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Chapter 11 Venture Capital

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ABSTRACT

In this chapter, we introduce venture capital, a subset of the private equity asset class that focuses on investments in new or growing privately-held companies with high potential. We specifically address why venture capital markets exist; what the different venture capital models are; what venture capitalists do; how venture capital investors influence the development of their portfolio companies; and how venture capital as an asset class creates value for investors. For this purpose, we rely on an extensive and growing, but largely fragmented, stream of research on venture capital from respectively the finance, entrepreneurship and management fields.

INTRODUCTION

Although private equity currently represents a major component of the alternative investment universe (EVCA, 2004; Metrick and Yasuda, 2011), its functioning is not always well understood. Private equity refers to unregistered equity and equity linked securities sold by private (and sometimes public) companies or partnerships to financial buyers. It encompasses an array of

investment activities, including venture capital, buyout financing or restructuring capital. Venture capital is hence a subset of private equity and specifically refers to equity or equity linked investments made for the launch, early growth or expansion of companies. It is distinctive from buyout which refers to investments in more mature companies with established business plans to acquire equity stakes from existing shareholders such as families or corporates (EVCA, 2004). This chapter is exclusively dealing with venture capital, thereby leaving the discussion of buyout investments for Chapter 13.

Driven by technological developments in ICT, Internet and biotechnology, the venture capital industry experienced an extraordinary growth over the last decades and is now broadly accepted as an established asset class within many institutional portfolios worldwide (EVCA, 2004). Funds committed to venture capital increased dramatically from $2.3 billion in 1990 to a record of $104.8 billion in 2000 in the United States (NVCA, 2011). While the burst of the Internet bubble halted this phenomenal development, funds committed to venture capital still equaled $12.3 billion in 2010 (NVCA, 2011). Similar trends are observed in Europe and Australasia, where venture capital markets have grown significantly over the last decades. China, for instance, nowadays represents one of the fastest growing venture capital markets in the world (Ahlstrom et al., 2007). In addition, while the venture capital industry had long been a local industry, the last decade has witnessed a remarkable growth in the international flows of venture capital worldwide (Alhorr et al., 2008; Meuleman and Wright, 2011; Manigart et al., 2010). As local markets become increasingly competitive, venture capital investors have broadened their geographic investment criteria to include overseas companies so as to increase their portfolio diversification and search for higher returns. In Europe, for instance, the share of inflows of venture capital from non-domestic sources was just over 50% of the market between 2005 and 2009 and the share of total outflows accounted for by cross-border investments equaled close to 35% of the market over the same time period (EVCA, 2010).

In this chapter, we review the academic literature on venture capital. While we do not minimize the importance of the numerous research papers that have studied various aspects of venture capital over the past decades, we have decided to emphasize some key questions. We apologize in advance to the researchers not cited. More specifically, we address the following questions: why do venture capital markets exist; what are the different venture capital models; what do venture capital investors do; how do venture capital-backed companies perform and how does venture capital as an asset class create value for investors? For some other excellent surveys on venture capital see, for instance, Sahlman (1990), Barry (1994), Berger and Udell (1998), Wright and Robbie (1998) or Metrick and Yasuda (2011). Our review of the literature is distinctive from these previous studies in that we combine insights from the largely fragmented finance, entrepreneurship and management literatures.

WHY DO VENTURE CAPITAL MARKETS EXIST?

Evidence on the financing of entrepreneurial companies indicates that most of their financing needs are addressed by traditional sources of financing, such as internal finance (including retained profits and owner funds) and bank finance (e.g., Berger and Udell, 1998; Brav, 2009; Cosh et al., 2009; Ou and Haynes, 2006; Vanacker and Manigart, 2010). One of the most fundamental questions to ask is hence why entrepreneurial companies need a specialized set of investors such as venture capital firms? Put differently, why do venture capital firms exist as separate financial intermediaries? Venture capital investors have a comparative advantage over traditional financing sources, such as banks and public equity investors, in working in environments characterized by high information asymmetry and high uncertainty (Amit et al., 1998; Chan, 1983). The main reason why venture capital firms exist is their superior ability to reduce the cost of informational asymmetry related to investing in entrepreneurial companies and their ability to display investment strategies that allow them to cope with high uncertainty.

Two types of informational asymmetry may arise in an entrepreneur - investor relationship: “hidden information” and “hidden action” (Amit et al., 1998). Hidden information refers to the fact that parties hold different information. A classic example of hidden information is the lemons problem (Akerlof, 1970). In the market of used cars, for instance, well-informed sellers generally have more information on the quality of their car compared to less informed buyers, who can only assess the average quality of cars on the market. Given the information disadvantage of buyers, they are only willing to pay the price charged for average quality cars. But sellers of above average quality cars have no incentive to sell at average prices and withdraw from the market, thereby lowering the average quality of the cars still offered for sale. Hidden action refers to the fact that parties cannot fully observe each other’s behavior. A classic example of “hidden action” is the behavior of car insurance buyers (Pauly, 1968). Insurance companies cannot force owners to be careful because car owners’ actions are largely unobservable. Insurance buyers, however, will act in their own self-interest and probably neglect the interest of insurance sellers, for example, by not caring about their car as much as they would in the case they were not insured.

