investment decision.

The other factor with a strong explanatory power regarding the comprehensiveness of business angels' due diligence was their experience as an investor. Earlier it was suggested that investors that have experienced an economic downturn, involving failures due to insufficient due diligence, have become more careful, which implies a stronger emphasis on managing investment risks *ex ante*. This study strongly supports this assumption by revealing that the comprehensiveness of due diligence increases with experience as an investor. Experiencing failures may act as catalyst for change in an investor's attitudes towards risk taking. Similar evidence was found in Van Osnabrugge (1998a,b), Manigart et al. (2000) and Wiltbank (2005), which argues that as an investor's expertise develops over time their ability to conduct due diligence improves. More experienced business angels appear to exhibit a rigorousness that resembles the due diligence of their formal counterparts. The findings demonstrated that the time spent on the valuation of an entrepreneur's and management's human capital increases with their degree of experience as an investor. Experienced business angels might perceive an entrepreneur's and management's characteristics to have been the crucial determinant in affecting the success of previous investments.

The degree of industry sector experience had much less impact on the comprehensiveness of due diligence than their experience as an investor. However, the findings indicate that, similar to experience as an investor, industry sector experience seems to relate to a more profoundly conducted due diligence. It appears that business angels lacking or short of industry sector experience have no desire to become experts in the field they are investing in. Investors with less industry sector experience do not aim at compensating for their lack of experience in an industry sector with a stronger due diligence effort. Due to the fact that business angels seemingly comprise investors with relatively large investment portfolios, some of the investors might have adopted a diversification strategy, meaning that instead of specializing with respect to an industry sector the objective is to invest in many different industry sectors to ensure that a portfolio's financial return is not susceptible to the decline of one industry sector.

The economic downturn at the beginning of the first decade of the 21st century had an adverse effect on companies within the ICT sector. Thus, investors who had made mostly IT-related investments might have experienced the risks of a strategy focusing solely on one industry sector, which would have manifested itself as sharply decreasing portfolio returns. Consequently, some of the investors in this study might have felt a need to increase their portfolio diversification, in order to guard themselves against industry

specific risks. Investments in non-listed companies may represent only a small share of their entire portfolio, which might also include investments in the stock market and real estate. Their investment strategy may also involve combining securities with varying levels of risk for the purpose of obtaining an optimal diversification. If a population is comprised of investors with divergent investment strategies, this would make the comprehensiveness of due diligence more a function of the chosen investment strategy than the degree of industry sector experience.

The perceived level of a company's innovativeness had a highly insignificant effect on the comprehensiveness of due diligence. This was surprising as, especially in innovative companies, an entrepreneur and investors commonly have divergent views regarding the value of an investment. The study focuses on investment opportunities that received funding. Therefore cases where investors' and entrepreneurs' views regarding the value of an innovation were not aligned might not be represented in the sample as they were rejected at an initial screening, due diligence or negotiations prior to contracting.

Previous studies such as Barney et al. (1996), Florin (2003) and Prasad et al. (2000) have revealed that an entrepreneur and management can through investing a substantial share of their net worth signal their commitment to business angels. They demonstrated that this results in a reduced need for the investors to monitor an entrepreneur's and management's behavior. In this study, a signal of commitment did not have the expected effect of reducing the due diligence performed pre investment. In contrast to the expectations of this study, the time allocated to the valuation of an entrepreneur's and management's human capital strongly increased with the amount of an entrepreneur's and management's share of net worth invested in an entrepreneurial venture.

The syndication of investments was expected to influence the comprehensiveness of due diligence, as previous research by Lerner (1994) and Brander et al. (2002) revealed that investors can benefit from obtaining a second opinion, regarding the quality of an investment proposal, and delegate responsibilities within a syndicate. According to the findings of this study, it would appear that syndicating investments mitigates the need to gather information up front. Whilst business angels applied significantly less valuation methods when co-investing, syndication did not have an impact on the time consumed in the valuation of an entrepreneur's and management's human capital. This could highlight the importance attached to the characteristics of an entrepreneur and the management team, by indicating that this is the task business angels want to be engaged in regardless of the presence of co-investors. When comparing investments where business angels have invested alongside other business angels to investments with venture capital funds, the findings suggested that the type of co-investor does not have a significant effect on how due diligence is conducted.

The findings suggested that an accurate assessment of the market environment builds on gathering a plenitude of information. This would imply that by interviewing various stakeholder groups, of which the current customers are seemingly the most important, business angels perceive that they can better assess the market environment, and hence protect themselves against market risks. There was almost no relationship between the use of valuation methods and the perceived accuracy of the assessment of a market

environment. Previous research, such as that by Fiet (1991, 1995) and Zacharakis and Shepard (2001), has advocated that an inability to gather information on a market environment shifts the focus to the characteristics of an entrepreneur and management. Contrary to the previous research, this study shows that business angels who perceive their assessment of the market environment to be accurate allocate more time to the valuation of an entrepreneur's and management's human capital. This indicates that Finnish business angels that are more concerned about market risks are also more concerned about risks related to the capabilities of an entrepreneur and management. Evidently, the Finnish business angel population is comprised of a highly professional group of investors who strive to overcome the high risks involved in investments in entrepreneurial ventures as well as less sophisticated investors for whom these investments are more of a gamble.

5.1.4 How is the control of the investment allocated post investment?

The study aimed at understanding how the control is allocated post investment. The findings demonstrated that business angels consider their active involvement to be an important tool for managing risk. By being actively involved in the business of the investee company an investor will receive up to date information regarding the actions and the behavior of an entrepreneur and management team. Thus, involvement can be seen as a highly efficient way to monitor an investment. Van Osnabrugge (1998a) pointed out that active involvement is the best way for business angels to gain control of an investment.

The descriptive findings revealed that relatively few business angels are involved in day-to-day operations. Board membership was very common among the investors in this study. This would suggest that some business angels' involvement is limited to monthly board meetings. As suggested previously, investors holding large portfolios of investments may not have the time available for participating in all the investments in their portfolio. Thus, these business angels may see board membership as a more suitable alternative than involvement in the operations of an entrepreneurial venture. There was a great deal of variation in the degree of involvement of business angels. This study seeks to understand what explains the variation in their involvement.

The findings provided very strong support for the relationship between the business angels' level of ownership and their degree of involvement post investment. Consistent evidence was found in Kelly and Hay (2000a). The higher the level of ownership by a business angel, the more actively he involved himself post investment. It would seem that an investor's willingness to be actively involved in an investee company builds on the need to be sufficiently rewarded. This is because the level of ownership determines a business angels' share of the profits when successfully realizing an investment through an exit. Based on the findings, the role of a business angel might resemble that of an entrepreneur in businesses where they have a high level of ownership. If we assume that strong involvement facilitates the performance of various hands on roles, the findings indicate that a business angel's value added contribution is higher when his stake in a business is more substantial.

It was suggested that the high prevalence for syndicating investments may influence the research findings. When investments are syndicated, ownership is divided within a group of investors. Investors obtaining a negligible share of ownership may not have a sufficient incentive to exert the effort active involvement would require. Moreover, a syndicate almost always comprises a lead investor who is likely to account for the most active involvement post investment. Thus an investment may only comply with the lead investor's investment preferences, and therefore he may be the only one that has the relevant knowledge, of the nature of a business, to reduce uncertainties through being actively involved.

In contrast to the predictions in the study, a business angel's degree of involvement does not decrease with an entrepreneur's and management's level of ownership. Similar evidence was found in Landström (1992). In other words, it is not the entrepreneur's and management's level of ownership that matters, but the investors'.

Neither the relationship between the degree of involvement and the ratio of tangible assets to total assets nor the relationship between the degree of involvement and the level of indebtedness contribute to increase our understanding of how control is allocated post investment. A low ratio of fixed tangible assets to total assets indicates that there is shortage of tangibles that can be gained control of, in the case of default, and that the business is reliant on the human capital of an entrepreneur (management). Even though investments in these companies involve high uncertainty and less security for investors, this does not seem to increase business angels' degree of involvement. Based on the obtained findings, business angels' degree of involvement appears to be even lower in these investments. As a business angel's investment is commonly in the form of common equity that has a junior claim, in the case of default, to both debt and preferred equity, the business angels' degree of involvement was expected to be higher in highly indebted businesses. Involvement was seen as means to safeguard an investment when the financial risk is high. This study was unable to find support for the relationship between the degree of involvement of business angels and the degree of financial risk arising from a high level of indebtedness.

Perhaps the most surprising finding of this study was the strong positive relationship between the inclusion of covenants mitigating the hold-up problem and the degree of involvement of business angels. Since these covenants reduce the potential opportunistic behavior of an entrepreneur (and management), by tying him (them) to the company in question their inclusion was assumed to result in a lower need for gaining control through active involvement. As the degree of involvement increased with the inclusion of these covenants this would imply that Finnish business angels encompass a group of investors that are highly professional in their approach to managing risk and complement a comprehensive contract with involvement post investment. Conversely, the investors lacking covenants mitigating the hold-up problem do not compensate for this by being actively involved. For these investors the investments are apparently more of a gamble. This coincides with findings on pre-investment risk management. Business angels that perceived that their assessment of a market environment had been accurate were those that allocated most time to the valuation of an entrepreneur's and management's human capital.

5.1.5 What is the explanatory power of agency theory and the incomplete contracting theory in the arena of business angels?

This section will, based on the research findings of this study, assess the explanatory power of agency theory and the incomplete contracting theory. The studies by Arthurs and Busentiz (2003) and Van Osnabrugge (1998a) advocate that the explanatory power of agency theory in the formal venture capital setting is strongest in the pre-investment era. The approach venture capitalists apply, which emphasizes risk reduction pre-investment, is, in Van Osnabrugge (1998a), referred to as “the principal agent approach”. Van Osnabrugge (1998a) demonstrated that business angels place much less emphasis on screening, due diligence and contracting than venture capitalists do. Business angels, as opposed to their formal counterparts, have in Van Osnabrugge (1998a) been shown to be reliant on active involvement in their approach to managing risk. Business angels in his study do not emphasize the reduction of asymmetries of information ex ante in order to form a contract that reduces the risk of opportunism by an entrepreneur (management), but instead focus on gaining control through active involvement. Due to a lack of effort in reducing agency risks prior to investing, the business angels’ approach to investing is, in Van Osnabrugge (1998a), referred to as the “incomplete contracting approach”.

The research findings showed that Finnish business angels’ approach to managing agency risk builds on strong selectiveness and a relatively comprehensive due diligence. Since their involvement post investment is rarely on a hands-on level, this would indicate that Finnish business angels behave much in accordance with the “principal agent approach” of venture capitalists. This implies that business angels appear to emphasize reducing the risks of adverse selection. Likewise, the relatively low degree of involvement post investment demonstrates an investment approach that diverges from the “incomplete contracting approach” described by Van Osnabrugge (1998a). Nevertheless, the business angels in this study stressed that active involvement is a key tool for managing risks.

The findings contrast with Fiet (1991, 1995), Zacharakis and Shepard (2001) and Harrison and Mason (2002) that suggest that there is a tradeoff between the assessment of market and agency risks. Business angels in this study, which focused on the assessment of market risks, were also those to allocate most time to the valuation of an entrepreneur’s and management’s human capital. This clearly demonstrates that Finnish business angels comprise an investor group whose approach to investing resembles that of venture capitalists, which implies a strong focus on mitigating adverse selection problems. The principal agent approach is highly relevant in portraying the investment behavior of this particular segment of the market.

Similarly the findings demonstrated that the inclusion of covenants mitigating the hold-up problem does not imply less involvement post investment. On the contrary, involvement increases with the inclusion of these covenants. This is not in line with the assumption underlying “the incomplete contracting approach” of Van Osnabrugge (1998a), which implies that business angels keep their contracts with entrepreneurs simple and incomplete to compensate for this through gaining control post investment. The findings

would suggest that Finnish business angels that strive for contractual control also aim at gaining control post investment¹⁵⁶.

This study contributes to extending the framework in Van Osnabrugge (1998a) by studying how the degree of uncertainty affects the due diligence procedures of business angels. The choice was made, in investigating the due diligence procedures of business angels, to limit this study to the assessment of the sources utilized for due diligence, the valuation methods applied as well as the time allocated to the valuation of an entrepreneur's and management's human capital. The three ingredients give an indication of the comprehensiveness of business angels' due diligence.

Several measures were formed for assessing the degree of uncertainty in an investment as uncertainty stems from different sources. The adverse selection problem, introduced in e.g. Akerlof, 1970; Spence, 1973; Stiglitz, 1975, arises when the degree of uncertainty involved makes it difficult for an investor to determine the quality of an investment proposal. According to agency theory effort placed on mitigating agency risks should increase with the degree of uncertainty involved. As due diligence is the primary tool, in the domain of venture capital and business angels, for reducing uncertainty pre investment the comprehensiveness of due diligence is expected to increase with the degree of uncertainty involved. The study presupposes that the comprehensiveness of due diligence is reflected in the use of several information sources and valuation methods, as well as substantial effort being expended in the valuation of an entrepreneur's and management's human capital.

In line with Wong (2002), this study suggests that in seed, startup and early stage ventures much of the uncertainty relates to an inability to gather information. The inability to reduce information asymmetries makes a valuation difficult to perform. Even if there is an evident need to perform rigorous due diligence in seed, startup and early stage companies, the lack of information available may not facilitate it. Similar evidence was found in studies by Wright and Robbie (1996), Van Osnabrugge (1998a) and Wiltbank (2005). Furthermore, more time was allocated to the valuation of an entrepreneur's and management's human capital in later stage companies. The evidence clearly revealed that uncertainty associated with the stage of development of an investment does not result in more comprehensive due diligence. On the contrary, the due diligence of business angels is more comprehensive in safer, later stage investments.

As highlighted in Hyttinen and Pajarinen (2003a), innovative companies involve high uncertainty and secrecy. Therefore the agency theoretical assumption is that due diligence is more rigorous in investments with a high perceived level of innovativeness. The findings demonstrate that the perceived level of innovativeness does not have the expected effect of significantly increasing the due diligence performed by business angels.

¹⁵⁶ Evidently, in angel investing all contracts are incomplete, as the high degree of uncertainty involved makes it difficult (and often impossible) to foresee all the future contingencies that may arise. This makes the assumptions underlying the incomplete contracting theory more valid than the ones agency theory is based on.

A lack of industry sector experience and experience as an investor are two sources of uncertainty that were examined in this study. They were expected to relate to an increase in due diligence. This study demonstrated that uncertainty associated with a lack of previous experience does not relate to comprehensiveness in the due diligence of business angels. In contrast to the assumptions underlying agency theory, the due diligence of business angels appears to become more comprehensive with experience as an investor. This coincides with evidence in Van Osnabrugge (1998a) and Wiltbank (2005).

The findings suggest that the resource based view would be more suitable in explaining business angels' due diligence than agency theory. Even though the resource based view relates to firms, its underlying assumptions appear to have explanatory power in the domain of business angels. Business angels may over time develop superior capabilities for assessing the investment opportunities they come across, which is why the more experienced investors are generally also the most selective ones. In line with the resource based view, sustained competitive advantage may be a function of heterogeneous capabilities (e.g. Barney, 1991). For instance these can be capabilities that only investors that have experienced economic upturns and downturns possess. As investors build on previous experience, they might be difficult to imitate. Nevertheless, this study does, not reveal whether investors performing rigorous due diligence are more successful in terms of gaining a higher return on their invested capital.

The adverse selection literature (e.g. Spence, 1973 and Stiglitz, 1975) sees signaling and screening as substitutes. Signaling by an entrepreneur and management should, for the agency theoretical assumption to hold, relate to a reduced due diligence by investors. Previous studies have revealed that a signal of commitment reduces monitoring post investment (e.g. Barney et al., 1996; Florin, 2003 and Prasad et al. 2000). In other words, entrepreneurs can, through signaling their commitment, reduce investors' effort that is consumed in managing the moral hazard problem. The business angels in this study revealed that the best way for an entrepreneur and management team to signal their commitment is through investing a substantial share of their net worth in an entrepreneurial venture.

However, the commitment by an entrepreneur and management did not have the effect of decreasing the due diligence performed. A high financial commitment does not necessarily signal a high ability level. Entrepreneurs that have much of their wealth tied up in their venture may even have a stronger incentive to misrepresent their own qualities in order to ensure funding because bankruptcy may have an adverse effect on their livelihood. Following this argument, it can be stated that financial commitment does not necessarily reduce the risk of adverse selection, which is why the findings do not contribute to adding to the explanatory power of agency theory.

The studies by Lerner (1994) and Brander et al. (2002) propose that the syndication of investments can alleviate agency risk by providing investors with a second opinion. Co-investing seems to reduce the need to use several valuation methods for an investment appraisal, which supports the view that the presence of co-investors may serve as a signal of the high quality of an investment opportunity. This provides some support for syndication being a means for mitigating the adverse selection problem.

Although the investment procedures of venture capitalists and business angels work towards reducing investment risks (e.g. Van Osnabrugge and Robinson, 2000), the degree of uncertainty involved does not seem to contribute to increasing the effort placed on due diligence. This limits the explanatory power of agency theory in the arena of business angels.

One of the central tenets in agency theory is the assumption of a relationship between behavior- and outcome-based contracting (e.g. Holmström, 1979; Harris and Raviv, 1978, 1979; Shavell, 1979). Sufficient ownership by an entrepreneur should, according to agency theory, reduce the risk of opportunism, and therefore decrease the degree of involvement post investment. The findings demonstrated that in the business angel arena the tradeoff between behavior and outcome based contracting does not hold. Similar evidence was found in Landström (1992).

This study relaxes the agency theoretical assumption of risk neutrality on the part of a business angel (principal) and hence assumes that a business angel's level of ownership matters. Even if business angels are wealthy individuals, they cannot be perceived as neutral with respect to the risk involved. Assuming that business angels are risk averse, the level of risk they carry becomes an essential ingredient, reflected in the equity stake they hold. Thus, business angels' involvement increases with their level of equity in a new venture. The findings revealed that it is the business angels' and not the entrepreneur and management's equity stake that determines business angels' degree of involvement. Support for the relationship between a business angel's level of ownership and their degree of involvement was also found in Kelly and Hay (2000a). Hence, agency theory contributes to explaining the degree of involvement post investment, if the parties to the agency relationship are considered to be risk averse actors.

The findings of this study provide weaker support for the incomplete contracting theory than for agency theory. In this study, the examination of the incomplete contracting theory builds on the assumptions made in Van Osnabrugge (1998a). Van Osnabrugge (1998a) advocates that for business angels ownership is meaningless, as the companies they invest in lack tangible assets and are highly indebted. The best way for them to gain control, then, is through active involvement post investment. By building on that assumption this study expected to see a higher degree of involvement when a company is dependent on the intangible assets that investors cannot gain control of (see Hart, 1995b).

The findings revealed that a shortage of tangible assets does not seem to trigger more control through involvement. As a high level indebtedness implies that business angels are in an inferior position to debt holders, who hold a senior claim to the investee company's assets, business angels' involvement was assumed to increase with the level of indebtedness. The findings did not provide support for this assumption. Based on the findings control through active involvement does not appear to be a substitute for control through ownership.