Outside financiers are also confronted with problems originating from hidden information or hidden action when they invest in young, entrepreneurial companies. In the venture capital context, adverse selection pertains to the risk that outside investors select low-quality projects, which have been presented to them as high-quality projects (Amit et al., 1998). Entrepreneurs, by virtue of being intimately involved in their companies, are likely to possess superior information about the prospects of their companies (“hidden information”). Entrepreneurs generally have an incentive to misrepresent any superior information they possess to their advantage when searching for financing. To decrease the risk of adverse selection, venture capital investors engage in extensive information collection in a pre-investment due diligence process. The processes and instruments to reduce information asymmetries used by more traditional investors, such as banks, are insufficient to overcome hidden information problems in

the context of investing in young companies. The screening process of banks, for instance, focuses mainly on historical financial information, but such information is not always available, let alone positive, for young companies (Berger and Udell, 1998; Rosman and O'Neill, 1993). Furthermore, banks typically use collateral to deal with information problems (Berger and Udell, 1998), but young companies with high potential often lack assets that may serve as collateral, since their investments are often in R&D and hence intangible in nature (Carpenter and Petersen, 2002). In contrast, venture capital investors perform extensive due diligence before investing in order to reduce hidden information problems, focusing on the entrepreneurial team, the technology, and product-market characteristics. Companies raising venture capital consequently have little collateral, are characterized by high growth, but high risk, and high prospects of profitability (Ueda, 2004; Heughebaert et al., 2012).

Besides adverse selection problems, outside investors are confronted with "hidden action" problems, since they cannot perfectly observe the effort and actions of entrepreneurs. This may lead to moral hazard problems, especially if the goals of entrepreneurs and investors are not perfectly aligned. After the investment, for instance, entrepreneurs may shirk effort or invest in pet projects in order to achieve private, non-monetary benefits at the expense of outside investors. Venture capital investors have a comparative advantage over banks to reduce moral hazard problems. Banks provide debt finance that involves a fixed claim, which is restricted to interest and principle payments. This gives banks limited incentives to monitor their creditors (Winton and Yerramilli, 2008). Venture capital investors, however, typically provide equity (and equity linked securities) that entail a claim on the company's residual wealth creation. Consequently, venture capital investors have more powerful incentives to tightly monitor their portfolio companies than banks thereby reducing the risk of hidden action, as their return potential depends on company value creation. Taking the above differences between venture capital investors and banks into account, Winton and Yerramilli (2008) argue that raising venture capital finance rather than bank debt is optimal for companies that face high risk and

positively skewed cash flows, with a low probability of success and low liquidation value. Finally, venture capital investors write complex contracts that mainly serve to align the goals of entrepreneurs and investors, thereby further reducing agency risks (Kaplan and Strömberg, 2004; Cumming and Johan, 2008, Cumming, 2008).

Overall, venture capital investors fill an important niche in the financing of young, entrepreneurial companies. Their comparative advantage over other investors, such as banks, relates to their relative efficiency in selecting and monitoring investments characterized by high informational asymmetries and high uncertainty and in writing adequate contracts.

THE DIFFERENT VENTURE CAPITAL MODELS

Figure 1 depicts the typical venture capital model. A typical venture capital firm is organized in a dual model as a limited partnership managing legally independent venture capital funds (Sahlman, 1990; Sammut, 2011), with venture capitalists serving as general partners (GPs) and their investors as limited partners (LPs).

*** Include Figure 1 ***

Investors in venture capital funds (or LPs) typically include institutional investors, such as banks, insurance companies, and pension funds, but also governments, sovereign wealth funds, corporations, family offices and private individuals (EVCA, 2004; 2007). Importantly, LPs cannot participate in the active management of venture capital funds if their liability is to be limited to the amount of their commitments. From an investor's perspective, there are two main alternatives to invest in venture capital besides investing in venture capital funds (EVCA, 2004): (a) direct investments in private companies or (b) outsourcing the selection of venture capital funds through investing in funds of funds. Direct investments in private companies, however, require

more capital to achieve similar diversification as investing in venture capital funds. In addition, direct investments in venture capital require a different skill set which limited partners in venture capital funds typically lack. Investors in funds of funds further need to realize that there will be an additional layer of management fees and expenses involved, but institutional investors thereby reduce their cost of selecting and managing their investments in different venture capital funds.

Most venture capital firms are organized as management companies responsible for managing several pools of capital, each representing a legally separate limited partnership. The economic life of most funds is set at 10 years, although provisions are often included to extend the life of the funds with two years (Sahlman, 1990; Sammut, 2011). Each new fund typically moves through a number of stages (Sammut, 2011). In the investment period stage, typically from year one to year four, the investment portfolio is formed. First round investments are being made in entrepreneurial companies and intense value adding activities are provided. Second round investment to the earliest deals in the portfolio may also occur during this stage. In the fund maturity stage, typically from year three to year seven, follow-on financing rounds are provided to the portfolio companies in order to further support their growth. Some realizations may already occur at this stage. Finally, in the harvest or liquidation stage, typically from year five to the end of a fund's life, fund managers are fully focused on exiting their investments. The most likely exit routes include the sale to other companies in the industry or the company's own management team in a buyout structure. Another exit mechanism, typically reserved for the most successful portfolio companies, is an Initial Public Offering. Failures also remain very common. Puri and Zarutskie (2012) indeed show that after the length of a typical venture capital investment, almost 40% of US venture capital-backed companies fail, some 34% are acquired and 16% go public. The remaining companies are "living death" companies whose equity stakes are difficult to sell.