The hold-up problem, highlighted in the incomplete contracting theory, arises when an entrepreneur and management leave a company after an investment has been made. The risk that an entrepreneur and management will leave a company is lower when covenants

tying them to a company are included in the deal struck. If involvement is a means to gain control when contracts are incomplete, involvement should increase when these protecting covenants are not present. Since the degree of control does, in fact, increase with the inclusion of protecting covenants, it limits support for the assumption, derived from the incomplete contracting theory, that the degree of involvement is stronger when contracts are more incomplete. Due to the fact that covenants are included in order to hinder the flow of irreplaceable human capital, this study posits that they are included when the business is reliant on intangibles. However, only limited support was found for the inclusion of covenants as a function of dependence on an entrepreneur's and management's human capital.

The research findings suggest that agency theory has a relatively limited role in explaining the investment behavior of business angels. Incomplete contracting theory was found in Kaplan and Strömberg (2003a) to be well suited to explaining the relationship between venture capitalists and entrepreneurs post investment. Business angels do not appear to safeguard their investment by gaining more control, through active involvement, when they are unable to obtain sufficient protection from the underlying asset base. The findings of this study suggest that the incomplete contracting theory has a very limited role in the arena of business angels.

5.2 Conclusions

The institutional environment is likely to have a strong influence on the market for informal venture capital and the investment behavior of the actors in the market. This concluding section contributes by evaluating the research findings in the light of the current rules and regulations governing the market. This enables the reader to understand the rationale for Finnish business angels' investment procedures. The primary focus is on evaluating the effects of current taxation on the nature of the market.

The existence of an equity gap can be considered to be a market failure as there are entrepreneurs with high quality investment opportunities that are unable to obtain external funding. The Finnish government has opted to directly intervene in order to prevent market failures. Consequently, it currently has a very strong involvement in the market for entrepreneurial finance. Several governmentally held non-profit organizations serve the market by supporting entrepreneurial ventures. They provide subsidies, direct investments, loans and guarantees¹⁵⁷. The market for governmental funding is highly fragmented, which is why it might be difficult for entrepreneurs in need of funding to find a program that will suit their needs at hand.

Governmental intervention, in markets for entrepreneurial finance, has been heavily criticized in e.g. Leleux and Surlemont (2001) for distorting market efficiency by making it more difficult for private investors (business angels and venture capitalists) to enter the market. This so called crowding out effect occurs when entrepreneurs seek funding from governmental players instead of private investors in the market. If a business would

¹⁵⁷ see section 1.8

qualify for angel investing but instead chooses to utilize public funding this is seen as a result of less strict terms and criteria, which may hamper the deal flow of business angels. In addition, as Leleux and Surlemont (2001) point out, civil servants, in contrast to private investors, lack incentives and usually sufficient knowledge to benefit entrepreneurial ventures through involvement.

In the UK the government has aimed at making the UK the best place in the world to start and grow a business (Maula et al., 2007) through indirect (institutional) intervention. This implies establishing an entrepreneurial friendly environment through legislative measures. The most efficient way to encourage angel investing is through introducing tax incentives. The two most developed informal venture capital markets, the UK and the US, have incentive schemes that favor investments in entrepreneurial ventures. In many European countries, e.g. Belgium and Luxembourg, capital gains tax has been exempted when an investment has been held for a pre-specified period of time¹⁵⁸.

In Finland capital gains from investments in both listed and non-listed companies are taxed at a flat rate of 28 percent. Finland has no tax incentive schemes for investments in entrepreneurial ventures. Whereas tax incentive schemes contribute to an increase in investment activity, they also present the risk of encouraging investors to take excessive risks and select investment opportunities of insufficient quality solely for fiscal reasons. This suggests an inefficient allocation of funding.

A newly published study, Cowling et al. (2008), found that investments made under the tax incentive scheme in the UK tend to be positively associated with growth in employment and assets. However, companies that had been funded by investments that qualified for tax incentives were less profitable than similar matched companies that had not received such funding. This demonstrates that there clearly is mixed support for using tax incentives to fulfill the objective of generating a more competitive small firm sector (see Boyns et al. 2003).

This study will not take a standpoint for or against the introduction of tax incentives. Nevertheless, the findings suggest that the lack of tax incentives in Finland may have a bearing on the research findings, as tax incentives for angel investments would improve the risk to return ratio. The lack of tax incentives more than likely limits the size of the population of business angels. Potential investors may not enter the market, if they feel that the return from an investment will not compensate for the very high degree of risk involved. In addition, the perceived high risk associated with angel investments may have a significant effect on the investment behavior of business angels in Finland.

Based on the research findings, the Finnish informal venture capital market appears to be comprised of a limited number of business angels whose style of investing much resembles their formal counterparts'. In addition, the findings implicate that they are seemingly more formal than business angels in the more developed markets of the US and the UK. The high degree of professionalism in Finland is likely to be an outcome of the perceived high risk involved. Support on behalf of this argument is found in the high

¹⁵⁸ See EBAN (2006a) for a survey of tax incentives available to private informal investors or European business angels

percentage of investors that utilize investment companies. The use of investment companies reduces the investment risk as losses that accrue from investments, within the unit of the investment company, are deductible from capital gains. This implies that for an investor to benefit from this mode of investing, he needs to be able to match losses and capital gains from successfully realized investments. Being able to use previous losses as a tax shield naturally presupposes strong and continuous investment activity. Barriers to the entry to the informal venture capital market are high, if potential investors feel that they need to hold extensive investment portfolios to be on an equal footing with the current business angels in the market.

The limited pool of Finnish business angels seems to apply an investment approach where the focus is on risk reduction prior to investing. The research findings clearly indicate that only a small percentage of the investment opportunities that business angels come across obtain funding. It is not known to what extent the high screen out ratio reflects poor quality investment proposals, an insufficient degree of investment readiness or a lack of compliance with the current business angels' investment preferences. An initial screening is followed by comprehensive due diligence.

Because some of the current business angels in the market possess sizeable portfolios, they may have to reject investment opportunities for the reason that they do not have time for further involvement. This would highlight the importance of activating potential business angels to fill the gaps the current business angels are unable to fill. Many entrepreneurial ventures need an investor's value added contribution to overcome inexperience and to function efficiently. This may diminish as the current taxation favors investments through investment companies, with the ability to match losses with gains, being a function of portfolio size. Tax deductibility also improves with increased industry sector diversification. When an investment portfolio encompasses ventures within many different industry sectors a business angel's portfolio return will not be as severely affected by the decline of a single industry sector. Investment divergence is called for in the matching of gains and losses.

If the current taxation encourages diversification vis-à-vis specialization then, the business angels' role in the companies they invest in may change from hands-on involvement to more passive involvement. As a result, board involvement might become the preferred tool for managing risk post investment. This could contribute to explaining the relatively limited involvement of Finnish business angels in their investments.

When business angels substitute a specialization strategy for a diversification strategy, they may not feel the need to become experts in certain specific industry sectors and may not have the ability to understand investments outside their area of expertise. While the specialization strategy builds on reducing the uncertainty involved in an investment, the diversification strategy builds on reducing firm specific (idiosyncratic) risk by holding shares in ventures whose returns are not expected to exhibit a strong positive correlation. The strong prevalence to syndicate investments may be affected by this increasing need to diversify investments.

Also the difficulties involved in finding suitable routes for exiting investments are likely to influence the investment procedures of business angels. The Finnish stock market suffers from a thin liquidity (especially the alternative investment market for high growth ventures) and recent delistings have limited the magnitude of the market¹⁵⁹. Exits through initial public offerings are very rare in Finland (e.g. Ali-Yrkkö et al., 2003; Hyytinen, 2005).

Lumme et al. (1998) suggest that trade sales and sales to other shareholders are for Finnish business angels the preferred way of exiting their investments. Finding shareholders or a company that is willing to purchase the shares in an entrepreneurial venture may present a challenge within a small market with a limited number of actors (see e.g. Lehtonen, 2000). Thus, the strong selectiveness may be affected by business angels needing to plan their exit already at the phase of investing. Hyytinen (2005) provides support for this argument by explaining that Finnish venture capitalists pay a lot of attention to exiting: *“they take exits into account at the stage when they decide which firms to invest in, acquire control over the exit decision, and agree with the owners on an exit strategy (pp. 128)”*.

Business angels are, in general, less concerned about exiting their investments than venture capitalists, as they are only accountable to themselves (see e.g. Van Osnabrugge, 1998a). However, business angels who have made losses need to be able to harvest investments for the purpose of utilizing the tax shield. Currently the deductibility of losses, in angel investments, is restricted to three years, and this may put pressure on business angels to exit their investments for obtaining capital gains that can be offset with previous losses. Furthermore, when exiting investments is hampered by a poor secondary market it discourages investment activity and increases the barriers for potential business angels to enter the market.

North (1993) holds the view that the government is an endogenous actor in the economic system, which implies that the actions a government takes in specifying rules and regulations has a remarkable impact on how the market structure will evolve. If we apply the logic in Scherer and Ross (1990), it can be seen that public policy in determining the rules of the game (reflected in e.g. the taxation) directly affects the market structure (specific environment) and both the investment procedures and the characteristics of a single investment¹⁶⁰.

Figure 9 demonstrates that the institutional environment shapes the specific environment, i.e. the market for informal capital, the investment procedures of business angels and ultimately the characteristics of a single investment. In other words, there is interdependency between the four layers, which implies that understanding the characteristics of an investment may require an insight into the legislation governing investment activities.

¹⁵⁹ see section 1.8

¹⁶⁰ Scherer and Ross (1990) describe how the government, as framer of the institutional environment, has shaped the market structure of several industries.

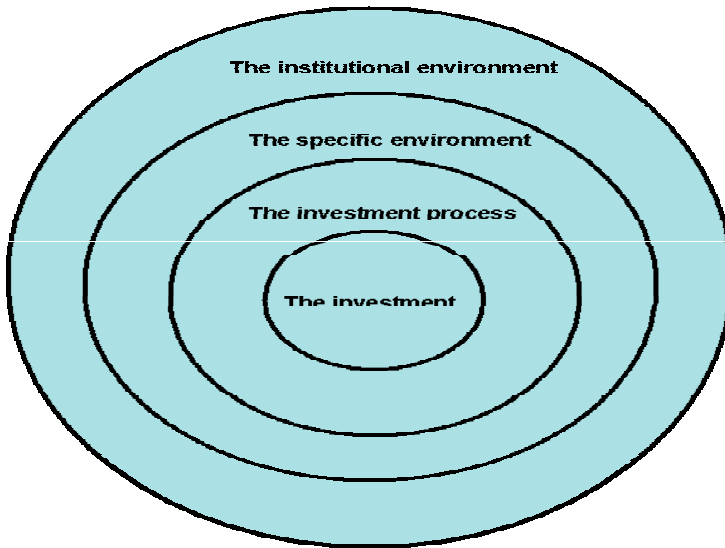


Figure 9 The interdependency between the environment and angel investing

The key contribution is taking a holistic view of an economic system and seeing the big picture by understanding how the different layers are interconnected. The professionalism found in the Finnish informal venture capital market can be explained by the current legislation being unfavorable towards risk taking. Any change in the institutional environment cannot be expected to have an immediate effect on the market structure and the investment procedures. The recent market downturn has likely contributed to increasing the awareness of the risk involved in angel investing.

In this study the inability to find a relationship between uncertainty and the comprehensiveness of due diligence may well partially be explained by an increasing trend towards portfolio diversification, which is triggered by a taxation system that favors investments through investment companies rather than direct investments. In the light of these findings, it seems that business angels that have the most significant share of ownership in new ventures are the ones that seem to be the most willing to become hands on investors.

5.3 Theoretical Contribution

This section summarizes the theoretical contribution of this study.

First, this study revealed that the “principal agent approach” seems better to describe Finnish business angels’ investment behavior than the “incomplete contracts approach”. In accordance with the “principal agent approach” in Van Osnabrugge (1998a), a business angel’s approach to managing agency risk appears to build on strong selectiveness and a relatively comprehensive due diligence. The “incomplete contracts approach” expects a strong hands-on involvement by business angels, which compensates for an inability to govern investments contractually. Based on the findings in this study,

the Finnish business angels' involvement is rarely hands-on. For most business angels involvement is limited to board membership.

Second, the study applied several measures for conceptualizing uncertainty, when testing the relationship between the degree of uncertainty in an investment and the comprehensiveness of a due diligence procedure. It acknowledges that uncertainty stems from a wide variety of sources. In previous research on business angels that has investigated this agency theoretical relationship, only two measures have been applied, namely the degree of previous experience and the stage of development (see Van Osnabrugge, 1998a; Wiltbank, 2005). Through the employment of a set of seven measures for the degree of uncertainty (none of which strongly indicated that there is a positive relationship between the degree of uncertainty and the comprehensiveness of due diligence) this study can, with relatively high certainty, conclude that the comprehensiveness of due diligence does not increase as a function of the uncertainty involved. This limits the relevance of agency theory in the domain of business angels.

Third, there have been numerous of studies of the informal venture capital market that highlight the importance that business angels attach to the characteristics of an entrepreneur and a management team when mitigating agency risks (e.g. Fiet, 1991, 1995; Lumme et al. 1998; Feeney et al. 1999 and Harrison and Mason, 2002). However, there appears to be no previous research on business angels that measures the time allocated to the valuation of an entrepreneur's and management's human capital. Hence, a further contribution of this study is an analysis of how much effort is expended in making sure that an entrepreneur and management possess the required qualities for successfully running business operations.

Fourth, this study suggested that the resource based view, in Barney (1991), may have strong relevance for the domain of business angels. This is because business angels' due diligence appears to become more comprehensive as they gain experience. They may, over time, develop superior capabilities for assessing the investment opportunities they encounter. Hence, sustained competitive advantage may be a function of heterogeneous capabilities that investors come to possess if they have experienced both an economic upturn and downturn. As such capabilities stem from experience it would make them hard to imitate.

Fifth, based on the findings, there does not seem to be a tradeoff between the assessment of agency and market risk, as suggested in e.g. Fiet (1991, 1995) and Zacharkis and Shepard (2001). The findings strongly suggest that business angels who accurately assess the market environment are also those that spend most time on the assessment of an entrepreneur's and management's human capital. Thus, contrary evidence was found in relation to previous research.

Sixth, agency theory seems to be relevant for explaining the degree of involvement of business angels post investment, when relaxing the assumption of risk neutrality by investors. In contrast to the classic agency theoretical models (e.g. Holmström, 1979; Harris and Raviv, 1978 and Shavell, 1979) that suggest that economic principals are indifferent to the degree of risk they carry, this study strongly emphasizes that the level of

ownership of business angels does matter. The findings demonstrated that business angels' degree of involvement increases when they have a higher stake in a business. Similar findings were obtained by Kelly and Hay (2000a). In other words, in the domain of business angels, the agency relationship seems to comprise two risk averse parties (the entrepreneur(s) and the business angel(s)).

Seventh, this is the first study to test assumptions derived from the incomplete contracting theory in the arena of business angels. Building on Van Osnabrugge (1998a), this study expected to see the increased involvement of business angels in businesses that are short of tangible assets and highly indebted. This is because business angels are assumed to aim at gaining control through active involvement when they are unable to obtain sufficient protection from the tangible assets of the company they are investing in. In addition, this study pioneers the investigation of how the inclusion of covenants mitigating the hold-up problem affects business angels' degree of involvement post investment. Although support was not found for the assumptions derived from the incomplete contracting theory, the integration of a theory that had not previously been tested in the domain of business angels is per se a significant contribution.

Finally, in concluding the research findings, this study indicated that industrial organizational economics may explain the structure and development of the market for informal venture capital. In line with the studies of Scherer and Ross (1990) and North (1993), an institutional environment appears to influence the behavior of the actors in a market. The lack of tax incentives has encouraged business angels to set up investment companies in order to benefit from an improved deductibility of losses, and may have induced a higher degree of professionalism among current business angels in the market, in order to reduce their investment risks. To be able to match losses with capital gains, many business angels seem to have adopted a diversification strategy, which is reliant on reducing firm specific risk, rather than a specialization strategy, which emphasizes the reduction of uncertainty. Moreover, the fact that losses can only be set off against capital gains arising in the same year and the following three years appears to have implications for the investment procedures. Business angels who have made previous losses are under pressure to exit their investments successfully in order to benefit from this tax shield. This may have the effect of forcing business angels to plan their exit from a company at the stage of making an investment, and might partly explain their strong selectiveness in the screening of investment opportunities.

5.4 Implications

The implications of this study are suggested for three groups: entrepreneurs, business angels and policy makers. One of the key challenges is to fill the existing equity gap by improving investment readiness and the quality of investment proposals as well as through increasing business angel activity in Finland. This section emphasizes the importance of attracting potential business angels into the market.

5.4.1 Implications for entrepreneurs

The research findings provide valuable knowledge for entrepreneurs seeking funding from business angels. Only a small proportion of the investment opportunities the business angels received obtained funding, which may mean that entrepreneurs seeking funding must adopt a marketing perspective if they want to receive angel investment (Sullivan and Miller, 1996)¹⁶¹. The degree of investment readiness can be improved by making sure that written business plans and other written documentation as well as oral presentations do not have shortcomings (see Mason and Harrison, 2001).

Entrepreneurs have to ensure that their business prognosis is realistic as Finnish business angels appear to be familiar with the various valuation methods available. In particular, the most experienced investors appear to base their judgment of an entrepreneurial venture on the rigorous analysis of an investment. Thus, a business plan failing to describe how an innovative product and/or service will provide business angels with a return on their invested capital will most likely not receive funding. In Finland business angels appear to attach strong importance to financial criteria (see Lahti, 2007). This suggests that other investment criteria will be decisive only when an entrepreneur is able to demonstrate the financial viability of a venture. A similar trend was witnessed in German speaking countries, where financial criteria have become ever more important when making an investment (Stedler and Peters, 2003; Heukamp et al. 2006).

If entrepreneurs want business angels to take an active role in a new venture the findings suggest that they have to relinquish ownership and control. Only business angels that are sufficiently rewarded, in terms of ownership in a new venture, will be induced to exert the effort needed to be actively involved post investment. For investors who want to be actively involved, it seems to be highly important to obtain a share of ownership corresponding to the amount of capital invested. In other words, particularly for hands-on investors, pricing might be a major deal breaker (see Mason and Harrison, 1996a). Naturally, new ventures that have no competence gaps to be filled by a business angel, might prefer a passive investor who will not gain control through being actively involved. Thus, the level of ownership is highlighted when a business angel's human capital is as crucial as their financial input.

Additionally, equity aversion, stemming from insufficient knowledge about different forms of funding, might discourage entrepreneurs from seeking external funding (see Mason and Harrison, 2001). This study provides fresh insights into the modus operandi of Finnish business angels, which enhances our knowledge about angel investing. By virtue of bridging this knowledge gap this study may aid in lowering the degree of equity aversion among entrepreneurs with the desired effect of increasing their willingness to approach business angels for funding.

¹⁶¹ Sullivan and Miller (1996) argue that the entrepreneurs need to see business angels as customers with a broad range of needs, wants and values.

5.4.2 Implications for investors

This study reveals that there are clearly business angels with different investment strategies. Because strong professionalism in conducting due diligence is apparently related to more extensive experience as an investor, novice/virgin angels can learn and benefit by joining with more experienced actors, in the market, in syndicated investments. This study suggests which valuation methods and sources for information the current business angels perceive to be the most important.