The compensation of venture capitalists plays a critical role in aligning their interests with those of the limited partners (Sahlman, 1990). A rather homogenous compensation system has emerged within the venture capital industry, including management fees and carried interest (EVCA, 2004; Sammut, 2011). GPs receive a yearly management fee of approximately 1.5-2.5% of total capital committed or total amount invested. These fees serve to pay salaries, due diligence and other costs incurred for the management of the fund. They are often decreasing over a fund's lifetime, as the efforts devoted to managing a fund and its portfolio companies decrease over time. Successful venture capital investors are expected to raise follow-on funds with new fee streams every three to five years. In order to align the interests of LPs and GPs, GPs typically have a carried interest of 20%. This implies GPs obtain 20% of the capital gains realized by the fund. The carried interest is often only applicable if LPs realize a minimum return or 'hurdle'. For successful funds, the carried interest will outweigh the management fees.

Although the limited partnership organizational form, as described above, dominates the venture capital industry, there are other important venture capital models, which have received comparatively little scrutiny from scholars (Manigart & Wright, 2012). First, listed investment firms obtain most of their capital from the stock exchange. An increasing number of private equity firms, partnerships or funds are quoted on stock exchanges (e.g., *3i* in the United Kingdom; *Gimv* in Belgium). As some investors cannot invest in unquoted securities, quoted funds are a good option to invest in this asset class. An important distinction between quoted funds and the more common privately-held funds is the limited ability of quoted funds to return cash to investors. More specifically, when cash is realized from exiting portfolio companies, the cash typically remains inside the quoted fund and hence dilutes its return until the cash can be reinvested (EVCA, 2004). This is distinctive from privately-held funds where investors allocate cash as needed to make new investments. Further, as portfolio companies mature and privately-held funds realize exits, they immediately distribute the exit proceeds to the LPs. Such distinctions are important when considering the return realized by public versus privately-held

funds. Another distinction is that many quoted private equity or venture capital firms are evergreen firms, i.e. they have no explicit liquidation date in contrast with the typical 10-year lifespan of unquoted venture capital firms.

Second, in captive funds one shareholder (for example, a bank, an insurance company, an industrial company or a family office) contributes most of the capital. A parent organization allocates money to the fund from its own internal sources. Banks often seek complementarities between their venture capital and their lending activities. For example, Hellmann and colleagues (2008) show that when banks have a prior relationship with a company in the venture capital market, this increases a bank's likelihood of subsequently granting a loan to that company at more favourable prices. In a similar vein, corporate venture capital funds are not only interested in financial returns, but also in getting a "window on technology". Hence, they search investments in sectors relevant to their core activities in order to identify new technologies (Dushnitsky and Lenox, 2005).

WHAT DO VENTURE CAPITAL INVESTORS DO?

The previous section provided a brief overview of how venture capital firms are typically structured. This section elaborates on what venture capitalists exactly do and how they claim to create value for their portfolio companies and by extension for their investors. The venture capital firm value chain is summarized in Figure 2.

*** Include Figure 2 ***

We focus hereby on the most common dual-structure venture capital firms. Two categories of activities are distinguished: fund-level activities, including fundraising and deal sourcing, and

portfolio company-level activities, including due diligence and selection, deal structuring, monitoring and value adding and exiting.

Fundraising

Fundraising is the first activity that all new venture capital firms have to perform. Successful venture capital investors typically do not manage a single venture capital fund, but they engage in fundraising activities to establish a new venture capital fund some three to five years after the start of their previous fund (Sahlman, 1990). What determines fundraising activities at the industry level? Gompers and Lerner (1998) study industry aggregate, state-level, and firm-specific fundraising to determine if macroeconomic, regulatory, or performance factors affect venture capital activity in the US. Supply-side effects, such as the easing of pension investment restrictions or the overall performance of the venture capital industry, and shifts in demand for venture capital, for example originating from technological breakthroughs or R&D investments, have a positive impact on fundraising levels. Interestingly, commitments by taxable and tax-exempt investors seem equally sensitive to changes in capital gains tax rates, which is consistent with the notion that decreases in capital gain taxes increase the demand for venture capital, as more people are incentivized to become entrepreneurs. Finally, venture capital firm characteristics, such as their reputation, also lead to more fundraising (Gompers and Lerner, 1998).