The high degree of investments that were syndicated indicates that investors are already aware of the benefits that co-investing may yield. Therefore, it is the potential investors who have not yet completed their first investment, who perceive the risks to be too high and/or have not been able to find investment proposals that suit their investment preferences that may benefit most from syndication. By co-investing potential investors may learn from the current actors in the market and also decrease the degree of risk involved by sharing risk and gaining improved diversification.

For an angel to learn from co-investors they must collaborate within a syndicate. The Finnish business angel network, Sitra, encourages the formation of syndicates with investors with similar investment preferences. It is highly important that there is a good chemistry between co-investors due to the fact that disagreements may result in more complexity in any subsequent deal struck (e.g. Lumme et al., 1998; Kelly and Hay, 2000a). This is the case when the interests of co-investors are not aligned and the contract needs to be designed so as to clarify the rights of each investor within a syndicate.

5.4.3 Implications for policy makers

Section 5.2 “conclusions” discussed the impact of the Finnish government’s public policy with regard to the Finnish market for informal venture capital. The research findings indicated that some of the Finnish business angels shy away from investing in seed and startup companies and that their degree of involvement is relatively modest in comparison to the findings from previous research on business angels. This suggests that measures are needed to ensure that promising entrepreneurial ventures, which strive to grow, do not suffer from an inability to obtain funding.

Recent studies (e.g. Maula et al., 2007; Maula, 2007; Lahti, 2007) have suggested that tax incentives could work as a catalyst to improve the supply of angel investments flowing into entrepreneurial ventures. The studies hold the view that tax incentives will promote entrepreneurship by creating growth that is materialized in job creation and a competitive small firm sector. However, it is not possible to know with certainty how well the introduction of tax incentives will serve the purpose of increasing entrepreneurial activity in Finland. To know whether tax incentives will contribute to fostering entrepreneurship, a post-introduction monitoring period is required that will examine how well the companies who acquire funding through a tax incentive scheme have performed in terms of survival, growth and profitability. Tax incentives may not have a positive effect on an

economy, because in the worst case scenario they may spur tax fraud and distort market efficiency by directing business angels' investment behavior.

The current taxation favors channeling investments through limited companies vis-à-vis direct investments into non-listed companies. As noted earlier, this is likely to have the effect of inducing portfolio diversification with the aim of being able to offset losses with capital gains. Thus, even without the presence of incentives, taxation appears to have a strong influence on the investment behavior of business angels.

It would be reasonable to suggest that public policy should aim at only providing incentives for investments where business angels will, in addition to funding, contribute in injecting value added, by making their human capital available to the entrepreneurial venture. However, when granting incentives, it is not possible to determine whether a business angel will be strongly involved post investment and if this involvement will have a positive effect on the performance of the entrepreneurial venture. This is surely one of the challenges that policy makers encounter when weighing the benefits and drawbacks relating to tax incentives for business angels.

If it is the lack of investment opportunities of sufficient quality that restricts investment activity and entry by potential investors, then incentives should be directed towards the entrepreneurial ventures. Due to the fact that an unwillingness to take risks is a barrier that discourages people from pursuing a career as an entrepreneur a well designed tax incentive system for entrepreneurial ventures may increase the benefits of entrepreneurship in relation to paid employment. The young innovative company status (YIC) in France grants tax incentives to young companies with 15 percent of their expenditures on research and development¹⁶². The companies subject to tax incentives are exempt from corporate tax for the three first profitable years. This enables innovative companies to retain earnings that can be utilized for investing in future growth. Through lowering costs by the use of tax incentives the French government aims to stimulate innovation and growth. Thus, tax incentives directed at young innovative companies may improve business angels' deal flow by encouraging the commercialization of innovation. As in tax incentives to business angels, any incentives to entrepreneurial ventures may not have an immediate effect, which is why exploring efficiency would require being able to verify their long term effects.

Even though direct intervention by the government should be limited, the government may lower the barriers for entry by sharing risk with potential business angels when it is the high perceived risk involved in making investments that is the key barrier for becoming involved in business angel activity. In such cases the government could, by proposing co-investment with potential business angels, participate in bridging the funding gap. This would have the effect of reducing the amount of funding an investor

¹⁶² Retrieved from <http://www.europabio.org/documents/YIC.pdf> 02.04.2008

has to account for. This could be a means to encourage individuals possessing the knowledge needed but not the wealth to enter the informal venture capital market¹⁶³.

Finally, the informal venture capital market could benefit from the Finnish government targeting tax incentives to a marketplace for small growth companies. Risto Siilasmaa, who is the CEO of one of the leading Finnish software development companies, F-Secure, and an active business angel, has been the spokesperson for the development of a growth list that resembles the Alternative Investment Market list (AIM) in the UK. He argues that providing tax incentives for investors who fund these growth ventures would ensure sufficient liquidity in the marketplace¹⁶⁴. The tax incentives could be linked to the First North alternative investment list, described in section 1.8. In addition to targeting investors, such tax incentives should also be targeted towards companies listed on the alternative marketplace. This would most likely attract entrepreneurial ventures who seek both high growth and stock market entry. At the same time this should also improve the opportunities for business angels and venture capitalists to exit investments. However, as highlighted previously, the effect of any policy measures can only be known *ex post*. Thus, their implementation should only be considered after having weighed the costs and risks against the possible benefits.

5.5 Critique of the study

This chapter will critically assess the research process as well as the research design. The objective of this chapter is to highlight possible shortcomings that may have had an impact on the interpretations and the conclusions drawn from the research findings. It is important for the researcher to reveal his awareness of these aspects, when positioning the research findings in relation to the existing knowledge in the domain of business angels.

First, this study is biased towards the most experienced and active group of Finnish business angels, as highlighted in chapter three on methodology. It was not possible to identify all the business angels using the sampling techniques of this study, i.e. the snowball method based on referrals and identification through reading newspaper articles and contacting i) an expert in the public administration, ii) the Finnish Business Angel Association as well as iii) the person responsible for the business incubation services at the science park Innopoli. This made it difficult to generalize from the sample to the rest of the Finnish business angel population. However, it might be very hard to overcome this bias in representativeness. The study has utilized sources that are nowadays available for gathering data on Finnish business angels. Thus, the outcomes of this study can only be considered to be an approximation of the nature and characteristics of the population of Finnish business angels. Since the Finnish micro-angel population, examined in e.g. Maula et al. (2005), was excluded from the scope of this study, a household study, based on random sampling, would not have aided much in identification. Trying to identify

¹⁶³ Paasivirta and Valtonen (2004) see business angel involvement in entrepreneurial ventures funded by the government as a valuable way of enhancing the knowledge being infused, and thereby they encourage collaborative models.

¹⁶⁴ Retrieved from <http://www.tekniikkatalous.fi/ict/article35033.ece> 02.04.2008

business angels through performing a household study would have been unduly difficult and time consuming. In fact, currently, there are few alternatives other than convenience sampling techniques available for conducting research on business angels. As the only existing business angel network in Finland, Sitra, does not have the right to disclose information regarding business angels' identity, the research was conducted with a strong reliance on the snowball technique. Considering the difficulty of gathering data on Finnish business angels, obtaining a sample of 53 observations can be considered a good achievement. In the light of the shortage of previous research on Finnish business angels, this study significantly contributes to enhancing our knowledge about the nature of the Finnish informal venture capital market.

Second, the ability to obtain significant findings was hampered by the limited size of the obtained sample. Due to the presence of many insignificant relationships between the study variables a deeper understanding may have been developed regarding the factors explaining the comprehensiveness of Finnish business angels' due diligence and the allocation of control post investment, by complementing the quantitative approach with qualitative post survey case studies. As the research design was relatively comprehensive, per se, it was felt that there was, already, enough information and new findings for a doctoral dissertation based on the applied data.

Third, agency theory assumes a relationship between the degree of uncertainty and the effort consumed in performing due diligence. The relationship investigated in this study is between the comprehensiveness of due diligence and the degree of uncertainty involved in an investment. Even though comprehensiveness in due diligence, measured as the sources used for due diligence, the valuation methods applied and time spent on the valuation of an entrepreneur's and management's human capital may give an indication of the effort made by the business angels, it is not a synonym for it. In particular, in seed and startup investments a lot of effort can be put into performing due diligence, while, still, not being able to conduct it comprehensively. In such a case, the time consumed in i) gathering information and ii) investment appraisal would constitute better measures for examining the agency theoretical predictions. However, the measures, i) the amount of sources for information and ii) the amount of valuation methods were chosen, regardless of their limitations, as they facilitate a better understanding than measures that only consider the time involved with respect to how Finnish business angels conduct due diligence.

Fourth, the investigation of the explanatory power of the incomplete contracting theory, in the arena of business angels, is not a test of the incomplete contracting model of Aghion and Bolton (1992). An initial assumption of this study was that the incomplete contracting theory is not relevant as such, because the allocation of control, in angel investing, is not contingent on the performance of the investee company. Therefore, this study, instead, focused on testing the assumptions put forth in Van Osnabrugge (1998a), who suggested that involvement is, for business angels, a way of gaining control post investment when a company lacks tangible assets and is highly indebted. In other words, the findings indicating that the incomplete contracting theory does not seem to explain business angels' degree of involvement must be interpreted with this limitation in mind.

Finally, this study concludes by arguing that investors channeling their investments through investment companies are, for tax related reasons, increasing their portfolio diversification. This is advocated to have the effect of limiting involvement if investors are substituting their previous specialization strategy for a diversification strategy. However, the relationship, underlying this suggestion, has not been tested in this study¹⁶⁵. This leaves room for future research on Finnish business angels.

5.6 Suggestions for future research

Conducting this doctoral dissertation has created a strong understanding of the current status of the informal Finnish venture capital market. In the process of writing the thesis, many ideas for future research have emerged. Since there is only one previous study (Lumme et al. 1998) that explores the investment behavior of Finnish business angels, there is plenty of scope for future research. In making suggestions for future research this section is divided into three parts; A: General characteristics, B: Due diligence and C: Involvement post investment. These three areas are emphasized and related to an extension of the research design in the current study.

A: General characteristics

Not all the general characteristics of the business angels were featured in this study. Three of these are their age, level of education and amount of wealth. Therefore, future research could study these characteristics. Lumme et al. (1998) investigated their age and education level. So a natural starting point would be to compare the new findings with those in Lumme et al. (1998), in order to discover whether there have been significant changes with respect to those two characteristics. One would expect to identify investors that are relatively younger, as there are investors that have derived their wealth from cashing in on holdings in the stock market when it was peaking in the late 1990s. Thus, the study could assess the impact of age and education level on different phases in the investment process.

A key assumption in economic theory is that individuals with more wealth are less risk averse. In order to test whether this assumption holds in the domain of business angels, further underlying research questions could be: “Are business angels with more wealth less concerned about the level of risk involved in an investment? Do they consume less effort in risk management?” This approach could be extended by exploring whether their amount of wealth contributes to explaining the choice of investment strategy: i.e. diversification versus specialization.

B: Due diligence

Since business angels conduct due diligence to avoid making bad investments, one would expect the comprehensiveness of due diligence to be positively associated with the return on the invested capital. That relationship has not been investigated in this study. Although

¹⁶⁵This was not examined because the relationship between the mode of investing and the degree of involvement post investment is not a part of the research design of this study.

Wiltbank (2005) has found partial support for the relationship between more due diligence and the success of investments, this is an interesting area of research that should be subject to further study.

Furthermore, an understanding is needed of how different sources of referrals impinge upon the comprehensiveness of due diligence. It would seem reasonable to suggest that less due diligence is performed when an investment opportunity is referred to a business angel by a trusted source. In contrast, investment proposals received through cold calls are probably thoroughly scrutinized, if they first pass the initial screening. There is, however, no research as yet to provide empirical support for this suggestion. Therefore, it is proposed as a highly useful and important area of future research.

C: Involvement post investment

Further understanding is needed concerning what motivates Finnish business angels to engage themselves actively in the businesses they fund. This study revealed that the business angels' degree of involvement increases with the size of their equity stake. In addition, the study concluded by explaining how current taxation may have the effect of decreasing involvement by encouraging business angels to implement a portfolio diversification strategy. Research is needed that explores whether there are significant differences between direct investments and investments through investment companies.

Moreover, it was found that the Finnish business angel population is heterogeneous, as there was a high variation in both the comprehensiveness of due diligence and the degree of involvement. A categorization, using cluster analysis, can aid in obtaining a more accurate picture of the market (e.g. Sørheim and Landström, 2001). In future research, the data in this study can be applied for the purpose of identifying new investor groups.

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APPENDIX 1 SUMMARY OF INFORMAL INVESTOR TAXONOMIES

Academic Business Angel Studies	Sample size	Business angel taxonomies
Robinson and Cottrell (2007) (Canada)	Information from 516 exemption reports filed by investors in Alberta	<p>Business angel taxonomies</p> <p><i>i) Relationship investors</i> Little personal knowledge of a firm's market opportunity and technological risk; pre-existing relationship to the entrepreneur</p> <p><i>ii) Opportunity based investors</i> Limited knowledge about a firm and its investment prospects; limited ability to engage in monitoring</p> <p><i>iii) Angel investors</i> Wealthy individuals able to make informed investment decisions; able to absorb an investment loss</p>
Sørheim and Landström (2001) (Norway)	425 Investors	<p><i>i) Lotto investors</i> Low investment activity level and a low competence in founding and running entrepreneurial ventures</p> <p><i>ii) Traders</i> High investment activity level, but a low competence in founding and running entrepreneurial ventures</p> <p><i>iii) Analytical investors</i> Low investment activity level, but possess a fairly high competence</p> <p><i>iv) Business angels</i> Very high investment activity level, in addition to possessing high competence</p>
Kelly and Hay (2000b) the UK	37 (qualified) Investors	<p>Deal makers Demonstrated track record of completing deals, significant personal resources to invest in new opportunities and have substantial previous experience in building new ventures</p>
Sullivan and Miller (1996) (the US)	214 Investors	<p><i>i) Economic investors</i> Only financial motivations are important</p> <p><i>ii) Altruistic investors</i> Consider socially beneficial motivations important</p> <p><i>iii) Hedonistic investors</i> Investors seeking enjoyment from their investments</p>
Landström (1992) (Sweden)	62 Investors	<p><i>i) Private investors who regard the portfolio as a "subject"</i> Their driving force is to support the portfolio firm and work together with the firm</p> <p><i>ii) Private investors who regard the portfolio as an "object"</i> Their driving force is to make money and work less actively with the portfolio firm</p>

APPENDIX 2 THE QUESTIONNAIRE

KYSELYLOMAKE YKSITYISILLE PÄÄOMASIOITTAJILLE

Henkilökohtaiset ominaisuudet

1. Kuinka monta vuotta olet tehnyt sijoituksia listaamattomiin yrityksiin?	Vuotta
2. Montako sijoitusta olet tehnyt listaamattomiin yrityksiin?	Sijoitusta
3. Monessako sijoituksessa olet korvannut/ vaihtanut yrittäjän (yritysjohdon)?	Sijoituksessa
4. Montako sijoitusta tulee sinun tietoisuuteen vuositason?	Sijoituskohdetta
5. Montako sijoituskohdetta olet lähestynyt sijoittajana?	Sijoituskohdetta
6. Sijoituskohteiden lukumäärä jotka ovat vakavan harkinnan kohteena?	Sijoituskohdetta
7. Kuinka moni kyseisistä sijoituskohteista lopulta on saanut rahoitusta?	Sijoituskohdetta
8. Mikä on sijoitussalkkusi suuruus (yksityiset pääomasijoitukset)?	Sijoitusta
9. Montako toimialaa on edustettuna sijoitussalkussasi?	Toimialaa
10. Montako käynnistysvaihetta on edustettuna sijoitussalkussasi (siemen, käynnistys, aikainen kasvuvaihe, kypsän elinkaaren vaihe)?	Käynnistysvaihetta
11. Oletko koskaan työskennellyt pienessä yrityksessä (poissulkien rahoittamasi yritykset)?	Kyllä <input type="checkbox"/> En <input type="checkbox"/>
12. Montako yritystä olet perustanut (yrittäjänä)?	Yritystä
13. Paljonko sijoitit viime vuonna listaamattomiin yrityksiin?	€

Viimeisimpään yksityiseen pääomasijoitukseen liittyvät kysymykset

14. Sijoituksen ajankohta?	Vuosi
15. Sijoituksen suuruus?	€
16. Onko sijoitus tehty vaiheittain?	Kyllä <input type="checkbox"/> Ei <input type="checkbox"/>
17. Mitä sijoitusinstrumenttia käytit?	
18. Yrittäjän (johdon) sijoituksen suuruus?	€
19. Toimitko pääsääntöisesti johtavana sijoittajana (lead investor)?	Kyllä <input type="checkbox"/> En <input type="checkbox"/>
20. Mikä oli sijoituksen (yrityksen) toimiala?	
21. Mikä oli sijoituksen kehitysvaihe?	Siemen <input type="checkbox"/> , Käynnistys <input type="checkbox"/> , Aikainen kasvuvaihe <input type="checkbox"/> , Kypsän elinkaaren vaihe <input type="checkbox"/>
22. Onko yrityksellä ollut patentoitava prototyyppi, kun teit sijoituksen?	Kyllä <input type="checkbox"/> Ei <input type="checkbox"/>
23. Onko yrityksellä ollut valmis tuote/ palvelu, kun teit sijoituksen?	Kyllä <input type="checkbox"/> Ei <input type="checkbox"/>
24. Käyttääkö yrittäjä (johto) henkilökohtaista varallisuuttaan vakuutena?	Kyllä <input type="checkbox"/> Ei <input type="checkbox"/>
25. Mikä on ollut kohdeyrityksen tuotteen/ palvelun uutuusaste?	Hyvin alhainen Hyvin korkea 1 2 3 4 5 6 7
26. Mikä on aineellisten varojen ja kokonaisvarojen suhdeluku?	<input type="checkbox"/> 0-15%, <input type="checkbox"/> 16-30%, <input type="checkbox"/> 31-45%, <input type="checkbox"/> 46-60%, <input type="checkbox"/> 61-75%, <input type="checkbox"/> 76-90%, <input type="checkbox"/> > 90%
27. Mikä on kohdeyrityksen omavaraisuusaste?	<input type="checkbox"/> 0-15%, <input type="checkbox"/> 16-30%, <input type="checkbox"/> 31-45%, <input type="checkbox"/> 46-60%, <input type="checkbox"/> 61-75%, <input type="checkbox"/> 76-90%, <input type="checkbox"/> > 90%

28. Sijoitin (valitse yksi vaihtoehdoista)	Yksin <input type="checkbox"/> , Muiden bisnesenkeleiden kanssa <input type="checkbox"/> , Pääomasijoittajien kanssa <input type="checkbox"/> , Bisnesenkeleiden ja pääomasijoittajien kanssa <input type="checkbox"/>						
29. Onko sinulla kokemusta sijoituskohteena olevalta toimialalta?	Ei kokemusta			Laaja kokemus			
	1	2	3	4	5	6	7
30. Monenko vuoden toimialakokemus sinulla oli, kun teit sijoituksen?	<input type="checkbox"/> 0-5 vuotta, <input type="checkbox"/> 6-10, <input type="checkbox"/> 11-15, <input type="checkbox"/> 16-20, <input type="checkbox"/> >20						
Kohdeyrityksen omistusosuudet							
31. Omistusosuuteni kohdeyrityksestä on	%						
32. Muiden sijoittajien omistusosuus on	%						
33. Yrittäjän (johdon) omistusosuus on	%						
34. Tuottaako yritys jo tuottoa sijoituksellesi?	Kyllä <input type="checkbox"/>		Ei <input type="checkbox"/>				
Tarkoituksena on tiedustella kantaasi seuraaviin väittämiin.	Täysin eri mieltä			Täysin samaa mieltä			
35. Yrittäjä (johto) sijoitti suuren osan varallisuudestaan kohdeyritykseen.	1	2	3	4	5	6	7
36. Yritys (johto) oli työskennellyt pitkään kohdeyrityksessä, kun sijoitus tehtiin	1	2	3	4	5	6	7
37. Yrittäjä (johto) oli tehnyt huolellisen bisnesplanin	1	2	3	4	5	6	7
38. Yrittäjä (johto) hyväksyy sijoittajaa suojaavat sopimusehdot	1	2	3	4	5	6	7