Differences across countries in venture capital fundraising have traditionally largely been attributed to the development of their stock markets. Black and Gilson (1998) argue that venture capital flourishes especially, and perhaps only, when venture capitalists can exit from successful portfolio companies through initial public offerings (IPOs), which in turn requires an active stock market. Jeng and Wells (2000) analyze the determinants of venture capital investments using a sample of 21 countries. They also find that IPOs are the strongest driver of venture capital investing. However, different types of venture capital are affected differently. In particular, early

stage venture capital investing is negatively impacted by labor market rigidities, while later stage is not. IPOs have no effect on early stage venture capital investing but are a significant determinant of later stage venture capital investing across countries. More recently, Groh et al. (2010) show that although investor protection and capital markets are important determinants in explaining the attractiveness of 27 European countries for institutional investments in the venture capital and private equity asset class, there are numerous other criteria to consider. Survey evidence by Groh and Liechtenstein (2011), for instance, indicates that the protection of property rights is a dominant concern of institutional investors, followed by the need to find local quality general partners, and the quality of management and skills of local entrepreneurs. Interestingly, IPO activity and the size of local public equity markets are not as relevant as proposed by early scholars.

Deal Sourcing

Once a venture capital fund is established, a second challenge is to secure an adequate flow of high quality business proposals to evaluate. Nevertheless, relatively little academic research has focused on this aspect of the venture capital investment cycle. Matching venture capital investors with entrepreneurs is not easy, as this market is not transparent. From a venture capital fund's perspective, it is essential to have access to the best propositions. This may be problematic for newly established firms, as entrepreneurs prefer to team up with investors with a strong reputation (Hsu, 2004). From an entrepreneur's perspective, Kirsch et al. (2006) clearly demonstrate the importance of referrals. In a sample of 1,063 business plans submitted to a single venture capital investor, 277 business plans were unsolicited, but none of these unsolicited proposals received funding. Rather than generating their own deal flow, funds may attract investment proposals through their network of co-investors or syndicate partners. Given the dominance of syndication in the venture capital market (Lerner, 1994; Wright and Lockett, 2003), obtaining a high quality level of deal flow may depend on being able to enter syndication

networks (Yung, 2012). Prior research argues that venture capital investors are more likely to collaborate with other venture capital investors they know from prior investments as this provides information about their specific capabilities and reliability (Hallen, 2008; Meuleman et al., 2010). Experienced investors, by virtue of being actively involved in the venture capital industry, have more ties to other venture capital investors and have more legitimacy, allowing them to enter more syndicate relationships (Hopp, 2010). Less clear is how new venture capital investors obtain central positions in syndication networks and thereby secure access to adequate deal flow.

Selection and due diligence

Venture capital investors are extremely selective. While large venture capital funds may receive hundreds of investments proposals annually, they eventually invest in a portfolio of only 15-25 companies over a five-year period. Many investment proposals do not receive more than a few minutes of the attention of venture capital investors. A quick screening ascertains whether an investment proposal fits with the general investment criteria of the venture capital fund (Fried and Hisrich, 1994). Some venture capital investors, for instance, specialize in certain investment stages (e.g., seed, early stage or development), certain industries (e.g., biotechnology, ICT or retail) or certain geographic regions. Others, however, prefer a more generalist approach (Norton and Tenenbaum, 1993). As an entrepreneur it is important to understand the basic investment criteria of the targeted venture capital investors in order to increase the odds of successfully moving beyond their early selection filter. For example, it is futile for an entrepreneur of a young company to target a venture capital investor with a stated preference for later stage deals.

Proposals that pass the initial screening are subjected to in-depth due diligence before an investment decision is made. How venture capital investors decide in which investment proposals they will invest has been a major research topic since the emergence of academic

research on venture capital. Based on questionnaire evidence, MacMillan et al. (1985: 119) stated that *"irrespective of the horse (product), horse race (market), or odds (financial criteria), it is the jockey (entrepreneur) who fundamentally determines whether the venture capitalist will place a bet at all"*. Venture capital investors are not always successful in selecting the best entrepreneurial companies, however, and extant research has show that venture capital investors are overconfident in selecting the "right" investment (Zacharakis and Meyer 2000; Zacharakis and Shepherd 2001). Venture capital investors are further known to exhibit a local bias. They mostly prefer to invest in companies within their home market, because this eases information transfer which benefits the identification of investment targets, the evaluation of these ventures and post-investment monitoring and value adding (Cumming and Dai, 2010; Hochberg et al., 2010).

Nevertheless, multiple scholars have argued there is no single hierarchy of decision criteria across all venture capital investors (Muzyka et al, 1996). Rather venture capital investors differ on the selection criteria that matter most to them. Knockaert et al. (2010), for instance, identified differences in importance attached to selection criteria in a sample of early stage high tech venture capital investors. Specifically, while some venture capital investors are more likely to focus on management team characteristics, others primarily focus on technological criteria and still others focus mainly on financial criteria when evaluating investment proposals. Kaplan et al. (2009) studied 50 venture capital-backed companies that eventually went public and hence could be described as successful investments. They show that while business lines remain relatively stable from early business plan to IPO, changes to the management team occur frequently. According to the authors, this suggests that the business or technology, rather than the management team, should be the key criterion used by venture capital investors on which to base their investment decisions.

In studies on the selection behavior of venture capital investors, it is often assumed that venture capital investors are the most powerful actors, while entrepreneurs are more or less

passive. However, more recently, scholars have argued and shown that venture capital investing is a multi stage investment process where entrepreneurs may also play a key role in determining the identity of their investors. Eckhardt et al. (2006), for instance, argued that entrepreneurs must first be willing to raise outside finance before venture capital investors can select from the pool of entrepreneurial companies that are willing to raise outside finance. Further, entrepreneurs receiving multiple financing offers from venture capital investors select among competing investors based upon their reputation rather than relying on purely financial criteria (Hsu, 2004). Recently, Hallen and Eisenhardt (2012) identified two "equifinal" paths for how entrepreneurs are able to raise venture capital finance. One path relies on existing strong direct ties, but this path is only available to privileged companies founded by well-networked entrepreneurs or to companies with a venture capital fund in its institutional environment, such as university spin-off funds (Vanacker et al., 2012). The other path relies on the use of "catalyzing strategies", i.e. a means by which entrepreneurs advantageously shape opportunities and inducements to form ties.

Valuation and contracting

A key challenge for venture capital investors is to determine the value of entrepreneurial companies, or alternatively the percentage of equity capital they want in return for their investment (Heughebaert and Manigart, 2012). The valuation of an entrepreneurial company is in essence the same as the valuation of any other economic good: it is the sum of the present value of all future cash flows which will be generated for the investor. Nevertheless, high levels of uncertainty and the option-like character of many entrepreneurial opportunities make the valuation of entrepreneurial companies especially challenging. It is beyond the scope of this chapter, however, to provide detailed insights into how investors value entrepreneurial companies. Rather, we refer the reader to the specialized literature (e.g., Damodaran, 2009).

The required return of venture capital investors is high compared to that of public investors. Venture capital investors not only want to be compensated for the systematic risk of their investment, but also for the illiquidity of their investment and their active involvement in portfolio companies. For early stage deals the average required return will be around 30 to 50%, while for expansion capital the average required return will be around 20 to 30% (Manigart et al., 1997; Sammut, 2011). This has important implications for the types of companies for which venture capital is a suitable source of financing. A required return of 50% entails that company value should be multiplied seven-fold five years after the investment, and seventeen-fold seven years after the investment. This entails that venture capital is only a realistic and suitable financing option for entrepreneurial companies with high growth ambitions and potential. This is confirmed by Puri and Zarutskie (2012) who find that venture capital backed companies tend to be faster growing compared to their non-venture capital backed peers. However, the high ex-ante expected returns by venture capital investors are not necessarily realized ex-post. Rather, a few high growth companies will have to compensate for the many failures in the portfolios of venture capital investors (Sahlman, 1990).

Next to valuation at investment, venture capital investors write complex contracts that optimize both their cash flow rights and their control rights, thereby shifting risk to entrepreneurs. There is an extensive literature emerging on the contracts between venture capitalists and their portfolio companies. Two particular features of this contract, namely the use of convertible securities and staged financing, have drawn significant attention. Using data on 213 venture capital investments in 119 portfolio companies by 14 US venture capital firms, Kaplan and Strömberg (2003) show that convertible preferred stock is the most commonly used security, appearing in some 95% of finance rounds. These securities optimize an entrepreneur's effort incentives (Schmidt, 2003). Cumming (2005a; b) and Bottazzi and colleagues (2008), however, show that a variety of securities are used by venture capital investors in Canada and in Europe. Bottazzi et al. (2008), for instance, show that instruments used for initial financing include

common equity and warrants in 51% of portfolio companies. In the other cases, straight debt, convertible debt, or preferred equity is used.

Staging implies that venture capital investors commit themselves to further invest if predefined milestones, which may be financial or non-financial (e.g., technical milestones), are met. Staging gives venture capitalists an option to abandon companies if they do not perform as expected. It is considered to be one of the strongest control mechanisms used by venture capitalists as it provides a powerful incentive for entrepreneurs to perform well (Sahlman, 1990). Gompers (1995) studies a sample including 2,143 equity finance rounds in 794 venture capital backed companies for the period 1961 to 1992. He shows that decreases in industry ratios of tangible assets to total assets, higher market-to-book ratios, and greater research and development intensities are associated with shorter funding durations and hence tighter control.

Monitoring and value adding

In order to reduce hidden action problems after the investment, venture capital investors are strongly engaged in their portfolio companies. The literature identifies three broad post-investment activities: (a) monitoring, (b) assisting and (c) certifying their portfolio companies. Gorman and Sahlman (1989) showed that, on average, venture capital investors spend over half their time on monitoring and assisting portfolio companies. Next to decreasing hidden action problems, their involvement is expected to further increase the return potential of their portfolio companies.

First, venture capital investors actively monitor the progress of their portfolio companies. Venture capital investors often require board seats, linked with veto rights and other contractual provisions, which allow them to influence the behavior of entrepreneurs. Boards of directors in venture capital backed companies are smaller and more involved in both strategy formation and evaluation than are boards where members do not have large ownership stakes (Fried et al., 1998). Lerner (1995) examined the representation of venture capitalists, as intensive monitors

of managers, on the boards in their portfolio companies. He showed that venture capitalists' representation on the board increases around the time of chief executive officer turnover. Moreover, the distance to the company is an important determinant of the board membership of venture capital investors.