A) Taloudelliset kriteerit

Miten tärkeitä seuraavat tekijät olivat päätöksentekoprosessissa	Ei tärkeä			Erittäin tärkeä			
	1	2	3	4	5	6	7
39. Hyvä kate/ marginaalit	1	2	3	4	5	6	7
40. Taloudelliset palkkiot	1	2	3	4	5	6	7
41. Odotettu tuotto	1	2	3	4	5	6	7
42. Tarjottu omistusosuus	1	2	3	4	5	6	7
43. Kohdeyrityksen pääomarakenne	1	2	3	4	5	6	7
44. Kohdeyrityksen mahdollisuus kerryttää tulorahoitusta	1	2	3	4	5	6	7
45. Ensimmäisen voitonjaon ajankohta	1	2	3	4	5	6	7

B) Lähteet kohdeyrityksen evaluoinnissa

Mitkä tiedonlähteet ovat tärkeitä due diligence vaiheessa. Täytä <u>raiti oikeaan sarakkeeseen</u> , jos käytit kyseistä tiedonlähdetä <u>viimeisimmän</u> sijoituksen arvioinnissa. Mikäli käytit kyseistä lähdetä, täytä <u>vasempaan sarakkeeseen</u> , kuinka usein käytät sitä (1-7).	En koskaan							Aina	X
	1	2	3	4	5	6	7		
46. Oma due diligence raportti	1	2	3	4	5	6	7		
47. Bisnesplani	1	2	3	4	5	6	7		
48. Yrittäjän (johdon) CV:t	1	2	3	4	5	6	7		
49. Yrittäjän (johdon) haastattelut	1	2	3	4	5	6	7		
50. Muun henkilökunnan haastattelut	1	2	3	4	5	6	7		
51. Johdon tulosenneustet	1	2	3	4	5	6	7		
52. Ehdotettu irtautumisajankohta ja väylä	1	2	3	4	5	6	7		

53. Myynti ja markkinointitieto	1	2	3	4	5	6	7	
54. Tuotantokapasiteetti/ tekninen tieto	1	2	3	4	5	6	7	
55. Tuoteinformaatio	1	2	3	4	5	6	7	
56. Markkinatutkimus	1	2	3	4	5	6	7	
57. Tilintarkastajan/ konsultin/ juristin due diligence raportti	1	2	3	4	5	6	7	
58. Riippumattomat raportit kohdeyrityksen taloudellisesta tilasta	1	2	3	4	5	6	7	
59. Muut sijoittajat	1	2	3	4	5	6	7	
60. Taloudelliset neuvonantajat	1	2	3	4	5	6	7	
61. Kohdeyrityksen asiakkaat	1	2	3	4	5	6	7	
62. Kohdeyrityksen potentiaaliset asiakkaat	1	2	3	4	5	6	7	
63. Kohdeyrityksen pankkiirit (lainanantajat)	1	2	3	4	5	6	7	
64. Kohdeyrityksen tilintarkastajat	1	2	3	4	5	6	7	
65. Kohdeyrityksen verkostokumppanit/ toimittajat	1	2	3	4	5	6	7	

C) Henkilöt, jotka osallistuvat due diligence toimintaan

Henkilöiden lukumäärä, jotka osallistuivat due diligence toimintaan	
66. Tilintarkastajat	N=
67. Juristit	N=
68. Konsultit	N=
69. Muut sijoittajat yhteistyössä	N=

D) Ulkoiset tekijät

Mikä oli arvoin tarkkuus seuraavista ulkoisista tekijöistä?	Hyvin epätarkka			Hyvin tarkka			
70. Markkinoiden suuruus	1	2	3	4	5	6	7
71. Markkinatarve	1	2	3	4	5	6	7
72. Markkinoiden kasvupotentiaali (houkuteltavuus)	1	2	3	4	5	6	7
73. Kilpailevien yritysten pääsy markkinoille	1	2	3	4	5	6	7

E) Sisäiset tekijät

Mikä oli arvion tarkkuus seuraavista sisäisistä tekijöistä?	Hyvin epätarkka			Hyvin tarkka			
74. Liiketoimintastrategia	1	2	3	4	5	6	7
75. Asiakkaan tuotteen/ palvelun käyttöönotto (customer adoption)	1	2	3	4	5	6	7
76. Kohdeyrityksen kilpailuasema	1	2	3	4	5	6	7

F) Sijoituksen taloudellisen tilan evaluointi

Mitkä menetelmät ovat tärkeimpiä kohdeyrityksen analyysissä? Täytä <u>rasti oikeaan sarakkeeseen</u> , jos käytit kyseistä menetelmää <u>viimeisimmän</u> sijoituksen arvioinnissa. Mikäli käytit kyseistä menetelmää, täytä <u>vasempaan sarakkeeseen</u> , kuinka usein käytät sitä (1-7).	En koskaan							Aina	X
77. Tulos ennen korkoja ja veroja (ennuste)	1	2	3	4	5	6	7		
78. P/E luvun avulla (osakkeen hinta/ tuotto suhde)	1	2	3	4	5	6	7		
79. Pay back period-menetelmä	1	2	3	4	5	6	7		
80. Diskontattu tulevien kassavirtojen arvo	1	2	3	4	5	6	7		
81. Varojen hankintamenoon perustuva arvio (historic cost book value)	1	2	3	4	5	6	7		
82. Varojen jälleenhankinta-arvoon perustuva arvio (replacement cost asset value)	1	2	3	4	5	6	7		

G) Yrittäjän henkisen pääoman evaluointi

Sijoitussalkkusi, kuinka monen yrittäjän henkisen pääoman arviointi oli:	
83. Hyvin tarkka	N=
84. Jokseenkin tarkka	N=
85. Jokseenkin epätarkka	N=
86. Hyvin epätarkka	N=
87. Käytitkö intuitiota tai dataan perustuvaa lähestymistapaa yrittäjän henkisen pääoman arviointiin?	Ainoastaan dataan <input type="checkbox"/> , Pääosin dataan <input type="checkbox"/> , Pääosin intuitioon <input type="checkbox"/> , Ainoastaan intuitioon <input type="checkbox"/>
88. Ennen keskustelua yrittäjän kanssa, määrittelitkö tärkeät ominaisuudet ja keskeisen kompetenssin, jotka yrittäjän tulisi omata?	Kyllä, paperilla <input type="checkbox"/> , Kyllä, mutta en paperilla <input type="checkbox"/> , En <input type="checkbox"/>
89. Montako tuntia tähän meni?	Tuntia
Miten paljon aikaa kului seuraavissa tehtävissä?	
90. Keskusteluissa yrittäjän (toimitusjohtajan) ja johdon kanssa hänen/ heidän kokemuksista?	Tuntia
91. Yrittäjän ja johdon ansioluetteloiden arvioinnissa?	Tuntia
92. Yrittäjää (johtoa) koskevien lehtiartikkeleiden arvioinnissa?	Tuntia
93. Internetin käytössä tietojen keräämisessä yrittäjistä (johdosta)?	Tuntia
94. Montako mielipidettä/ suositusta pyysit yrittäjistä ja johdosta ennen sijoituspäätöstäsi (individual references)?	Suosituksista

H) Osallistuminen sijoitukseen

Arvioi yhteydenottojen määrää							
95. Yrityskäyntien vuosittainen lukumäärä	Yrityskäyntiä						
96. Yrityskäyntien keskimääräinen kesto	Tuntia						
97. Puhelinkeskustelujen vuosittainen lukumäärä	Puhelinkeskustelua						
98. Puhelinkeskustelujen keskimääräinen kesto	Minuttia						
99. Etäisyys kohdeyritykseen	□ <50km, □ 60-250km, □ 260-500 km, □ > 500km						
100. Osallistuminen päivittäiseen toimintaan	(1= ei osallistumista, 7= täysipäiväinen työ)						
	1	2	3	4	5	6	7
101. Oletko hallituksen jäsen?	Kyllä <input type="checkbox"/> En <input type="checkbox"/>						
102. Johdon ja yrittäjän hallituspaikkojen lukumäärä?	Paikkaa						
103. Muiden sijoittajien hallituspaikkojen lukumäärä?	Paikkaa						
104. Ulkopuolisten hallituspaikkojen lukumäärä?	Paikkaa						
105. Hallituspaikkojen lukumäärä?	Paikkaa						
106. Ääniosuutesi?	%						
107. Yrittäjän ja johdon ääniosuus?	%						
108. Muiden sijoittajien ääniosuus?	%						
109. Ulkopuolisten ääniosuus?	%						
110. Oletko sivuttanut/ korvannut yrittäjän toimitusjohtajalla tai onko sinulla aikomus korvata yrittäjä toimitusjohtajalla?	Kyllä <input type="checkbox"/> En <input type="checkbox"/>						
111. Oletko sivuttanut/ korvannut muita johtoon kuuluvia henkilöitä tai onko sinulla aikomus korvata muita johtoon kuuluvia henkilöitä?	Kyllä <input type="checkbox"/> En <input type="checkbox"/>						
Oletko samaa mieltä seuraavien väittämien kanssa	Täysin eri mieltä			Täysin samaa mieltä			
112. Osallistuminen hallitustyöskentelyyn on tehokas tapa hallita riskit.	1	2	3	4	5	6	7
113. Aktiivinen vuorovaikutus yrittäjän kanssa on tehokas tapa hallita riskit	1	2	3	4	5	6	7
114. Kun kohdeyrityksen tulos putoaa tietyn tulostason alle, tapana on vaihtaa yrittäjä tai yritysjohto	1	2	3	4	5	6	7

I) Aktiiviseen osallistumiseen liittyvät kriteerit (tekijät)

Arvioi seuraavien kriteerien tärkeyttä	Ei tärkeä				Erittäin tärkeä		
115. Sijoittajien osallistuminen on mahdollista	1	2	3	4	5	6	7
116. Yritys on paikallinen	1	2	3	4	5	6	7
117. Sijoittajan vahvuudet täydentävät kompetenssivajetta yrityksessä	1	2	3	4	5	6	7

J) Muut kriteerit (tekijät)

Arvioi seuraavien tekijöiden tärkeyttä	Ei tärkeä				Erittäin tärkeä		
118. Maantieteellinen sijainti (on tärkeätä, että kohdeyritys sijaitsee kauppakeskuksissa ja kaupunkiseudulla)	1	2	3	4	5	6	7
119. Kohdeyrityksen kehitysvaihe	1	2	3	4	5	6	7

K) Kohdeyrittäjän raportointivaatimukset

120. Kuinka usein saat raportteja yrityksen taloudellisesta tilasta?	Viikoittain <input type="checkbox"/> , Kuukausittain <input type="checkbox"/> , Puolen vuoden tasolla <input type="checkbox"/> , Vuosittain <input type="checkbox"/>						
Oletko samaa mieltä väitteiden kanssa	Täysin eri mieltä			Täysin samaa mieltä			
121. On tärkeätä että taloudelliset arviot ovat yksityiskohtaisia.	1	2	3	4	5	6	7
122. Taloudelliset arviot ovat keskeinen osa sijoituksen monitoroinnissa (valvomisessa).	1	2	3	4	5	6	7
123. Kun teen sijoituksen, on ensisijaisen tärkeätä, että kohdeyrityksellä on hyvä raportointijärjestelmä.	1	2	3	4	5	6	7
124. On tärkeätä, että yritys tarjoaa ennusteita tulevaisuuden näkymistä.	1	2	3	4	5	6	7
125. On tärkeätä, että taloudellinen informaatio on saatavilla tietyn ajanjakson jälkeen raportointijakson päättymisen jälkeen.	1	2	3	4	5	6	7
126. Kun kohdeyrityksen tulos putoaa tietyn tavoitetason alle, taloudellisen raportoinnin tarve kasvaa.	1	2	3	4	5	6	7
127. Haluan suoran pääsyn kohdeyrityksen kirjanpitojärjestelmään.	1	2	3	4	5	6	7
128. Pystyn vaikuttamaan taloudellisen tiedon saantiin	1	2	3	4	5	6	7

L) Sopimusehdot

Tarkoituksena on tiedustella kantaasi seuraaviin väittämiin.	Täysin eri mieltä			Täysin samaa mieltä			
129. Yrittäjän (johdon) on jättävä yritykseen tietyn ajanjakson päättymiseen asti, jotta saisi osan yrityksen osakkeista (stock vesting term)	1	2	3	4	5	6	7
130. Yrittäjä (johto) ei saa käynnistää kilpailevaa yritystä (non-compete clause/ loyalty clause)	1	2	3	4	5	6	7
131. Yrittäjä ei saa myydä osakkeitaan tietyn ensimmäisen ajanjakson aikana (stand still agreement)	1	2	3	4	5	6	7
132. Kun yritys saavuttaa tietyn tavoitetason, sijoittaja tekee jatkosijoituksen (earn out agreement)	1	2	3	4	5	6	7
133. Osakkeet vakuutena: yrittäjän johdon osakkeet sijoitetaan talletuslokeroon, toimivat vakuutena sopimusrikon tai vilpin sattuessa.	1	2	3	4	5	6	7
134. Henkilökohtainen takuu: yrittäjän (johdon) henkilökohtainen varallisuus on vakuutena suojatakseen sijoittajaa vilpiltä tai sopimusrikkeistä.	1	2	3	4	5	6	7
135. Yrittäjän (johdon) kasvava omistus kannusteena: yrittäjän omistusprosentti riippuu tietyn tulostason saavuttamisesta	1	2	3	4	5	6	7
136. Osakkeiden arvo riippuu tietyn tulostason saavuttamisesta: osakkeiden arvo perustuu tulostason saavuttamiseen	1	2	3	4	5	6	7
137. Mikäli yrittäjä (johto) saa tarjouksen osakkeistaan, sijoittajan on pystyttävä myymään osakkeensa samaan hintaan (take along clause)	1	2	3	4	5	6	7

Yleiset sijoituspreferenssit

Arvioi seuraavien kriteerien tärkeyttä: seuraavat kysymykset liittyvät yleisiin sijoituspreferensseihin:

A) Epätaloudelliset kriteerit

Arvioi seuraavien tekijöiden tärkeyttä	Ei tärkeä							Erittäin tärkeä						
138.Potentiaali luoda uutta yrittäjäkulttuuria ja tukea uusien yritysten syntyä	1	2	3	4	5	6	7	1	2	3	4	5	6	7
139.Nautinto aktiivisesta osallistumisesta yrittäjyysprosessiin	1	2	3	4	5	6	7	1	2	3	4	5	6	7
140.Tunnistus työstä kehittyvässä työyhteisössä	1	2	3	4	5	6	7	1	2	3	4	5	6	7
141.Kohdeyritysten sosiaalinen vastuu	1	2	3	4	5	6	7	1	2	3	4	5	6	7
142.Osallisuus mielenkiintoiseen sijoitukseen	1	2	3	4	5	6	7	1	2	3	4	5	6	7

B) Taloudelliset kriteerit

Arvioi seuraavien tekijöiden tärkeyttä	Ei tärkeä							Erittäin tärkeä						
143.Potentiaali hyvään pääoman tuottoon	1	2	3	4	5	6	7	1	2	3	4	5	6	7
144.Kannusteet ja etuoikeudet (perks, perquisites, fringe benefits)	1	2	3	4	5	6	7	1	2	3	4	5	6	7
145.Muut rahoituslähteet saatavilla	1	2	3	4	5	6	7	1	2	3	4	5	6	7
146.Sijoituksen koko (sijoituksen on ylitettävä/ alitettava tietty raja)	1	2	3	4	5	6	7	1	2	3	4	5	6	7
147.Kohdeyrityksen on saavutettava tietty taloudellinen suhdeluku (tunnusluku)	1	2	3	4	5	6	7	1	2	3	4	5	6	7
148.Tietty omistus kohdeyrityksestä	1	2	3	4	5	6	7	1	2	3	4	5	6	7
149.Ennustettu kassavirta	1	2	3	4	5	6	7	1	2	3	4	5	6	7

C) Aktiiviseen osallistumiseen liittyvät kriteerit

Arvioi seuraavien tekijöiden tärkeyttä	Ei tärkeä							Erittäin tärkeä						
150.Haluan hyödyntää aikaisempia kokemuksiani	1	2	3	4	5	6	7	1	2	3	4	5	6	7
151.Haluan vaikuttaa sijoituksen arvoon	1	2	3	4	5	6	7	1	2	3	4	5	6	7
152.Haluan osallistua aktiivisesti lupaavien yritysten kehitykseen	1	2	3	4	5	6	7	1	2	3	4	5	6	7

D) Yrittäjän (johdon) sitoutumiseen liittyvät tekijät

Signaloivatko seuraavat tekijät yrittäjän/ johdon sitoutumista yritykseen?	Täysin eri mieltä							Täysin samaa mieltä						
153.Yrittäjä on tehnyt huolellisen ja vakuuttavan bisnesplanin	1	2	3	4	5	6	7	1	2	3	4	5	6	7
154.Patentoitavan prototyypin olemassaolo	1	2	3	4	5	6	7	1	2	3	4	5	6	7
155.Yrittäjä (johto) on tehnyt merkittävät sijoitukset	1	2	3	4	5	6	7	1	2	3	4	5	6	7
156.Merkittävä osuus kohdeyrityksen alkuvaiheen sijoituksista on peräisin yrittäjän (johdon) henkilökohtaisista säästöistä	1	2	3	4	5	6	7	1	2	3	4	5	6	7
157.Yrittäjä on käyttänyt henkilökohtaista varallisuuttaan vakuutena	1	2	3	4	5	6	7	1	2	3	4	5	6	7
158.Yrittäjä on ollut vuosia kohdeyrityksessä töissä	1	2	3	4	5	6	7	1	2	3	4	5	6	7

Kiitoksia osallistumisesta!