Second, venture capital investors professionalize their portfolio companies and influence how their portfolio companies are run. Venture capital-backed companies are better able to add structure and experience to the management team compared to non-venture capital-backed companies (Beckman and Burton, 2008), including the development of human resource policies, the adoption of stock option plans (Hellmann and Puri, 2002) or the adoption of management accounting systems (Davila and Foster, 2005). They are also more likely and faster to replace the founder with a professional CEO (Hellmann and Puri, 2002). Venture capital investors further bring valuable networks of contacts with suppliers, customers, financiers and other stakeholders (Hochberg et al. 2007; Sapienza et al., 1996).

Finally, even without being actively involved in their portfolio companies, the mere fact that a company is able to raise financing from venture capital investors may certify its quality to outsiders. For example, venture capital backed companies are able to attract more employees compared to non-venture capital backed companies in Silicon Valley (Davila et al., 2003). Controling for portfolio company quality, Vanacker and Forbes (2012) show that Belgian companies backed by venture capital investors with more industry-specific experience are able to raise more follow-on (debt and equity) financing. In addition, portfolio companies backed by venture capital investors with more media citations are able to attract more employees over time. Further, Megginson and Weiss (1991) found early support for the certification role of venture capitalists in IPOs: venture capital backing resulted in significantly lower underpricing and gross spreads in the 1980s in the US. Interestingly, this effect seems to have disappeared recently (Lee and Wahal, 2004), and is not found in IPOs in other parts of the world (e.g. da Silva Rosa et al., 2003, for Australia; Bruton et al., 2009, for the UK; Elston and Yang, 2010, for Germany).

Since Gorman and Sahlman (1989), a large number of studies have contributed to our understanding of the conditions under which venture capital investors engage in monitoring and value adding activities. Prior research has demonstrated that the involvement of venture capitalists in their portfolio companies depends upon a whole range of factors, including company characteristics such as agency risk (Sapienza 1992; Sapienza et al. 1996; Fredriksen et al. 1997), entrepreneurial characteristics (Sapienza 1992; Sapienza et al. 1996), investment manager characteristics (Sapienza et al. 1996; Dimov and Shepherd 2005; Bottazzi et al. 2008), venture capital fund and firm characteristics (Bottazzi et al. 2008; Sorensen 2007), external conditions (Sapienza et al., 1996; Bruton et al. 2005), syndication (Brander et al. 2002; De Clercq et al. 2008) and the selection behavior of venture capital investors (Knockaert and Vanacker, 2012). We refer to Manigart and Wright (2012) for a detailed review of this literature.

While the above discussion highlights many positive aspects of venture capital investor involvement for portfolio companies, this should not necessarily be the case. Steier and Greenwood (1995), for instance, point towards some dark sides of venture capital involvement. Through the establishment of milestones with tight time-lines, venture capital investors themselves may paradoxically contribute to many of the delays experienced by start-ups companies. Moreover, the operating logic of venture capital investors may be incompatible with the needs of start-up companies (Steier and Greenwood, 1995). Further, venture capital investors or entrepreneurs may engage in unethical behavior, leading to the emergence of conflict in their relationship (Collewaert and Fassin, 2012).

Exit

The primary goal of venture capital investors is to generate returns from their investments by realizing an exit some three to seven years after the initial investment, thereby turning their illiquid stakes in private companies into realized returns (Gompers and Lerner, 2001). While scholars have often used “exit” rates as a proxy for venture capital fund returns (discussed in

more detail below), one has to be careful. Hochberg and colleagues (2007), for instance, show that the correlation between exit rates and IRRs is only 0.42, thereby suggesting that exit rates are a useful but noisy proxy for IRRs. Consistent with the idea that venture capital investors operate in environments characterized by high informational asymmetries, exits are most likely to happen through sales to informed investors, including other companies in the industry or the company's own management team (Amit et al., 1998). Unfortunately, failures and liquidations also remain an important exit route. Evidence presented by Puri and Zarutskie (2012) suggests that venture capital investors heavily invest in all their portfolio companies for an initial period until they have a better sense of which ones will be the successes. There is a window over which venture capital investors allow their portfolio companies to grow, but once this period is over venture capital investors are just as likely to shut their firms down.

IPOs represent another less frequent but typically successful exit option for venture capitalists, which is more likely in countries with a higher legality index (Cumming et al., 2006). Especially in Continental Europe, but more recently also in the US, venture capital backed IPOs are relatively rare events (La Porta et al., 1999; Ritter et al., 2012). Scholars have argued, however, that *on average* IPOs provide the highest return to investors. Trade sales may include very successful exits, but typically also include less successful exits. Puri and Zarutskie (2012) found no evidence, however, that venture capital investors would camouflage failures through acquisitions.

Scholars have also pointed towards dynamics of exit options for venture capital funds. Giot and Schwienbacher (2007), for instance, show that as time flows, venture capital-backed companies first exhibit an increased likelihood of exiting through an IPO. However, after having reached a plateau, non-exited investments have fewer possibilities of IPO exits as time increases. This sharply contrasts with trade sale exits, where the hazard rate is less time-varying.

The contracting behavior of venture capital investors may also influence the exit options they are likely to pursue. When venture capital investors plan to exit through acquisitions, they obtain stronger control rights and are more likely to use convertible preferred stock (Cumming and Johan, 2008, Cumming, 2008). The identity of venture capital investors may further influence the exit options for their portfolio companies. For example, pre-IPO ownership by foreign venture capital investors is positively related to IPOs on foreign exchanges (Hursti and Maula, 2007).

PERFORMANCE

The previous section highlighted the key activities performed by venture capital investors. The question remains, however, whether venture capital investors actually create value. We first discuss the role of venture capital investors in the performance of their portfolio companies. Next, we discuss whether venture capital investors create value for their investors.

Performance of venture capital-backed companies

How venture capital influences portfolio company-level outcomes, such as performance, survival, or growth has attracted significant attention from scholars. With few exceptions, research has shown a positive association between venture capital and company success. Venture capital-backed IPO companies, for instance, exhibit relatively superior post-issue operating performance compared to their non-venture capital-backed peers (Jain and Kini, 1995). Moreover, the involvement of venture capitalists improves the survival profile of IPO companies (Jain and Kini, 2000). Manigart et al. (2002), however, who do not limit their sample to IPO companies, find that European venture capital-backed companies do not have a higher probability of surviving than comparable non-venture capital-backed companies. More recently, Puri and Zarutskie (2012) showed that US. venture capital-backed companies have a lower

cumulative failure rate, which is especially driven by a much lower likelihood of failing in the first few years after initially receiving venture capital. The difference in failure rate, however, subsequently tapers off. Venture capital is also associated with a sizeable reduction in the time to bring a product to the market (Hellmann and Puri, 2000), higher employment growth (Davila et al., 2003) and an increased investment rate (Bertoni et al., 2010) among other things.

Yet, venture capital investors are not homogenous and scholars have demonstrated how different venture capital investors have a different impact on company-level outcomes. For example, the general human capital of top management teams in venture capital firms is positively associated with the proportion of portfolio companies that go public, while their specific human capital is negatively associated with the proportion of portfolio companies that went bankrupt (Dimov and Shepherd, 2005). It has also been shown that companies which are perceived to be more uncertain and which disclose the presence of more experienced venture capital investors are better able to attract subsequent financing (Janney and Folta, 2006). Companies backed by more experienced investors in their first financing round are more likely to conduct an IPO (Sorensen, 2007). In addition, portfolio companies of better-networked venture capital investors are more likely to survive to subsequent financing and eventual exit (Hochberg et al., 2007). As a final example, Bertoni et al. (2010) show that the investments of firms backed by corporate venture capital investors remain sensitive to shocks in cash flows, whereas firms backed by independent venture capital investors exhibit an insignificant investment to cash flow sensitivity which suggests the removal of financial constraints for these companies.

Do venture capitalists merely select the “best” entrepreneurial companies or do they build the “best” companies through active involvement in their portfolio companies? Baum and Silverman’s (2004) findings point to a joint logic that combines the selection and value adding roles of venture capital investors. Specifically, venture capital investors finance startups that have strong technology, but are at risk of failure in the short run, and so in need of management expertise. Sorensen (2007) also finds that both effects are important to understand why more

experienced venture capital investors invest in companies which are more likely to conduct an IPO. Bertoni and colleagues (2011), however, find that the value adding effect of venture capital investors is of large economic magnitude in their sample of Italian companies. Most of it is obtained immediately after the first round of venture capital finance. The selection effect of venture capital investors, however, appears to be negligible in the Italian context.

Value creation for investors in venture capital

Analysing the performance of venture capital funds is a daunting task, as this information is private. An early empirical study in this domain is that of Ljungqvist and Richardson (2003), who use a dataset derived from the records of one of the largest institutional investors in private equity in the US. Between 1981 and 1993, this LP invested in 73 funds including both venture capital and private equity funds. Private equity investments generated excess returns on the order of five to eight percent per annum relative to the aggregate public equity market. Kaplan and Schoar (2005) investigate the performance of a broader sample of venture capital and private equity partnerships. Their evidence for venture capital funds indicates returns are lower than the S&P 500 on an equal-weighted basis, but higher than the S&P 500 on a capital weighted basis. Phalippou and Gottschalg (2009), however, find an average net-of-fees fund performance of 3% per year below that of the S&P 500. Adjusting for risk brings the underperformance to 6% per year. Nevertheless, substantial heterogeneity exists across funds: top quartile funds out-perform the S&P 500 (Phalippou and Gottschalg, 2009). Interestingly, returns persist strongly across subsequent funds of a partnership, with the best partnerships having a higher probability to continue to outperform (Kaplan and Schoar, 2005; Phalippou and Gottschalg, 2009).

Findings overall indicate that venture capital might create value for investors, especially when investors develop capabilities to select the “best” venture capital partnerships. Access to these top funds is challenging, however, as they can chose between numerous eager investors.

Therefore, this asset class is sometimes referred to as an “access class”. Moreover, as indicated by Ljungqvist and Richardson (2003) the objective of investors to invest in venture capital may not only be to maximize financial returns. Investors, for instance, may have twin investment objectives where they not only want to obtain the highest risk-adjusted return, but also want to increase the likelihood that venture capital funds will purchase services from the limited partner. Banks, for instance, are strategic investors in the venture capital market as they use their venture capital investments to build relations for their lending activities (Hellmann et al., 2008).