THE BUSINESS ANGELS *QUESTIONNAIRE*

Personal Characteristics

1. How many years have you made investments in unquoted companies?	Years
2. How many investments have you made in unquoted companies?	Investments
3. In how many of these investments have you replaced the entrepreneur (management)?	Investments
4. How many investment opportunities do you receive per year?	Investment opportunities
5. How many investment opportunities do you approach each year to propose venture capital investment?	Investment opportunities
6. How many investment opportunities are subject to serious consideration?	Investment opportunities
7. How many of these investment opportunities receive funding?	Investment opportunities
8. What is the size of your investment portfolio?	Investments
9. Number of industries represented in the portfolio?	Industries
10. Number of development stages (seed, startup, early, later) represented in the portfolio?	Stages
11. Have you ever worked in a small business (excluding the unquoted firm funded)?	Yes <input type="checkbox"/> No <input type="checkbox"/>
12. In your career how many businesses have you founded (as an entrepreneur)?	Businesses
13. How much money did you invest the previous year in entrepreneurial ventures?	€

Questions concerning a specific investment in a small unquoted entrepreneurial company

14. When did you make this investment?	Year
15. How much did you invest in this venture?	€
16. Was this invested in stages?	Yes <input type="checkbox"/> No <input type="checkbox"/>
17. What was the investment instrument used to finance the new venture?	
18. The entrepreneur's (management's) total investment was?	€
19. Did you play the role of lead investor?	Yes <input type="checkbox"/> No <input type="checkbox"/>
20. What industry sector was this venture in?	
21. What stage was this venture in when you invested?	Pre/seed <input type="checkbox"/> , Startup <input type="checkbox"/> , Early <input type="checkbox"/> , Later <input type="checkbox"/>
22. Did the investee have a patentable prototype when the investment was made?	Yes <input type="checkbox"/> No <input type="checkbox"/>
23. Did the investee have a ready-made product/service when the investment was made?	Yes <input type="checkbox"/> No <input type="checkbox"/>
24. Has the entrepreneur (management) used his (their) personal wealth as collateral?	Yes <input type="checkbox"/> No <input type="checkbox"/>
25. Innovation level of the investee's product/ service	Very low Very high 1 2 3 4 5 6 7
26. What is the ratio of tangible assets to total assets?	<input type="checkbox"/> 0-15%, <input type="checkbox"/> 16-30%, <input type="checkbox"/> 31-45%, <input type="checkbox"/> 46-60%, <input type="checkbox"/> 61-75%, <input type="checkbox"/> 76-90%, <input type="checkbox"/> > 90%
27. What is equity ratio?	<input type="checkbox"/> 0-15%, <input type="checkbox"/> 16-30%, <input type="checkbox"/> 31-45%, <input type="checkbox"/> 46-60%, <input type="checkbox"/> 61-75%, <input type="checkbox"/> 76-90%, <input type="checkbox"/> > 90%

28. I invested (please select one)	On my own <input type="checkbox"/> , Alongside other BAs <input type="checkbox"/> , Alongside VCs <input type="checkbox"/> , As part of both VCs and Bas <input type="checkbox"/>						
29. Do you have experience in the industry sector of this venture that you invested in?	No experience		Some		Extensive experience		
	1	2	3	4	5	6	7
30. How many years of experience did you have in the industry relevant to this deal at the time of closing the deal?	<input type="checkbox"/> 0-5 years, <input type="checkbox"/> 6-10, <input type="checkbox"/> 11-15, <input type="checkbox"/> 16-20, <input type="checkbox"/> >20						
Equity ownership: Please give your best estimate for the items below:							
31. My share of the business is about	%						
32. Other investors own about	%						
33. The entrepreneur (management) owns about	%						
34. Is the investee company generating revenue yet?	Yes <input type="checkbox"/>		No <input type="checkbox"/>				
Please indicate your agreement with the following statements.							
	Fully disagree			Fully agree			
35. The entrepreneur (management) invested a substantial proportion of their net worth in the venture	1	2	3	4	5	6	7
36. The entrepreneur (management) had worked several years for the venture when the initial investment was made.	1	2	3	4	5	6	7
37. The entrepreneur (management) had made a comprehensive and convincing business plan	1	2	3	4	5	6	7
38. The entrepreneur (management) agreed upon the inclusion of covenants penalizing dysfunctional behavior	1	2	3	4	5	6	7

A) Financial criteria

How important were the following factors in attracting you to this (specific) investment in question?	Not important,		Of concern,		Very important		
	1	2	3	4	5	6	7
39. High margin of the business	1	2	3	4	5	6	7
40. Perceived financial rewards	1	2	3	4	5	6	7
41. Expected rate of return (for the investor)	1	2	3	4	5	6	7
42. Ownership stake being offered	1	2	3	4	5	6	7
43. Capital structure of the target company	1	2	3	4	5	6	7
44. Investee's ability to finance itself	1	2	3	4	5	6	7
45. Timing until first cash out	1	2	3	4	5	6	7

B) Sources used for evaluating the investment opportunity

Please indicate which sources are the most important for due diligence purposes. Please place a cross in the right hand column if the source was utilized in the due diligence of the investment in question.	Never used							Always used		X
	1	2	3	4	5	6	7			
46. Own due diligence report	1	2	3	4	5	6	7			
47. Business plan (e.g. balance sheet, income statement, planned data)	1	2	3	4	5	6	7			
48. Curriculum vitae of the entrepreneur (management)	1	2	3	4	5	6	7			
49. Interviews with the entrepreneur (management)	1	2	3	4	5	6	7			
50. Interviews with other company personnel	1	2	3	4	5	6	7			
51. Management projections	1	2	3	4	5	6	7			
52. Proposed exit timing and method	1	2	3	4	5	6	7			

53. Sales and marketing information	1	2	3	4	5	6	7	
54. Production capacity/ technical information	1	2	3	4	5	6	7	
55. Product information	1	2	3	4	5	6	7	
56. Market research study	1	2	3	4	5	6	7	
57. Due diligence by accounting/ consulting firms/ lawyer	1	2	3	4	5	6	7	
58. Independent reports on the financial situation	1	2	3	4	5	6	7	
59. Other investors	1	2	3	4	5	6	7	
60. Financial advisors	1	2	3	4	5	6	7	
61. Investee's current customers	1	2	3	4	5	6	7	
62. Investee's potential customers	1	2	3	4	5	6	7	
63. Investee's bankers	1	2	3	4	5	6	7	
64. Investee's accountants	1	2	3	4	5	6	7	
65. Investee's suppliers	1	2	3	4	5	6	7	

C) People involved in the due diligence

Number of people involved in the due diligence of the (specific) investment in question?	
66. Accountants	N=
67. Lawyers	N=
68. Consultants	N=
69. Other investors collaborating on due diligence	N=

D) External factors

How accurate were your assessments of the following factors of the investment in question?	Very inaccurate	Very accurate
70. Size of the market	1 2 3 4 5 6 7	
71. Market need	1 2 3 4 5 6 7	
72. Market growth potential (attractiveness)	1 2 3 4 5 6 7	
73. Access to market (market entry)	1 2 3 4 5 6 7	

E) Internal factors

How accurate were your assessments of the following factors of the investment in question?	Very inaccurate	Very accurate
74. Business strategy of the investee company	1 2 3 4 5 6 7	
75. Customer adoption	1 2 3 4 5 6 7	
76. Competitive position of the investee company	1 2 3 4 5 6 7	

F) Evaluating the performance of the investee company

Please indicate which methods are most important for the valuation of the financial performance when investing. Please place a cross in the right hand column if the valuation method was utilized in the due diligence of the investment in question.	Never used							Always used							X
	1	2	3	4	5	6	7	1	2	3	4	5	6	7	
77. Estimate of future EBIT	1	2	3	4	5	6	7								
78. Capitalized maintainable earnings (P/E multiple)	1	2	3	4	5	6	7								
79. Payback period	1	2	3	4	5	6	7								
80. Discounted future cash flow	1	2	3	4	5	6	7								
81. Historic cost book value	1	2	3	4	5	6	7								
82. Replacement cost asset value	1	2	3	4	5	6	7								

G) Evaluating the entrepreneur's (and management's) human capital

In your investment portfolio, how many human capital valuations were:	
83. Very accurate	N=
84. More accurate than inaccurate	N=
85. More inaccurate than accurate	N=
86. Very inaccurate	N=
87. In the investment in question to what extent did you rely on gut feeling compared to a data driven approach to assessing entrepreneur (management)?	All data (no gut) <input type="checkbox"/> , Mostly data (some gut) <input type="checkbox"/> , Mostly gut (some data) <input type="checkbox"/> , All gut (no data) <input type="checkbox"/>
88. Prior to talking with the entrepreneur and management, did you identify the specific qualities or competencies that were considered important to possess in that venture?	Yes on paper <input type="checkbox"/> , Yes but not on paper, No <input type="checkbox"/>
89. If yes, how many hours did you spend doing this?	hours
Evaluate the time spent in performing the following tasks (hours)?	
90. Talking with the entrepreneur (management) about his (their) actual experiences?	Hours
91. Reviewing the resumes of entrepreneur and the management team?	Hours
92. Reviewing articles on the entrepreneur and management?	Hours
93. Using online or other media to gather info on the entrepreneur and management?	Hours
94. How many independent references did you seek for the entrepreneur and management team (if any)?	individual references

H) Your involvement in the investment

Please assess the frequency of informal contacts with the investee company							
95. Number of visits per year	Visits						
96. Length of each visit	Hours						
97. Number of telephone calls per year	Calls						
98. Length of each call	Hours						
99. Geographic distance from the investee company	□ < 50 km, □ 60-250 km, □ 260-500 km, □ > 500 km						
100. Degree of participation in the day-to-day operations	(1 = no participation, 7 = the equivalent of full time work)						
	1	2	3	4	5	6	7
101. Are you a member of the board of directors?	Yes <input type="checkbox"/> No <input type="checkbox"/>						
102. Number of seats on the board of directors held by the entrepreneur (management)?	Seats						
103. Number of seats on the board of directors held by other investors?	Seats						
104. Number of seats on the board of directors held by outsiders?	Seats						
105. Total number of seats on the board of directors?	Seats						
106. Percentage of total votes held by you?	%						
107. Percentage of total votes held by the entrepreneur (management)?	%						
108. Percentage of total votes held by other investors	%						
109. Percentage of total votes held by outsiders?	%						
110. Did you remove or are you planning on removing the entrepreneur/CEO?	Yes <input type="checkbox"/> No <input type="checkbox"/>						
111. Did you remove or are you planning on removing other members of the senior management team?	Yes <input type="checkbox"/> No <input type="checkbox"/>						
Please indicate your agreement with the following statements	Fully disagree			Fully agree			
112. Active work on the board of directors is a very effective way to manage risk.	1	2	3	4	5	6	7
113. Frequent interaction with management is a very effective way to manage risk	1	2	3	4	5	6	7
114. If the investee's performance falls below a specific target level the entrepreneur (management) will be replaced	1	2	3	4	5	6	7

I) Criteria related to active involvement

How important were the following factors in attracting you to this (specific) investment in question?	Not important,		Of concern,			Very important		
115. Investor's involvement possible	1	2	3	4	5	6	7	
116. Venture is local (geographically close)	1	2	3	4	5	6	7	
117. Investor's (your) strengths fill gaps in business	1	2	3	4	5	6	7	

J) Other investment criteria

How important were the following factors in attracting you to this specific investment in question?	Not important,		Of concern,			Very important		
118. Geographic location (the venture is located in a financial center or an urban area)	1	2	3	4	5	6	7	
119. Stage of development of the investee company	1	2	3	4	5	6	7	

K) Reporting requirements of investees

120. How frequently do you receive reports on the investee's financial situation?	Weekly <input type="checkbox"/> , Monthly <input type="checkbox"/> , Semi-annually <input type="checkbox"/> , Annually <input type="checkbox"/>						
Please indicate your agreement with the following statements	Fully disagree			Fully agree			
121. It is important that the financial information (accounting reports) is detailed.	1	2	3	4	5	6	7
122. The (accounting) reports on the investee's financial situation constitute an integral part in monitoring the investment.	1	2	3	4	5	6	7
123. When making an investment it is highly important that the investee company has a good reporting system.	1	2	3	4	5	6	7
124. It is important that the investee company provides forecasts on future performance.	1	2	3	4	5	6	7
125. It is important that the financial information is given within a strict timeline from the end of the reporting period.	1	2	3	4	5	6	7
126. If the investee's performance falls below a target level, the requirement on reports on the financial situation increases.	1	2	3	4	5	6	7
127. I have direct access to the investee's accounting system.	1	2	3	4	5	6	7
128. I have the power to influence the supply of financial information	1	2	3	4	5	6	7

L) Covenants:

Please indicate your agreement with the following statements.	Fully disagree			Fully agree			
129. Stock vesting term: the entrepreneur/CEO (management) has to remain in the company (for a minimum time period) in order to receive a portion of the stock	1	2	3	4	5	6	7
130. Non-compete clause/ loyalty clause: entrepreneur (manager) cannot start a competing business, another company with a similar idea/ line of business	1	2	3	4	5	6	7
131. Standstill agreement: no shares will be sold by the entrepreneur (management) during initial period	1	2	3	4	5	6	7
132. Earn out agreement: if the company reaches certain targets/ milestones it receives follow-on investments from the investor(s)	1	2	3	4	5	6	7
133. Shares pledged as collateral: e.g. entrepreneur's (management's) holding is placed in a safe deposit box; pledged in case of breach of contract/ fraud	1	2	3	4	5	6	7
134. Personal guarantee of entrepreneur (management) against fraud: entrepreneur's (management's) private wealth collateral to protect investor(s) against fraud/ contract breach by the entrepreneur (management)	1	2	3	4	5	6	7
135. Increased ownership for entrepreneur (management) as an incentive (% ownership of entrepreneur (management) depending on reaching certain milestones)	1	2	3	4	5	6	7
136. Valuation of shares related to milestones: calculation of future value dependent on fulfilling performance targets	1	2	3	4	5	6	7
137. Tag along clause for investor(s): if entrepreneur (management) receives an offer for his (their) shares, the investor(s) is (are) able to sell his (their) shares at the same price	1	2	3	4	5	6	7

General Unquoted Investment Preferences & Characteristics

Please answer the following questions in regards to your general unquoted investment preferences:

A) Non-Financial criteria

Listed below are some reasons for making investments. Circle a number from 1 to 7 to describe how important each factor has been to you in making investments.							
	Not important		Of concern			Very important	
138. Potential to create entrepreneurial culture and support new business	1	2	3	4	5	6	7
139. Satisfaction of playing an active role in the entrepreneurial process	1	2	3	4	5	6	7
140. Positive recognition in the community	1	2	3	4	5	6	7
141. Social responsibility of the target firm	1	2	3	4	5	6	7
142. The fun of having an interesting investment.	1	2	3	4	5	6	7

B) Financial criteria

Listed below are some reasons for making investments. Circle a number from 1 to 7 to describe how important each factor has been to you in making investments.							
	Not important,		Of concern,			Very important	
143. The potential for high capital appreciation	1	2	3	4	5	6	7
144. Non-financial "perks" or privileges	1	2	3	4	5	6	7
145. Other sources of funding available	1	2	3	4	5	6	7
146. The size of the investment (proposal must require funding above or below a strictly defined minimum or maximum)	1	2	3	4	5	6	7
147. The proposal must meet a given financial ratio benchmark	1	2	3	4	5	6	7
148. The proposal must result in a given percentage of ownership	1	2	3	4	5	6	7
149. The projected cash flow of the investee company	1	2	3	4	5	6	7

C) Criteria related to active involvement

Listed below are some reasons for making investments. Circle a number from 1 to 7 to describe how important each factor has been to you in making investments.							
	Not important,		Of concern,			Very important	
150. I want to make use of my previous experience	1	2	3	4	5	6	7
151. I can influence the value of a venture capital investment	1	2	3	4	5	6	7
152. I want to play an active role in the development of a promising small and middle growth enterprise	1	2	3	4	5	6	7

D) Criteria related to commitment

The follow factors signal a strong commitment by the entrepreneur/management when making an investment?							
	Fully disagree				Fully agree		
153. A comprehensive and well thought out business plan	1	2	3	4	5	6	7
154. The existence of a patentable prototype	1	2	3	4	5	6	7
155. Considerable investments by the entrepreneur (management) have been made up front (before investing in the venture)	1	2	3	4	5	6	7
156. A substantial share of the new ventures initial financing has come directly from the entrepreneur's (management's) personal savings	1	2	3	4	5	6	7

157. The entrepreneur (management) has used his (their) personal wealth as collateral	1	2	3	4	5	6	7
158. The number of years the entrepreneur (management) has spent working in a firm	1	2	3	4	5	6	7

Thank you for your time!
You will get the results of this research in return!

**APPENDIX 3 AN OVERVIEW OF THE INTERVIEWS WITH BUSINESS ANGELS
CITED IN THIS RESEARCH**Business angel interviews cited in this study

Business angel 1 (Ba1)	11.2005
Business angel 2 (Ba2)	03.2006
Business angel 3 (Ba3)	03.2006
Business angel 4 (Ba4)	03.2006
Business angel 5 (Ba5)	03.2006
Business angel 6 (Ba6)	04.2006
Business angel 7 (Ba7)	04.2006
Business angel 8 (Ba8)	04.2006
Business angel 9 (Ba9)	04.2006
Business angel 10 (Ba10)	04.2006
Business angel 11 (Ba11)	04.2006
Business angel 12 (Ba12)	05.2006
Business angel 13 (Ba13)	05.2006
Business angel 14 (Ba14)	05.2006
Business angel 15 (Ba15)	05.2006
Business angel 16 (Ba16)	05.2006
Business angel 17 (Ba17)	06.2006
Business angel 18 (Ba18)	06.2006

APPENDIX 4 ASSESSING THE RELIABILITY OF THE CONSTRUCTS

The Cronbach alpha is used to assess the reliability of the constructs formed for this study.

1) “Experience as an investor”

The construct “experience as an investor” was formed by reducing the two measures “years of investing” and “number of investments” to a factor. A successful factor solution was obtained with a factor accounting for more than 90 percent of the variance ($F=0.903$). The value for the Cronbach alpha ($\alpha=0.583$) exceeds the satisfactory level of 0.5.

2) “Industry sector experience”

The construct “industry sector experience” was formed by reducing the two measures “number of years of experience in the industry sector relevant to the investment” and “the perceived experience in the industry sector” to a factor. A very good factor solution was obtained. The factor accounted for more than 80 percent of the variance ($F=0.832$). Also the value for the Cronbach alpha ($\alpha=0.79$) can be considered good.

3) “Number of contacts”

Similarly, the construct “number of contacts” was formed by reducing the two measures “visits” (number of visits times the average duration of a visit) and “phone calls” (number of phone calls times the average duration of a phone call) to a factor. This is the only study variable that has been transformed¹⁶⁶. The transformation was performed, in order to obtain sufficient reliability for the factor. The factor solution was highly successful, with the factor accounting for almost 90 percent of the variance ($F=0.913$). The value for the Cronbach alpha ($\alpha=0.663$) exceeded the satisfactory level of 0.5.

4) “The valuation of an entrepreneur’s and management’s human capital”

The number of hours consumed in the valuation tasks, specification of qualities and competencies needed prior to talking to an entrepreneur (management), talking to the entrepreneur (management) about his (their) actual experiences, reviewing the resumes of the

¹⁶⁶ The number of hours spent in visiting was transformed into seven groups (0=0-20 hours, 1=21-40 hours, 2=41-60 hours, 3=61-80 hours, 4=81-100 hours, 6>100 hours). Also the amount of minutes spent conducting telephone calls was transformed into seven groups (0=0-150 minutes, 1=151-300 minutes, 2=301-450 minutes, 3=451-600, 4=601-750, 5=751-900, 6>900)

entrepreneur (management), reviewing articles on the entrepreneur (management) and using on-line media to gather information on the entrepreneur (management), were summarized. This was done to build the construct “the valuation of an entrepreneur’s and management’s human capital”. The obtained value for the Cronbach alpha is on a moderate level ($\alpha = 0,587$).

The valuation tasks were split into two groups “interview related techniques” and “background checks”. The latter consists of reviewing resumes and articles as well as the gathering of information by using online media, whereas the former consists of specification of qualities and competencies as well as of talking to the entrepreneur (management) about his (their) experiences. The construct “interview related techniques” obtained an extremely good value for the Cronbach alpha ($\alpha = 0.915$). The Cronbach alpha value for the construct “background checks” ($\alpha = 0.494$) was barely below the critical value of 0.5. It builds on Smart (1999) identifying i) the reviews of the resumes of an entrepreneur (management) ii) reviewing articles on an entrepreneur (management) and iii) using the Internet to gather data on an entrepreneur (management) as three techniques for valuation of an entrepreneur’s and management’s human capital. The obtaining of a satisfactory value for the Cronbach alpha would have implied discarding the measure “gathering information by using online media” from the construct. As the value 0.494 is very close to the satisfactory level of 0.5 and “gathering information by using online media” is clearly a way to receive background information, a decision was made to retain the construct, as such, regardless of its low value for the Cronbach alpha. It was felt that all three information gathering techniques are essential in gaining knowledge on an entrepreneur and management prior to the interviews.

5) “Perceived accuracy of the assessment of a market environment”

The construct “perceived accuracy of the assessment of a market environment” was formed by calculating an average for the perceived accuracy of the assessment of the size of a market, its needs, growth potential and the access to the relevant market. The obtained value for the for the Cronbach alpha ($\alpha = 0.539$) was on moderate level.

6) “Covenants mitigating the hold-up problem”

Four covenants were identified that mitigate the hold-up problem, i.e. make it difficult for the entrepreneur (management) to leave the firm in which a business angel’s investment has been made. These are the non-compete provision, the vesting provision, the stand still provision and the tag along provision. An average was calculated for the inclusion of “covenants mitigating the hold-up problem”. The obtained value for the Cronbach alpha ($\alpha = 0.77$) was good.

APPENDIX 5 THE SIGNALING POWER OF RELATIONSHIP SPECIFIC INVESTMENTS

As noted in section 3.6 the “operationalization”, i.e. a set of relationship (transaction) specific investments were compared. The relationship specific investment that the investors considered as providing the strongest signal of commitment was applied in the analysis. The investors’ agreement was assessed with the statement: the following factor signals a strong commitment by an entrepreneur and the management team on a seven point Likert scale ranging from one = I fully disagree to seven = I fully agree.

	Average
a) The existence of a comprehensive and well thought out business plan	5.23
b) The size of the entrepreneur’s (management’s) investment	5.26
c) The share of the new venture's initial financing that comes directly from the entrepreneur’s (management’s) personal savings	5.75
d) The entrepreneur’s (management's) personal wealth as collateral	5.08
e) The existence of a patentable prototype	4.25
f) The number of years the entrepreneur (management) has spent working in the firm	4.09

Table 1: Scores for strength of commitment

The averages reveal that the share of the new venture’s initial financing that comes directly from an entrepreneur’s (management’s) personal savings serves as the best proxy for the strength of an entrepreneur’s (and management’s) commitment.

APPENDIX 6 DESCRIPTIVE FINDINGS

A) Entrepreneurial experience

	Frequency	Percent	Cumulative percent
no	14	26.4	26.4
yes	39	73.6	100.0
Total	53	100.0	

Table 1: Have you ever worked in a small firm?

	Frequency	Percent	Cumulative percent
0	9	17	17
1	8	15.1	32.1
2	12	22.6	54.7
3	8	15.1	69.8
4	9	17	86.8
5	3	5.7	92.5
6	1	1.9	94.3
10	1	1.9	96.2
11	1	1.9	98.1
15	1	1.9	100
Total	53	100	

Table 2a: Number of businesses founded as an entrepreneur

Mean	Median	Standard deviation
2.81	2	2.808

Table 2b: Number of businesses founded as an entrepreneur

B) Experience as an investor

	Frequency	Percent	Cumulative percent
1	1	1.9	1.9
2	5	9.4	11.3
3	3	1.9	13.2
4	1	5.7	18.9
5	10	18.9	37.7
6	6	11.3	49.1
7	6	11.3	60.4
8	2	3.8	64.2
9	3	5.7	69.8
10	7	13.2	83
11	1	1.9	84.9
12	1	1.9	86.8
15	1	1.9	88.7
16	1	1.9	90.6
20	2	3.8	94.3
22	1	1.9	96.2
23	1	1.9	98.1
29	1	1.9	100
Total	53	100	

Table 3a: Years of investing

Mean	Median	Standard deviation
8.21	5	5.782

Table 3b: Years of investing

	Frequency	Percent	Cumulative percent
1	2	1.9	3.8
2	1	9.4	5.7
3	8	1.9	20.8
4	5	5.7	30.2
5	7	18.9	43.4
6	4	11.3	50.9
7	3	11.3	56.6
8	3	3.8	62.3
9	3	5.7	67.9
10	4	13.2	75.5
12	1	1.9	77.4
13	1	1.9	79.2
15	4	1.9	86.8
16	1	1.9	88.7
20	3	3.8	94.3
25	1	1.9	96.2
40	1	1.9	98.1
110	1	1.9	100
Total	53	100	

Table 4a: Amount of investments

Mean 1	Mean 2	Median	Standard deviation 1	Standard deviation 2
10.47	8.56	5	15.592	7.064

Table 4b: Amount of investments

C) Investment activity

	Frequency	Percent	Cumulative percent
1	3	5.7	5.7
2	5	9.4	15.1
3	12	22.6	37.7
4	7	13.2	50.9
5	8	15.1	66
6	5	9.4	75.5
7	4	7.5	83
8	1	1.9	84.9
9	1	1.9	86.8
10	2	3.8	90.6
12	1	1.9	92.5
14	1	1.9	94.3
15	3	5.7	100
Total	53	100	

Table 5a: size of the investment portfolio

Mean	Median	Standard deviation
5.34	3	3.584

Table 5b: Size of the investment portfolio

	Frequency	Percent	Cumulative percent
0	8	15.1	15.1
5000	1	1.9	17
6000	1	1.9	18.9
10000	1	1.9	20.8
20000	2	3.8	24.5
30000	3	5.7	30.2
50000	4	7.5	37.7
60000	2	3.8	41.5
70000	1	1.9	43.4
75000	1	1.9	45.3
82000	1	1.9	47.2
100000	4	7.5	54.7
150000	3	5.7	60.4
200000	2	3.8	64.2
300000	4	7.5	71.7
320000	1	1.9	73.6
400000	2	3.8	77.4
450000	1	1.9	79.2
500000	6	11.3	90.6
1000000	2	3.8	94.3
3000000	1	1.9	96.2
3500000	1	1.9	98.1
4000000	1	1.9	100
Total	53	100	

Table 6a: Amount invested the previous year

Mean	Median	Standard deviation
381471.70	0	811550.217

Table 6b: Amount invested the previous year

D) Style of investing

	Frequency	Percent	Cumulative percent
no	22	44.0	44.0
yes	28	56.0	100.0
Total	50	100.0	

Table 7a: How do you invest (through an investment company)?

	Frequency	Percent	Cumulative percent
no	36	72.0	72.0
yes	14	28.0	100.0
Total	50	100.0	

Table 7b: How do you invest (through an investment company and directly)?

	Frequency	Percent	Cumulative percent
no	15	28.3	28.3
yes	38	71.7	100.0
Total	53	100.0	

Table 8a: Co-investing

	Frequency	Percent	Cumulative percent
no	25	47.2	47.2
yes	28	52.8	100.0
Total	53	100.0	

Table 8b: Investing alongside other business angels

	Frequency	Percent	Cumulative percent
no	33	62.3	62.3
yes	20	37.7	100.0
Total	53	100.0	

Table 8c: Investing alongside venture capital funds

	Frequency	Percent	Cumulative percent
no	43	81.1	81.1
yes	10	18.9	100.0
Total	53	100.0	

Table 8d: Investing alongside business angels and venture capital funds

	Frequency	Percent	Cumulative percent
no	23	43.4	43.4
yes	30	56.6	100.0
Total	53	100.0	

Table 8e: Lead investor

e) Deal flow

	Frequency	Percent	Cumulative percent
2	1	1.9	1.9
3	2	3.8	5.7
4	4	7.5	13.2
5	2	3.8	17
7	1	1.9	18.9
10	8	15.1	34
13	1	1.9	35.8
15	5	9.4	45.3
20	4	7.5	52.8
25	2	3.8	56.6
28	1	1.9	58.6
30	7	13.2	71.7
35	1	1.9	73.6
40	2	3.8	77.4
50	5	9.4	86.8
70	2	3.8	90.6
90	1	1.9	92.5
100	2	3.8	96.2
110	1	1.9	98.1
300	1	1.9	100
Total	53	100	

Table 9a: The size of the deal flow (passive approach)

Mean 1	Mean 2	Median	Standard deviation 1	Standard deviation 2
33.62	28.50	10	45.83	26.90

Table 9b: The size of the deal flow (passive approach)

	Frequency	Percent	Cumulative percent
0.0	18	34	34
1.0	3	5.7	39.6
1.5	2	3.8	43.4
2.0	7	13.2	56.6
3.0	2	3.8	60.4
3.5	2	3.8	64.2
4.0	1	1.9	66
5.0	6	11.3	77.4
6.0	2	3.8	81.1
7.0	1	1.9	83
10.0	6	11.3	94.3
15.0	1	1.9	96.2
20.0	2	3.8	100
Total	53	100	

Table 10a: The size of the deal flow (active approach)

Mean	Median	Standard deviation
3.79	0	4.859

Table 10b: The size of the deal flow (active approach)

f) Screen out ratio

	Frequency	Percent	Cumulative percent
2 %	1	1.9	1.9
3 %	2	3.8	5.7
5 %	4	7.5	13.2
6 %	2	3.8	17
7 %	1	1.9	18.9
8 %	2	3.8	22.6
9 %	2	3.8	26.4
10 %	5	9.4	35.8
11 %	1	1.9	37.7
12 %	1	1.9	39.6
13 %	4	7.5	47.2
14 %	2	3.8	50.9
16 %	2	3.8	54.7
17 %	5	9.4	64.2
20 %	4	7.5	71.7
21 %	1	1.9	73.6
23 %	1	1.9	75.5
25 %	2	3.8	79.2
28 %	1	1.9	81.1
29 %	1	1.9	83
32 %	1	1.9	84.9
35 %	1	1.9	86.8
38 %	2	3.8	90.6
43 %	1	1.9	92.5
50 %	2	3.8	96.2
67 %	1	1.9	98.1
75 %	1	1.9	100
Total	53	100	

Table 11a: Deal flow/ subject to serious consideration

Mean	Median	Standard deviation
19.06 %	17%, 10%	0.15579

Table 11b: Deal flow/ subject to serious consideration

	Frequency	Percent	Cumulative percent
<1%	3	5.7	5.7
1 %	3	5.7	11.3
2 %	9	17	28.3
3 %	4	7.5	35.8
4 %	4	7.5	43.4
5 %	8	15.1	58.5
6 %	4	7.5	66
7 %	2	3.8	69.8
8 %	2	3.8	73.6
10 %	1	1.9	75.5
13 %	1	1.9	77.4
17 %	2	3.8	81.1
20 %	4	7.5	88.7
24 %	1	1.9	90.6
25 %	3	5.7	96.2
29 %	1	1.9	98.1
33 %	1	1.9	100
Total	53	100	

Table 12a: Screen out ratio

Mean	Median	Standard deviation
8.32 %	5 %	0.08624

Table 12b: Screen out ratio

g) Sources for due diligence

	Frequency	Percent	Cumulative percent
1	1	1.9	1.9
6	2	3.8	5.7
7	3	5.7	11.3
8	2	3.8	15.1
9	3	5.7	20.8
10	9	17	37.7
11	6	11.3	49.1
12	3	5.7	54.7
13	7	13.2	67.9
14	7	13.2	81.1
15	6	11.3	92.5
16	3	5.7	98.1
18	1	1.9	100
Total	53	100	

Table 13a: Number of sources of information

Mean	Median	Standard deviation
11.58	13,14	3.201

Table 13b: Number of sources of information

h) Valuation methods

	Frequency	Percent	Cumulative percent
0	7	13.2	13.2
1	12	22.6	35.8
2	16	30.2	66
3	10	18.9	84.9
4	4	7.5	92.5
5	4	7.5	100
Total	53	100	

Table 14a: Number of valuation methods

Mean	Median	Standard deviation
2.08 %	2	1.398

Table 14b: Number of valuation methods

i) Involvement

	Frequency	Percent	Cumulative percent
no	9	17.3	17.3
yes	43	82.7	100
Total	52	100	

Table 15: Board membership

	Frequency	Percent	Cumulative percent
2	2	3.8	3.8
5	10	18.9	22.6
6	20	37.7	60.4
7	21	39.6	100
	53	100	

Table 16a: Frequent interaction is a very efficient way to manage risk

Mean	Median	Standard deviation
6.06	7	1.099

Table 16b: Frequent interactions is a very efficient way to manage risk

	Frequency	Percent	Cumulative percent
1	22	41.5	41.5
2	15	28.3	69.8
3	8	15.1	84.9
4	3	5.7	90.6
5	3	5.7	96.2
6	1	1.9	98.1
7	1	1.9	100
	53	100	

Table 17a: The perceived involvement in the day-to-day operations

Mean	Median	Standard deviation
2.19	1	1.442

Table 17b: The perceived involvement in the day-to-day operations

	Frequency	Percent	Cumulative percent
0	1	1.9	1.9
1	2	3.8	5.8
2	3	5.8	11.5
3	2	3.8	15.4
4	2	3.8	19.2
5	3	5.8	25
6	4	7.7	32.7
8	2	3.8	36.5
9	1	1.9	38.5
10	6	11.5	50
11	2	3.8	53.8
12	1	1.9	55.8
12.5	1	1.9	57.7
15	8	15.4	73.1
20	6	11.5	84.6
24	1	1.9	86.5
25	1	1.9	88.5
30	3	5.8	94.2
50	2	3.8	98.1
200	1	1.9	100
	52	100	

Table 18a: Number of visits

Mean	Median	Standard deviation
16.76	15	28.05

Table 18b: Number of visits

	Frequency	Percent	Cumulative percent
0	1	1.9	1.9
1	3	5.8	7.7
1.5	1	1.9	9.6
2	16	30.8	40.4
2.5	4	7.7	48.1
3	12	23.1	71.2
3.5	1	1.9	73.1
4	7	13.5	86.5
4.5	1	1.9	88.5
5	2	3.8	92.3
8	3	5.8	98.1
14	1	1.9	100
	52	100	

Table 19a: Length of each visit (hours)

Mean	Median	Standard deviation
3.202	2	2.2212

Table 19b: Length of each visit (hours)

	Frequency	Percent	Cumulative percent
2	2	3.8	3.8
3.5	1	1.9	5.8
4	1	1.9	7.7
5	1	1.9	9.6
10	8	15.4	25
12	1	1.9	26.9
15	1	1.9	28.8
20	7	13.5	42.3
22.5	1	1.9	44.2
25	1	1.9	46.2
30	1	1.9	48.1
36	1	1.9	50
40	1	1.9	51.9
50	8	15.4	67.3
52	2	3.8	71.2
60	1	1.9	73.1
70	1	1.9	75
100	6	11.5	86.5
105	1	1.9	88.5
150	2	3.8	92.3
180	1	1.9	94.2
200	1	1.9	96.2
300	1	1.9	98.1
800	1	1.9	100
	52	100	

Table 20a: Number of telephone calls

Mean	Median	Standard deviation
68	10,50	118.8872

Table 20b: Number of telephone calls

	Frequency	Percent	Cumulative percent
3	1	1.9	1.9
5	7	13.5	15.4
7.5	2	3.8	19.2
10	18	34.6	53.8
12.5	1	1.9	55.8
15	6	11.5	67.3
20	8	15.4	82.7
30	8	15.4	98.1
60	1	1.9	100
	52	100	

Table 21a: Length of each call (minutes)

Mean	Median	Standard deviation
15.298	10	10.3214

Table 21b: Length of each call (minutes)

APPENDIX 7 RESULTS FROM THE REGRESSION MODELS

In the regression model the study measures how the dependent variable changes when one of the independent variables changes by one unit. The independent variables are standardized as the units of the independent variables differ. In the regression model the beta (β) value denotes the estimated change of the dependent variable for a unit change of the independent variable (Hair et al., 1998). Also, the control variables are regressed on the dependent variables. Regression analysis builds on minimizing the prediction error (ϵ), i.e. the difference between the actual and predicted dependent variable. The predicted error term is commonly referred to as the residual.

Appendix 7 includes a more detailed description of the empirical findings. The tables present the findings from the regression analyses. In the tables the t-values, the (standardized) beta values, values for significance and the VIF values detecting multicollinearity in the model can be found.

Twenty seven regression analyses were performed, in order to test the hypothesized notions. The models include one or two independent variables and two control variables. The impact of the control variables was examined. The control variables were insignificant in all the models, and in most cases their effect on the values of the study variables is negligible. The models were tested for heteroscedasticity and multicollinearity. The presence of a non-normal variance of the error term is one of the most common violations of the normality assumption in a regression analysis (Hair et al., 1998). The presence of heteroscedasticity is detected by applying graphical plots of the distribution of the error term. When the error term follows a non-normal distribution, the residuals form a diagonal line with the distribution becoming larger for the higher values of the independent variables. The plots illustrating the distribution of the residual revealed that heteroscedasticity might only be a concern in regression model 11. The distribution for the model is featured in appendix 9.

Multicollinearity is a problem when the intercorrelation among the independent variables is of the extent that the individual effect of an independent variable cannot be separated in the analysis. This makes it difficult to determine the contribution of each independent variable (Hair et al., 1998). The degree of multicollinearity is tested by examining the correlation between the independent variables and the values of the variance inflating factor. The variance inflation factor (VIF) shows the degree to which one independent variable is explained by the other independent variables in the regression model (Hair et al., 1998). According to Hair et al. (1998), multicollinearity is present in this study when the correlation of the independent variables exceeds 80 percent, or when the value of the VIF parameter is above 5.3. The VIF values and the correlations between the independent variables demonstrate that multicollinearity is not a problem in these models. Appendix 8 encompasses tables illustrating the correlations between the independent variables in the regression models.

As was pointed out in the methodology chapter, outliers have not been removed in the analyses. Since the population is highly invisible and the Finnish business angels' characteristics are unknown, these extreme values may represent a part of the population that is underrepresented in the sample.

Uncertainty

- 1a) *There is no relationship between the use of sources for information and the stage of development*
- 3a) *There is no relationship between the use of sources for information and the perceived level of innovativeness*

	Model 1. Control only				Model 2. Full model			
	Beta	T	Sig.	VIF	Beta	T	Sig.	VIF
<i>Control variables</i>								
Distance to the investee company	0.167	1.194	0.238	1.008	0.206	1.460	0.151	1.136
Size of the investment	-0.010	-0.072	0.943	1.008	-0.136	-0.957	0.343	1.157
<i>Independent variables</i>								
Stage of development					0.422	2.771	0.008***	1.327
Level of innovation					0.169	1.102	0.276	1.331
R = 0.402								
R ² =0.162								
Adjusted R ² = 0.092								
R square change								
F=2.320								
N=52								

The control variables are insignificant, even though the distance to the investee company seemingly has had a strong impact on the use of sources for information.

Uncertainty

- 1b) *There is a negative relationship between the use of valuation methods and the stage of development*
 3b) *There is a positive relationship between the use of valuation methods and the perceived level of innovativeness*

	Model 1. Control only				Model 2. Full model			
	Beta	T	Sig.	VIF	Beta	T	Sig.	VIF
<i>Control variables</i>								
Distance to the investee company	-0.015	-0.109	0.914	1.008	0.021	0.151	0.881	1.157
Size of the investment	0.174	1.244	0.219	1.008	-0.020	-0.146	0.884	1.136
<i>Independent variables</i>								
Stage of development					0.441	2.947	0.005***	1.327
Level of innovation					0.035	0.233	0.817	1.331
R = 0.436								
R ² =0.190								
Adjusted R ² = 0,123								
R square change								
F=2.818								
N=52								

The control variables are highly insignificant.

Uncertainty

1c) *There is a negative relationship between the time allocated to the valuation of an entrepreneur's (management's) human capital and the stage of development*

3c) *There is a positive relationship between the time allocated to valuation of an entrepreneur's (management's) human capital and the perceived level of innovativeness*

	Model 1. Control only				Model 2. Full model			
	Beta	T	Sig.	VIF	Beta	T	Sig.	VIF
<i>Control variables</i>								
Distance to the investee company	-0.117	-0.829	0.411	1.008	-0.086	-0.582	0.563	1.136
Size of the investment	-0.040	-0.286	0.776	1.008	-0.130	-0.878	0.384	1.157
<i>Independent variables</i>								
Stage of development					0.307	1.930	0.060*	1.327
Level of innovation					0.133	0.834	0.408	1.331
R = 0.296								
R ² =0.087								
Adjusted R ² = 0.011								
R square change								
F=1.149								
N=52								

The control variables are insignificant.

Early stage versus later stage

2a) *Business angels investing in later stage companies are more reliant on third party information than business angels investing in early stage companies*

	Model 1. Control only				Model 2. Full model			
	Beta	T	Sig.	VIF	Beta	T	Sig.	VIF
<i>Control variables</i>								
Distance to the investee company	0.187	1.425	0.160	1.008	0.167	1.497	0.141	1.010
Size of the investment	0.313	2.386	0.021**	1.008	0.121	1.015	0.315	1.157
<i>Independent variables</i>								
Stage of development					0.535	4.480	0.000***	1.153
R = 0.627								
R ² = 0.393								
Adjusted R ² = 0.356								
R square change								
F = 10.562								
N = 52								

The control variables are insignificant (in the full model), although the relationship between the distance to the investee company and the use of third party information appears to be relatively strong.

Early stage versus later stage

2bi) Business angels investing in early stage companies are more reliant on cash flow based valuation methods (projecting the future) than business angels investing in later stage companies

	Model 1. Control only				Model 2. Full model			
	Beta	T	Sig.	VIF	Beta	T	Sig.	VIF
<i>Control variables</i>								
Distance to the investee company	0.044	0.315	0.754	1.008	0.036	0.261	0.795	1.010
Size of the investment	0.211	1.524	0.134	1.008	0.135	0.922	0.361	1.157
<i>Independent variables</i>								
Stage of development					0.211	1.442	0.156	1.153
R = 0.295								
R ² =0.087								
Adjusted R ² = 0.031								
R square change								
F=1.554								
N=52								

The control variables are highly insignificant.

Early stage versus later stage

2bii) *Business angels investing in later stage companies are more reliant on asset based valuation methods (building on the financial history available) than business angels investing in early stage companies*

	Model 1. Control only				Model 2. Full model			
	Beta	T	Sig.	VIF	Beta	T	Sig.	VIF
<i>Control variables</i>								
Distance to the investee company	-0.114	-0.833	0.409	1.008	-0.127	-0.975	0.334	1.010
Size of the investment	0.242	1.766	0.084*	1.008	0.116	0.832	0.409	1.157
<i>Independent variables</i>								
Stage of development					0.352	2.523	0.015**	1.153
R = 0.417								
R ² =0.174								
Adjusted R ² = 0.123								
R square change								
F=3.440								
N=52								

The control variables are insignificant in the full model.

Early stage versus later stage

2c) *Business angels investing in early stage companies are more reliant on interview related techniques than business angels investing in later stage companies*

	Model 1. Control only				Model 2. Full model			
	Beta	T	Sig.	VIF	Beta	T	Sig.	VIF
<i>Control variables</i>								
Distance to the investee company	-0.147	-1.051	0.298	1.008	-0.157	-1.141	0.259	1.010
Size of the investment	-0.035	-0.253	0.802	1.008	-0.128	-0.869	0.389	1.157
<i>Independent variables</i>								
Stage of development					0.258	1.756	0.085*	1.153
R = 0.286								
R ² =0.082								
Adjusted R ² = 0.026								
R square change								
F=1.454								
N=52								

The control variables are insignificant.

Early versus later stage

Hypothesis 2cii: Business angels investing in later stage companies are more reliant on background checks than business angels investing in early stage companies

	Model 1. Control only				Model 2. Full model			
	Beta	T	Sig.	VIF	Beta	T	Sig.	VIF
<i>Control variables</i>								
Distance to the investee company	0.233	1.688	0.098*	1.008	0.229	1.649	0.105	1.010
Size of the investment	-0.063	-0.454	0.652	1.008	-0.104	-0.704	0.485	1.157
<i>Independent variables</i>								
Stage of development					0.117	0.788	0.435	1.153
R = 0.260								
R ² =0.067								
Adjusted R ² = 0.010								
R square change								
F=1.180								
N=52								

The control variables are insignificant in the full model. However, a strong positive relationship was obtained between the distance to the investee company and the reliance on background checks in the valuation of the entrepreneur's and management's human capital.

Previous experience

- 4a) *There is a negative relationship between the use of sources for information and the degree of industry sector experience of an investor*
- 5a) *There is a negative relationship between the use of sources for information and the degree of experience as an investor*

	Model 1. Control only				Model 2. Full model			
	Beta	T	Sig.	VIF	Beta	T	Sig.	VIF
<i>Control variables</i>								
Distance to the investee company	0.167	1.194	0.238	1.008	0.165	1.159	0.252	1.041
Size of the investment	-0.010	-0.072	0.943	1.008	-0.072	-0.489	0.627	1.105
<i>Independent variables</i>								
Industry sector experience					0.094	0.640	0.525	1.108
Experience as an investor					0.176	1.215	0.230	1.080
R = 0264								
R ² =0.069								
Adjusted R ² = -0.008								
R square change								
F=0.898								
N=52								

The control variables in the model are insignificant.

Previous experience

- 4b) *There is a negative relationship between the use of valuation methods and the degree of industry sector experience of an investor*
- 5b) *There is a negative relationship between the use of valuation methods and the degree of experience as an investor*

	Model 1. Control only				Model 2. Full model			
	Beta	T	Sig.	VIF	Beta	T	Sig.	VIF
<i>Control variables</i>								
Distance to the investee company	-0.015	-0.109	0.914	1.008	-0.019	-0.137	0.892	1.041
Size of the investment	0.174	1.244	0.219	1.008	0.092	0.639	0.526	1.105
<i>Independent variables</i>								
Industry sector experience					0.127	0.886	0.380	1.108
Experience as an investor					0.233	1.641	0.107	1.080
R = 0.323								
R ² =0.104								
Adjusted R ² = 0.029								
R square change								
F=1.395								
N=52								

The control variables are highly insignificant.

Previous experience

- 4c) *There is a negative relationship between the time allocated to valuation of an entrepreneur's (management's) human capital and the degree of industry sector experience of an investor*
- 5c) *There is a negative relationship between the time allocated to the valuation of an entrepreneur's (management's) human capital and their degree of experience as an investor*

	Model 1. Control only				Model 2. Full model			
	Beta	T	Sig.	VIF	Beta	T	Sig.	VIF
<i>Control variables</i>								
Distance to the investee company	-0.117	-0.829	0.411	1.008	-0.103	-0.846	0.402	1.041
Size of the investment	-0.040	-0.286	0.776	1.008	-0.192	-1.522	0.135	1.105
<i>Independent variables</i>								
Industry sector experience					0.140	1.106	0.274	1.108
Experience as an investor					0.522	4.190	0.000***	1.080
R = 0.557								
R ² =0.311								
Adjusted R ² = 0.253								
R square change								
F=5.407								
N=52								

The control variables are insignificant, albeit the relationship between the size of the investment and the time allocated to the valuation of an entrepreneur's (management's) human capital appears to be relatively strong (in the full model).

Signaling through relationship specific investments

6a) *There is a negative relationship between the use of sources for information and the magnitude of an entrepreneur's (management's) relationship specific investment*

	Model 1. Control only				Model 2. Full model			
	Beta	T	Sig.	VIF	Beta	T	Sig.	VIF
<i>Control variables</i>								
Distance to the investee company	0.167	1.194	0.238	1.008	0.168	1.181	0.243	1.024
Size of the investment	-0.010	-0.072	0.943	1.008	-0.009	-0.066	0.948	1.015
<i>Independent variables</i>								
Share of an entrepreneur's (management's) net worth invested					0.009	0.063	0.950	1.025
R = 0.167								
R ² = 0.028								
Adjusted R ² = -0.032								
R square change								
F = 0.468								
N = 52								

The control variables are insignificant.

Signaling through relationship specific investments

6b) *There is a negative relationship between the use of valuation methods and the magnitude of an entrepreneur's (management's) relationship specific investment*

	Model 1. Control only				Model 2. Full model			
	Beta	T	Sig.	VIF	Beta	T	Sig.	VIF
<i>Control variables</i>								
Distance to the investee company	-0.015	-0.109	0.914	1.008	-0.025	-0.176	0.861	1.024
Size of the investment	0.174	1.244	0.219	1.008	0.168	1.186	0.241	1.015
<i>Independent variables</i>								
The share of an entrepreneur's (management's) net worth invested					-0.079	-0.557	0.580	1.025
R = 0.190								
R ² =0.036								
Adjusted R ² = -0.023								
R square change								
F=0.612								
N=52								

The control variables are insignificant.

Signaling through relationship specific investments

6c) *There is a negative relationship between the time allocated to the valuation of an entrepreneur's (management's) human capital and the magnitude of an entrepreneur's (management's) relationship specific investment*

	Model 1. Control only				Model 2. Full model			
	Beta	T	Sig.	VIF	Beta	T	Sig.	VIF
<i>Control variables</i>								
Distance to the investee company	-0.117	-0.829	0.411	1.008	-0.076	-0.559	0.579	1.024
Size of the investment	-0.040	-0.286	0.776	1.008	-0.013	-0.100	0.921	1.015
<i>Independent variables</i>								
The share of an entrepreneur's (management's) net worth invested					0.331	2.444	0.018**	1.025
R = 0.351								
R ² =0.123								
Adjusted R ² = 0.069								
R square change								
F=2.292								
N=52								

The control variables are highly insignificant.

Syndication

7a) *There is no relationship between the use of sources for information and syndication*

	Model 1. Control only				Model 2. Full model			
	Beta	T	Sig.	VIF	Beta	T	Sig.	VIF
<i>Control variables</i>								
Distance to the investee company	0.167	1.194	0.238	1.008	0.169	1.218	0.229	1.008
Size of the investment	-0.010	-0.072	0.943	1.008	0.002	0.011	0.991	1.013
<i>Independent variables</i>								
Syndication					-0.178	-1.281	0.206	1.005
R = 0.243								
R ² =0.059								
Adjusted R ² = 0.002								
R square change								
F=1.029								
N=52								

The control variables are insignificant.

Syndication

7b) *There is a negative relationship between the use of valuation methods and syndication*

	Model 1. Control only				Model 2. Full model			
	Beta	T	Sig.	VIF	Beta	T	Sig.	VIF
<i>Control variables</i>								
Distance to the investee company	-0.015	-0.109	0.914	1.008	-0.012	-0.088	0.930	1.008
Size of the investment	0.174	1.244	0.219	1.008	0.190	1.390	0.171	1.013
<i>Independent variables</i>								
Syndication					-0.250	-1.835	0.073*	1.005
R = 0.304								
R ² =0.092								
Adjusted R ² = 0.037								
R square change								
F=1.663								
N=52								

The control variables are insignificant. The size of the investment seems to be associated with an increasing use of valuation methods.

Syndication

7c) *There is a negative relationship between the time allocated to the valuation of an entrepreneur's (management's) human capital and syndication*

	Model 1. Control only				Model 2. Full model			
	Beta	T	Sig.	VIF	Beta	T	Sig.	VIF
<i>Control variables</i>								
Distance to the investee company	-0.117	-0.829	0.411	1.008	-0.118	-0.832	0.409	1.008
Size of the investment	-0.040	-0.286	0.776	1.008	-0.046	-0.324	0.747	1.013
<i>Independent variables</i>								
Syndication					0.088	0.624	0.535	1.005
R = 0.155								
R ² =0.024								
Adjusted R ² = -0.036								
R square change								
F=0.400								
N=52								

The control variables are highly insignificant.

Type of co-investor

8a) *There is no difference in the use of sources for information when co-investing with venture capitalists and other business angels*

	Model 1. Control only				Model 2. Full model			
	Beta	T	Sig.	VIF	Beta	T	Sig.	VIF
<i>Control variables</i>								
Distance to the investee company	0.167	1.194	0.238	1.008	-0.079	-0.460	0.648	1.062
Size of the investment	-0.010	-0.072	0.943	1.008	-0.036	-0.216	0.831	1.033
<i>Independent variables</i>								
Type of co-investor					0.246	1.430	0.162	1.068
R = 0.240								
R ² =0.058								
Adjusted R ² = -0.026								
R square change								
F=0.692								
N=37								

The model comprises thirty seven observations, since the cases where syndication was not present were excluded. The control variables are highly insignificant.

Type of co-investor

8b) *Business angels use less valuation methods when co-investing with venture capitalists than they use when co-investing with business angels*

	Model 1. Control only				Model 2. Full model			
	Beta	T	Sig.	VIF	Beta	T	Sig.	VIF
<i>Control variables</i>								
Distance to the investee company	-0.015	-0.109	0.914	1.008	-0.119	-0.691	0.494	1.062
Size of the investment	0.174	1.244	0.219	1.008	0.223	1.317	0.197	1.033
<i>Independent variables</i>								
Type of co-investor					-0.021	-0.124	0.902	1.068
R = 0.239								
R ² =0.057								
Adjusted R ² = -0.026								
R square change								
F=0.686								
N=37								

The control variables are insignificant, even though the relationship between the size of an investment and the type of co-investor appears to be relatively strong.

Type of co-investor

8c) *Business angels allocate less time to the valuation of an entrepreneur's (management's) human capital when co-investing with venture capitalists than they do when co-investing with business angels*

	Model 1. Control only				Model 2. Full model			
	Beta	T	Sig.	VIF	Beta	T	Sig.	VIF
<i>Control variables</i>								
Distance to the investee company	-0.117	-0.829	0.411	1.008	-0.175	-1.016	0.317	1.062
Size of the investment	-0.040	-0.286	0.776	1.008	-0.017	-0.102	0.920	1.033
<i>Independent variables</i>								
Type of co-investor					-0.088	-0.506	0.616	1.068
R = 0.216								
R ² = 0.047								
Adjusted R ² = -0.037								
R square change								
F = 0.555								
N = 37								

The control variables are insignificant.

Perceived accuracy of the assessment of a market environment

9a) *There is a positive relationship between the use of sources for information and the perceived accuracy of the assessment of a market environment*

	Model 1. Control only				Model 2. Full model			
	Beta	T	Sig.	VIF	Beta	T	Sig.	VIF
<i>Control variables</i>								
Distance to the investee company	0.167	1.194	0.238	1.008	0.149	1.077	0.287	1.013
Size of the investment	-0.010	-0.072	0.943	1.008	-0.048	-0.350	0.728	1.010
<i>Independent variables</i>								
Accuracy of assessment of the market environment					0.212	1.537	0.131	1.007
R = 0.268								
R ² =0.072								
Adjusted R ² = 0.015								
R square change								
F=1.263								
N=52								

The control variables are insignificant.

Perceived accuracy of the assessment of a market environment

9b) *There is a negative relationship between the use of valuation methods and the perceived accuracy of the assessment of the market environment*

	Model 1. Control only				Model 2. Full model			
	Beta	T	Sig.	VIF	Beta	T	Sig.	VIF
<i>Control variables</i>								
Distance to the investee company	-0.015	-0.109	0.914	1.008	-0.024	-0.169	0.867	1.013
Size of the investment	0.174	1.244	0.219	1.008	0.168	1.200	0.236	1.010
<i>Independent variables</i>								
Accuracy of the assessment of a market environment					0.129	0.919	0.363	1.007
R = 0.216								
R ² =0.046								
Adjusted R ² = -0.012								
R square change								
F=0.796								
N=52								

The control variables are insignificant.

Perceived accuracy of the assessment of the market environment

9c) *There is a negative relationship between the time allocated to the valuation of an entrepreneur's (management's) human capital and the perceived accuracy of the assessment of a market environment*

	Model 1. Control only				Model 2. Full model			
	Beta	T	Sig.	VIF	Beta	T	Sig.	VIF
<i>Control variables</i>								
Distance to the investee company	-0.117	-0.829	0.411	1.008	-0.129	-0.922	0.361	1.013
Size of the investment	-0.040	-0.286	0.776	1.008	-0.049	-0.348	0.729	1.010
<i>Independent variables</i>								
Accuracy of the assessment of a market environment					0.187	1.340	0.186	1.007
R = 0.226								
R ² =0.051								
Adjusted R ² = -0.007								
R square change								
F=0.876								
N=52								

The control variables are insignificant.

The relationship between ownership and control through involvement

10a) *There is a negative relationship between an entrepreneur's and management's level of ownership and the degree of involvement of business angels*

10b) *There is a positive relationship between an investor's level of ownership and their degree of involvement*

	Model 1. Control only				Model 2. Full model			
	Beta	T	Sig.	VIF	Beta	T	Sig.	VIF
<i>Control variables</i>								
Distance to the investee company	0.079	0.555	0.582	1.000	0.053	0.408	0.685	1.043
Stage of development	0.085	0.598	0.553	1.000	0.037	0.262	0.795	1.226
<i>Independent variables</i>								
Level of ownership of an entrepreneur (management)					0.231	1.574	0.122	1.311
Level of ownership of an investor					0.510	3.655	0.001***	1.186
R = 0.494								
R ² =0.244								
Adjusted R ² = 0.178								
R square change								
F=3.704								
N=50								

The control variables are highly insignificant.

The relationship between the asset base and the allocation of control through involvement

- 11a) *There is a negative relationship between tangible assets to total assets and the degree of involvement of business angels*
 11b) *There is a positive relationship between the level of indebtedness and the degree of involvement of business angels*

	Model 1. Control only				Model 2. Full model			
	Beta	T	Sig.	VIF	Beta	T	Sig.	VIF
<i>Control variables</i>								
Distance to the investee company	0.079	0.555	0.582	1.000	0.062	0.427	0.671	1.006
Stage of development	0.085	0.598	0.553	1.000	0.109	0.729	0.470	1.087
<i>Independent variables</i>								
Tangible to total assets					0.086	0.569	0.572	1.092
Equity to total capital					0.149	0.996	0.325	1.088
R=0.219								
R ² =0.048								
Adjusted R ² =-0.035								
R square change								
F=0.581								
N=50								

The control variables are insignificant.

The inclusion of covenants mitigating the hold-up problem

12a) There is a negative relationship between the inclusion of covenants mitigating the hold-up problem and the degree of involvement of business angels

	Model 1. Control only				Model 2. Full model			
	Beta	T	Sig.	VIF	Beta	T	Sig.	VIF
<i>Control variables</i>								
Distance to the investee company	0.079	0.555	0.582	1.000	0.091	0.662	0.511	1.002
Stage of development	0.085	0.598	0.553	1.000	0.043	0.310	0.758	1.023
<i>Independent variables</i>								
Covenants mitigating the hold-up problem					0.279	2.002	0.051*	1.025
R = 0.299								
R ² = 0.089								
Adjusted R ² = 0.032								
R square change								
F = 1.571								
N = 51								

The control variables are insignificant.

The inclusion of covenants mitigating the hold-up problem

12b) There is a negative relationship between tangible assets to total assets and the inclusion of covenants mitigating the hold-up problem

	Model 1. Control only				Model 2. Full model			
	Beta	T	Sig.	VIF	Beta	T	Sig.	VIF
<i>Control variables</i>								
Distance to the investee company	-0.054	-0.382	0.704	1.000	-0.043	-0.306	0.761	1.007
Stage of development	0.132	0.942	0.351	1.000	0.157	1.099	0.277	1.043
<i>Independent variables</i>								
Tangible to total assets					-0.127	-0.886	0.380	1.050
R = 0.188								
R ² = 0.035								
Adjusted R ² = 0.032								
R square change								
F = 0.617								
N = 52								

As in all the previous (full) models, the control variables are insignificant.

APPENDIX 8 CORRELATIONS BETWEEN THE STUDY VARIABLES

Correlations for sources for due diligence and the stage of development

	r	sig.
Own due diligence report	0.097	0.487
Business plan	0.083	0.552
CV of the entrepreneur (management)	0.05	0.72
Interviews with the entrepreneur (management)	0.083	0.552
Interviews with other company personnel	0.141	0.313
Management projections	0.164	0.239
Proposed exit and method	0.095	0.497
Sales and marketing information	-0.016	0.911
Product capacity/ technical information	-0.044	0.754
Product information	-0.016	0.911
Market research study	0.141	0.313
External due diligence report	0.463	0.000***
Independent reports on the financial situation	0.527	0.000***
Other investors	-0.235	0,09*
Financial advisors	0.147	0.294
Investee's current customers	-0.018	0.897
Investee's potential customers	-0.111	0.43
Investee's bankers	0.372	0.006***
Investee's accountants	0.446	0.001***
Investee's partners	-0.014	0.923

Table 1a

Correlations for valuation methods and stage the stage of development

	r	sig.
Estimate on future earnings	0.22	0.114
Capitalized maintainable earnings (P/E multiple)	0.254	0.066*
Pay back period	0.197	0.157
Discounted future cash flows (DCF)	0.187	0.179
Historic cost to book	0.411	0.002***
Replacement cost asset value	0.193	0.166

Table 1b

Correlations for the valuation of an entrepreneurs' and managements' human capital and the stage of development

	r	sig.
Specification of qualities and competencies needed prior to talking to the entrepreneur	0.128	0.361
Talking to the entrepreneur (management) about his (their) actual experiences	0.201	0.149
Reviewing resumes of the entrepreneur (management)	0.004	0.98
Reviewing articles on the entrepreneur and management	-0.12	0.392
Using on-line or other media to gather information on key people	0.268	0.053*

Table 1c

Correlations for sources for due diligence and the perceived level of innovativeness

	r	sig.
Own due diligence report	-0.065	0.645
Business plan	0.069	0.623
CV of the entrepreneur (management)	0.003	0.983
Interviews with the entrepreneur (management)	-0.007	0.959
Interviews with other company personnel	-0.178	0.202
Management projections	-0.122	0.386
Proposed exit and method	-0.012	0.932
Sales and marketing information	0.217	0.119
Product capacity/ technical information	0.25	0.07*
Product information	0.308	0.025**
Market research study	0.176	0.207
External due diligence report	-0.142	0.309
Independent reports on the financial situation	-0.258	0.062*
Other investors	0.097	0.491
Financial advisors	-0.007	0.959
Investee's current customers	-0.015	0.914
Investee's potential customers	-0.062	0.661
Investee's bankers	-0.131	0.384
Investee's accountants	-0.097	0.491
Investee's partners	-0.143	0.306

Table 2a

Correlations for valuation methods and the perceived level of innovativeness

	r	sig.
Estimate on future earnings	-0.028	0.84
Capitalized maintainable earnings (P/E multiple)	-0.097	0.49
Pay back period	-0.045	0.75
Discounted future cash flows (DCF)	-0.136	0.33
Historic cost to book	-0.107	0.447
Replacement cost asset value	0.007	0.959

Table 2b

Correlations for the valuation of an entrepreneurs' and managements' human capital and the perceived level of innovativeness

	r	sig.
Specification of qualities and competencies needed prior to talking to the entrepreneur	0.088	0.53
Talking to the entrepreneur (management) about his (their) actual experiences	0.068	0.63
Reviewing resumes of the entrepreneur (management)	0.117	0.406
Reviewing articles on the entrepreneur and management	0.071	0.611
Using on-line or other media to gather information on key people	-0.176	0.206

Table 2c

Correlations for sources for due diligence and the degree of industry sector experience of an investor

	r	sig.
Own due diligence report	0.2	0.15
Business plan	-0.023	0.87
CV of the entrepreneur (management)	-0.142	0.312
Interviews with the entrepreneur (management)	-0.228	0.1
Interviews with other company personnel	0.052	0.713
Management projections	-0.076	0.588
Proposed exit and method	-0.16	0.251
Sales and marketing information	0.101	0.471
Product capacity/ technical information	0.142	0.309
Product information	-0.187	0.18
Market research study	0.278	0.044**
External due diligence report	0.042	0.766
Independent reports on the financial situation	0.137	0.33
Other investors	-0.027	0.846
Financial advisors	0.141	0.313
Investee's current customers	0.156	0.266
Investee's potential customers	0.042	0.767
Investee's bankers	0.122	0.382
Investee's accountants	0.125	0.371
Investee's partners	0.11	0.434

Table 3a

Correlations for the valuation methods and the degree of industry sector experience of an investor

	r	sig.
Estimate on future earnings	0.155	0.267
Capitalized maintainable earnings (P/E multiple)	0.197	0.158
Pay back period	0.053	0.706
Discounted future cash flows (DCF)	0.071	0.661
Historic cost to book	0.127	0.365
Replacement cost asset value	-0.088	0.533

Table 3b

Correlations for the valuation of an entrepreneur's and management's human capital and the industry sector experience of an investor

	r	sig.
Specification of qualities and competencies needed prior to talking to the entrepreneur	0.182	0.192
Talking to the entrepreneur (management) about his (their) actual experiences	0.152	0.278
Reviewing resumes of the entrepreneur (management)	0.132	0.348
Reviewing articles on the entrepreneur and management	0.266	0.055*
Using on-line or other media to gather information on key people	0.122	0.383

Table 3c

Correlations for sources for due diligence and experience as an investor

	r	sig.
Own due diligence report	-0.178	0.203
Business plan	-0.061	0.666
CV of the entrepreneur (management)	-0.237	0.087
Interviews with the entrepreneur (management)	0.181	0.193
Interviews with other company personnel	0.062	0.657
Management projections	-0.054	0.701
Proposed exit and method	0.134	0.337
Sales and marketing information	0.109	0.436
Product capacity/ technical information	0.099	0.479
Product information	-0.007	0.959
Market research study	0.03	0.831
External due diligence report	0.085	0.544
Independent reports on the financial situation	-0.027	0.848
Other investors	-0.271	0.049**
Financial advisors	0.181	0.194
Investee's current customers	0.214	0.125
Investee's potential customers	0.202	0.147
Investee's bankers	0.228	0.101
Investee's accountants	0.24	0.084
Investee's partners	0.318	0.02**

Table 4a

Correlations for the valuation methods and experience as an investor

	r	sig.
Estimate on future earnings	-0.024	0.867
Capitalized maintainable earnings (P/E multiple)	0.163	0.243
Pay back period	0.328	0.016**
Discounted future cash flows (DCF)	0.066	0.639
Historic cost to book	0.37	0.006***
Replacement cost asset value	-0.043	0.761

Table 4b

Correlations for valuation of an entrepreneur's and management's human capital and experience as an investor

	r	sig.
Specification of qualities and competencies needed prior to talking to the entrepreneur	0.403	0.003***
Talking to the entrepreneur (management) about his (their) actual experiences	0.523	0.000***
Reviewing resumes of the entrepreneur (management)	-0.15	0.284
Reviewing articles on the entrepreneur and management	-0.2	0.151
Using on-line or other media to gather information on key people	0.474	0.000***

Table 4c

Correlations sources for due diligence and the estimate for signaling through relationship specific investments

	r	sig.
Own due diligence report	-0.067	0.634
Business plan	0.173	0.214
CV of the entrepreneur (management)	0.101	0.471
Interviews with the entrepreneur (management)	0.068	0.63
Interviews with other company personnel	0.064	0.651
Management projections	0.163	0.243
Proposed exit and method	-0.017	0.904
Sales and marketing information	-0.037	0.795
Product capacity/ technical information	0.001	0.992
Product information	0.059	0.676
Market research study	0.023	0.872
External due diligence report	-0.028	0.841
Independent reports on the financial situation	-0.185	0.184
Other investors	0.021	0.882
Financial advisors	-0.134	0.341
Investee's current customers	0.093	0.507
Investee's potential customers	-0.1	0.475
Investee's bankers	0.062	0.658
Investee's accountants	-0.081	0.562
Investee's partners	-0.091	0.517

Table 5a

Correlations for valuation methods and the estimate for signaling through relationship specific investments

	r	sig.
Estimate on future earnings	-0.066	0.64
Capitalized maintainable earnings (P/E multiple)	-0.16	0.251
Pay back period	0.011	0.938
Discounted future cash flows (DCF)	-0.1	0.476
Historic cost to book	0.081	0.566
Replacement cost asset value	-0.015	0.915

Table 5b

Correlations for the valuation of an entrepreneur's and management's human capital and the estimate for signaling through relationship specific investments

	r	sig.
Specification of qualities and competencies needed prior to talking to the entrepreneur	0.307	0.026**
Talking to the entrepreneur (management) about his (their) actual experiences	0.336	0.014**
Reviewing resumes of the entrepreneur (management)	0.189	0.176
Reviewing articles on the entrepreneur and management	-0.046	0.741
Using on-line or other media to gather information on key people	0.239	0.089*

Table 5c

Correlations for sources for due diligence and syndication

	r	sig.
Own due diligence report	-0.114	0.417
Business plan	-0.124	0.375
CV of the entrepreneur (management)	-0.061	0.664
Interviews with the entrepreneur (management)	-0.124	0.375
Interviews with other company personnel	-0.019	0.891
Management projections	-0.121	0.387
Proposed exit and method	0.054	0.699
Sales and marketing information	-0.224	0.106
Product capacity/ technical information	-0.218	0.116
Product information	0.04	0.777
Market research study	0.151	0.281
External due diligence report	-0.102	0.469
Independent reports on the financial situation	-0.261	0.059*
Other investors	0.413	0.002***
Financial advisors	0.121	0.387
Investee's current customers	-0.262	0.058*
Investee's potential customers	-0.202	0.147
Investee's bankers	0.066	0.638
Investee's accountants	-0.245	0.077*
Investee's partners	-0.289	0.036**

Table 6a

Correlations for the evaluation methods and syndication

	r	sig.
Estimate on future earnings	-0.23	0.098*
Capitalized maintainable earnings (P/E multiple)	-0.08	0.569
Pay back period	-0.176	0.207
Discounted future cash flows (DCF)	-0.09	0.52
Historic cost to book	-0.086	0.54
Replacement cost asset value	-0.095	0.497

Table 6b

Correlations for the valuation of an entrepreneur's and management's human capital and syndication

	r	sig.
Specification of qualities and competencies needed prior to talking to the entrepreneur	0.076	0.591
Talking to the entrepreneur (management) about his (their) actual experiences	0.077	0.584
Reviewing resumes of the entrepreneur (management)	0.116	0.408
Reviewing articles on the entrepreneur and management	0.081	0.563
Using on-line or other media to gather information on key people	0.002	0.988

Table 6c

Correlations for sources for due diligence and the type of investor

	r	sig.
Own due diligence report	-0.156	0.351
Business plan	0.012	0.941
CV of the entrepreneur (management)	-0.043	0.798
Intreviews with the entrepreneur (management)	0.012	0.941
Interviews with other company personnel	0.045	0.789
Management projections	0.023	0.892
Proposed exit and method	0.205	0.218
Sales and marketing information	0.023	0.892
Product capacity/ technical information	0.031	0.851
Product information	0.19	0.254
Market research study	0.04	0.81
External due diligence report	0.275	0.094*
Independent reports on the financial situation	-0.167	0.315
Other investors	-0.018	0.917
Financial advisors	0.122	0.467
Investee's current customers	0.191	0.251
Investee's potential customers	0.304	0.063*
Investee's bankers	0.328	0.045**
Investee's accountants	0.011	0.946
Investee's partners	0.179	0.283

Table 7a

Correlations for valuation methods and the type of investor

	r	sig.
Estimate on future earnings	-0.218	0.189
Capitalized maintainable earnings (P/E multiple)	0.078	0.643
Pay back period	-0.094	0.576
Discounted future cash flows (DCF)	0.211	0.204
Historic cost to book	0.057	0.732
Replacement cost asset value	-0.173	0.298

Table 7b

Correlations for valuation of an entrepreneur's and management's human capital and the type of investor

	r	sig.
Specification of qualities and competencies needed prior to talking to the entrepreneur	-0.215	0.195
Talking to the entrepreneur (management) about his (their) actual experiences	-0.118	0.482
Reviewing resumes of the entrepreneur (management)	-0.252	0.128
Reviewing articles on the entrepreneur and management	-0.091	0.587
Using on-line or other media to gather information on key people	0.018	0.915

Table 7c

Correlations for sources for due diligence and the perceived accuracy of the assessment of a market environment

	r	sig.
Own due diligence report	0.143	0.306
Business plan	-0.16	0.254
CV of the entrepreneur (management)	0.013	0.925
Intreviews with the entrepreneur (management)	-0.174	0.214
Interviews with other company personnel	0.206	0.139
Management projections	-0.027	0.851
Proposed exit and method	0.058	0.682
Sales and marketing information	0.106	0.449
Product capacity/ technical information	0.109	0.435
Product information	-0.068	0.627
Market research study	0.076	0.587
External due diligence report	0.051	0.717
Independent reports on the financial situation	0.056	0.691
Other investors	0.158	0.258
Financial advisors	0.254	0.066*
Investee's current customers	0.297	0.031**
Investee's potential customers	-0.151	0.282
Investee's bankers	0.238	0.087*
Investee's accountants	0.11	0.434
Investee's partners	0.061	0.666

Table 8a

Correlations for the valuation methods and the perceived accuracy of the assessment of a market environment

	r	sig.
Estimate on future earnings	0.11	0.431
Capitalized maintainable earnings (P/E multiple)	-0.057	0.687
Pay back period	0.07	0.62
Discounted future cash flows (DCF)	0.207	0.137
Historic cost to book	-0.032	0.822
Replacement cost asset value	0.184	0.188

Table 8b

Correlations for the valuation of an entrepreneur's and management's human capital and the perceived accuracy of the assessment of a market environment

	r	sig.
Specification of qualities and competencies needed prior to talking to the entrepreneur	0.192	0.168
Talking to the entrepreneur (management) about his (their) actual experiences	0.171	0.222
Reviewing resumes of the entrepreneur (management)	0.162	0.247
Reviewing articles on the entrepreneur and management	-0.021	0.884
Using on-line or other media to gather information on key people	0.08	0.567

Table 8c

Correlations between independent variables in the regression models

Independent variables	N	1	2
Stage of development	53	1	
Perceived level of innovativeness	53	-0.391***	1

Pearson's bivariate correlations

Control variables; distance to the investee company, size of the investment

* $p < .1$

** $p < .05$

*** $p < .01$

Table 9

Independent variables	N	1	2
Industry sector experience	53	1	
Experience as an investor	53	0.175	1

Pearson's bivariate correlations

Control variables; distance to the investee company, size of the investment

* $p < .1$

** $p < .05$

*** $p < .01$

Table 10

Independent variables	N	1	2
Level of ownership of the entrepreneur (management)	53	1	
Level of ownership of the investors	53	-0.349***	1

Pearson's bivariate correlations

Control variables; distance to the investee company, stage of development

* $p < .1$

** $p < .05$

*** $p < .01$

Table 11

Independent variables	N	1	2
Tangible to total assets	52	1	
Equity ratio	52	0.158	1

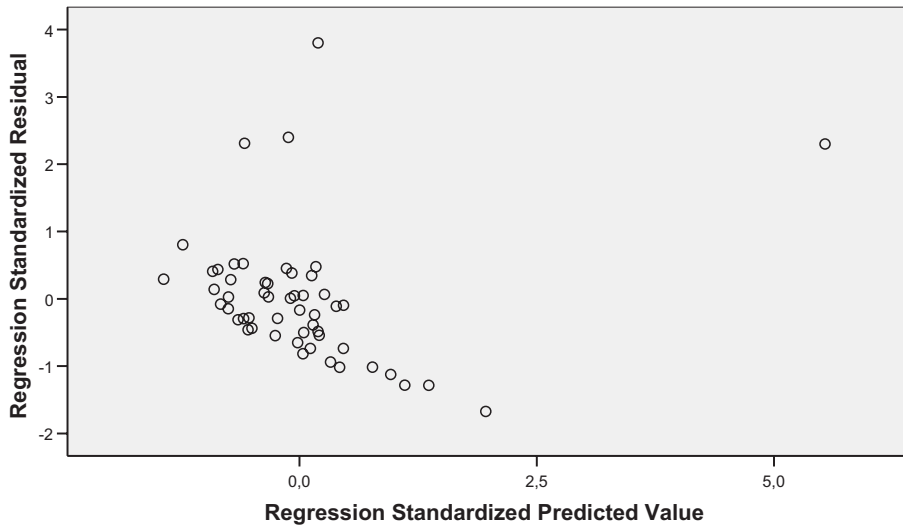
Pearson's bivariate correlations
Control variables; distance to the investee company, stage of development
* $p < .1$
** $p < .05$
*** $p < .01$

Table 12

APPENDIX 9 DISTRIBUTION OF THE ERROR TERM

Scatterplot

Dependent Variable: Hours in evaluating the human capital of entrepreneur and management



Regression model 11:

Dependent variable: valuation of an entrepreneur's and management's human capital

Independent variables: industry sector experience, experience as an investor

Control variables: size of the investment, distance to the investee company

The variability in the values for the standardized residuals seems to increase when the standardized predicted values for the regression are higher, which indicates that the values for the error term were not entirely normally distributed. However, the deviation from normality is relatively mild, which is why this study does not aim at correcting for it through using weighted least squares (instead of ordinary least squares).