SUMMARY AND CONCLUSIONS

In this chapter, we started with providing an overview of why venture capital markets exist. Venture capital investors have a comparative advantage over other traditional investors, such as banks, in reducing informational asymmetries and operating in environments characterized by high uncertainty. Next, we discussed the different venture capital models. The limited partnership structure was described in detail, with venture capitalists serving as general partners and their investors as limited partners. While this is the most common venture capital model worldwide, we also discussed other models, including listed investment firms and captive funds. Then, we described what venture capital investors do. Venture capital investors engage in multiple activities, including fundraising, selecting portfolio companies, structuring their investments in portfolio companies, monitoring their investments, providing value adding services and finally arranging an exit from the portfolio company. Finally, we provided some initial insights into the role of venture capital for portfolio company development and how venture capital may create value for investors. We showed that scholars generally find positive effects of venture capital on the performance, survival and growth of portfolio companies. Not all venture capital is the same, however, and more experienced or better networked venture capital

investors may contribute more to the development of portfolio companies compared to less sophisticated venture capital investors. From the perspective of investors in venture capital, there is some disagreement whether venture capital investors outperform the market. Nevertheless, scholars have demonstrated there exists significant variation in the return generated by venture capital investors. Moreover, scholars have shown the existence of performance persistence across funds of a partnership.

DISCUSSION QUESTIONS

1. Why do banks and venture capital investors coexist within an economy?

2. Comment on the follow-on quote: “Given the pressure of running out of cash for most young, innovative entrepreneurial companies and the unavailability of more traditional sources of financing, raising venture capital is a key milestone”.

3. What are the implications of the traditional venture capital model for entrepreneurs who want to raise venture capital financing?

4. How can venture capital investors increase the probability of realizing a “home run” (i.e., realizing a successful exit)?

5. How can investors in venture capital increase the return potential of their investments? Would you as an investor contribute funds to relatively inexperienced partnerships? Why?

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Figure 1: The dual-structure venture capital model

(Based on: Ooghe et al., 2003; Sammut, 2011)

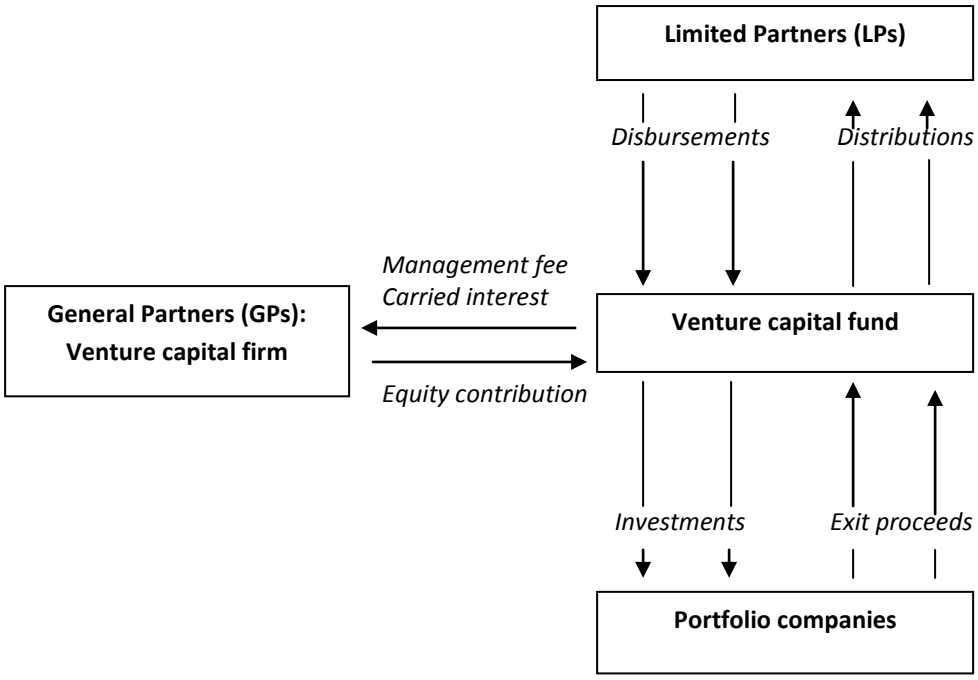
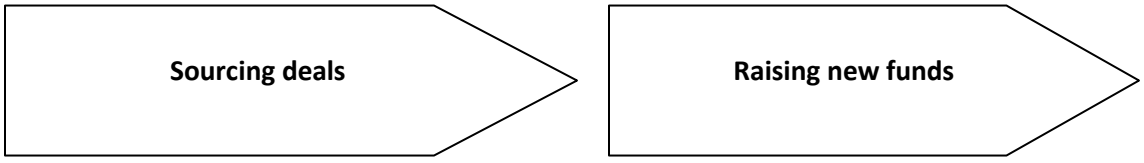


Figure 2: The venture capital firm value chain

(Based on: Fried & Hisrich, 1994; Sammut, 2011)

A. Fund-level activities:



B. Portfolio company-level activities: