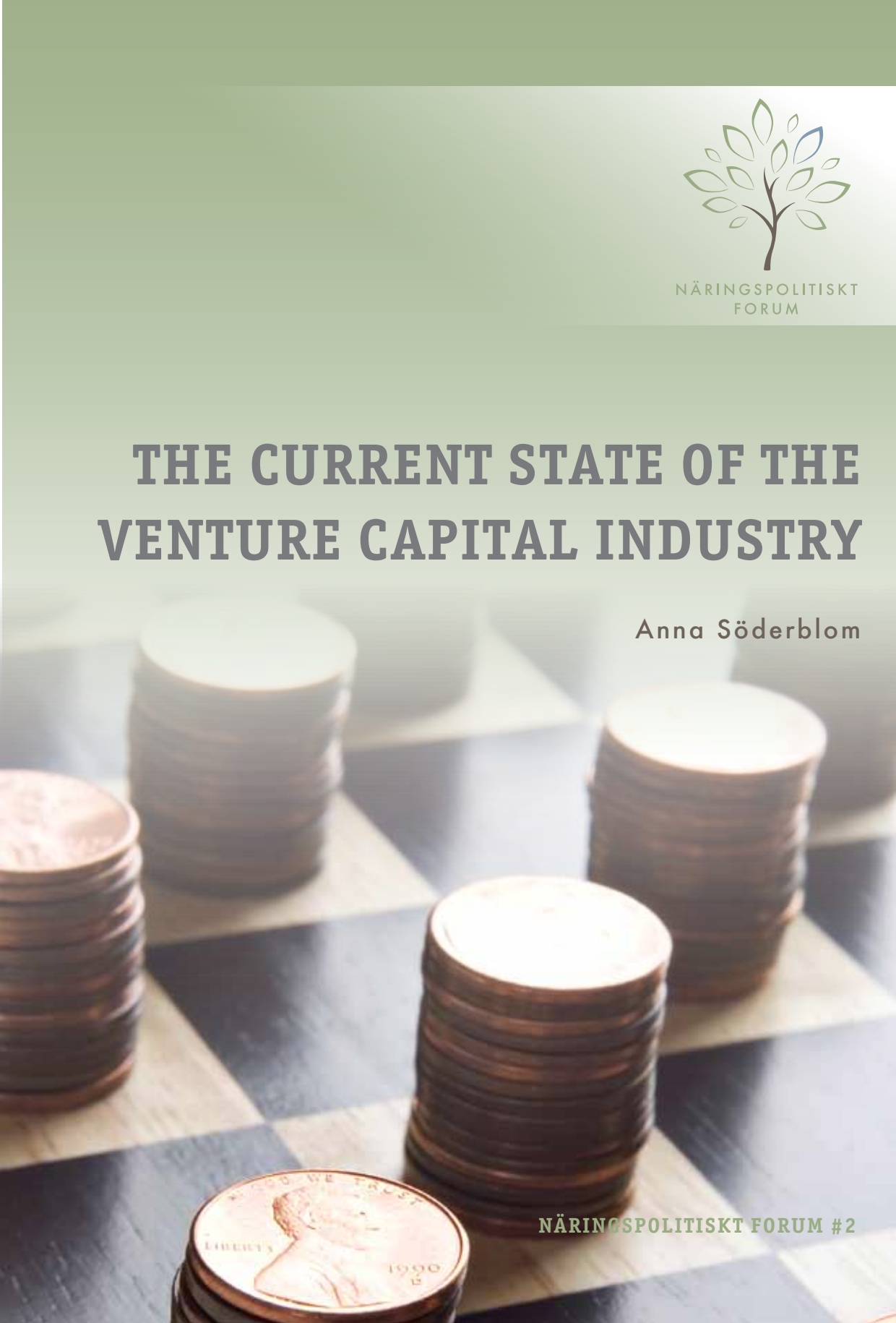
NÄRINGSPOLITISKT FORUM

THE CURRENT STATE OF THE VENTURE CAPITAL INDUSTRY

Anna Söderblom



NÄRINGSPOLITISKT FORUM #2

THE CURRENT STATE OF THE VENTURE CAPITAL INDUSTRY

in relation to other financing sources for startup firms

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Förord

Näringspolitiskt forum är Entreprenörskapsforums mötesplats med fokus på förutsättningar för det svenska näringslivets utveckling och för svensk ekonomis långsiktigt uthålliga tillväxt. Ambitionen är att föra fram policyrelevant forskning till beslutsfattare inom såväl politiken som inom privat och offentlig sektor. De rapporter som presenteras och de rekommendationer som förs fram inom ramen för Näringspolitiskt forum ska vara förankrade i vetenskaplig forskning. Förhoppningen är att rapporterna också ska initiera och bidra till en mer allmän diskussion och debatt kring de frågor som analyseras.

Näringspolitiskt forums andra rapport beskriver den svenska riskkapitalsektorns utveckling och struktur. Den ger ett internationellt perspektiv på den svenska riskkapitalsektorn samt analyserar tillgången på riskkapital och alternativa finansieringsformer för nystartade företag. Vidare diskuteras hur krisåren påverkat utbudet av riskkapital. Rapporten mynnar ut i en rad policyförslag.

Rapporten är författad av Anna Söderblom, ekon.dr. Handelshögskolan i Stockholm. Författaren svarar för de slutsatser och den analys som presenteras. Ekonomiskt stöd har bl.a. erhållits från PwC.

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Pontus Braunerhjelm
VD och professor, Entreprenörskapsforum

Table of contents

3 **Förord**

7 **Executive summary**

9 **Chapter 1: Introduction**
9 Financing of startup firms
12 Research purpose
12 Research methodology
13 Organization of the report

14 **Chapter 2: Financing sources for startup firms**
15 Insider funding and bootstrapping
16 Equity based funding
20 Debt based funding
22 Summary

24 **Chapter 3: Determinants of capital structures**
24 Theoretical perspectives
27 Other factors affecting capital structures
30 Summary

31 **Chapter 4: Capital contributions to startup firms**

33 **Chapter 5: Venture capital**
33 Definition of venture capital
36 Rise and development of the VC industry
38 Current state of the Swedish VC industry
41 The impact of VC financing
50 The VC industry challenge – cyclicality or a broken model?
55 Summary

57 **Chapter 6: Discussion and policy recommendations**
60 Policy recommendations

62 **References**

72 **Appendix**

Executive summary

One area that has received particularly large interest from policymakers, practitioners and scholars alike, is the nature and structure of the financial markets that fund small businesses. That is to say, since lack of funding is considered a major obstacle to firm development, and young and small ventures are believed to be more financially constrained than larger companies, financing of startups is today one of the main concerns among stakeholders in entrepreneurship. The type of funding that has received the lion's share of interest as a major financing source for highly promising startup firms is venture capital (VC).

That venture capital has been of vital importance for a unique set of exceptionally promising young firms is without doubt. Some of the more experienced and well-known VC firms have had many successes over the last three decades by providing not only capital, but also non-financial services in the form of knowledge and networks, which have been of great value to their investee firms. In the late 1990s, the VC industry flourished globally, not least in Sweden. The number of Internet-based small businesses exploded, stock markets developed with lightning speed, and there was of queue of institutional and private investors eager to invest in the large number of VC firms operating on the market. But since the burst of the 'dot com' bubble around year 2000, the industry is widely considered to be in a state of crisis. The industry is characterized by poor returns, where the average VC fund returns have been far below expectations. This has led to a situation where a large number of institutional investors have left the asset class, and thus, that the capital flow to the industry has declined dramatically. As a result, a radical shakeout among VC firms has taken place on a global basis. This is clearly also the case for the Swedish VC market, where the number of operational VC firms has been reduced by at least 65 percent during the last decade. Given that the industry is currently subject to such a great deal of uncertainty and controversy, a critical question is where the market will go from here. The debate tends to be polarized into two main viewpoints: (i) this is a natural downturn due to the inherent cyclicality of the industry from which it will recover, or (ii) the VC model is broken and the industry needs to downsize and undergo fundamental changes. This report provides an overview of the historical development, current situation, and possible future of the venture capital industry in general, and for Sweden in specific.

In addition to the report's major focus on venture capital, it also seeks to examine VC in relation to other financing sources. As stated above, most attention to date from policy makers and scholars within entrepreneurial finance has been given to venture capital while other financial sources are widely ignored. This is surprising given that not only very few small firms in general, but also few high-growth companies, receive venture capital and instead depend on large shares of debt. Therefore, this report in addition attempts to provide a somewhat more holistic perspective on financing sources for startup companies, with a particular focus on high-potential firms.

1. Introduction

1.1. Financing of startup firms

The role of the young entrepreneurial firm as an engine for economic growth has garnered substantial attention during the last couple of decades. Much of this focus stems from the widely shared view that such businesses account for a significant share of new innovations and job creation (e.g., Storey, 1994; Birch et al., 1995; Henrekson and Johanson, 2010). Hence, the possibility for startup firms to develop and prosper has become a major objective for most economies, whereby policy makers put lots of efforts into finding direct or indirect methods to stimulate entrepreneurial efforts. One of the areas that has received particularly large interest from policymakers, practitioners and scholars alike, is the nature and structure of the financial markets that fund small businesses (Berger and Udell, 1998; Cassar, 2004; Denis, 2004).

There are, however, certain types of small firms that get the lion's share of the interest, namely those that have the ability and ambition to grow. While such so called 'high-growth' ventures are few in number, they receive high attention because they are considered to contribute disproportionately to employment and wealth creation in the economy (e.g., Storey, 1994; Birch et al., 1995; Henrekson and Johanson, 2010). High-growth companies appear in all industries, but have typically been viewed as being overrepresented in high-technology sectors. And while startup firms in general are considered to suffer from financial constraints, this is particularly true for young innovative businesses due to high failure risks, mainly intangible assets, and, hence, high information asymmetries between the firms and potential investors (Carpenter and Petersen, 2002; Denis, 2004). Traditional wisdom says that for such firms, equity is the most suitable financing alternative (e.g., Gompers and Lerner, 2001b; Carpenter and Petersen, 2002; Davila et al., 2003). Consequently, a great part of the discussions revolve around the merits of equity as a source of external financing for small high-tech companies, typically portrayed as patient and committed capital, while debt, given the uncertainty and volatility of cash flows, is considered less suitable for the

particular needs of innovative firms (cf. Freel, 2007). Amongst these 'suitable' equity sources, venture capital holds a salient position.

Although still relatively young, the VC industry has already gone through a series of booms and busts. The largest boom to date occurred in the end of the last century when large amounts of capital poured into the industry from both large institutional and small investors, when the number of VC firms peaked, and so did the number of investments and exits. Without doubt, the venture capital industry has contributed to the successes of a great number of, especially high-tech, firms, including a few of the strongest brands in the world, e.g., Microsoft, Apple, Google, and Cisco. Also in Sweden, venture capital has been provided to some of the most successful technology firms founded during the end of the last century, such as ReadSoft, QlikTech, Spotify, Skype and Micronic. The VC industry has however, since the burst of the 'dot com' bubble in year 2000, gone through a difficult period marked by severe shakeouts and consolidation. Many institutional investors escaped the asset class, which resulted in even well managed and successful VC firms in Europe as well as in the US having to struggle for survival. A decade after this collapse, the VC industry has still not recovered on a broad basis (Kedrosky, 2009). Hence, the core question to stakeholders in the VC industry concerns where the market will go from here.

The aims of this report are multiple. First, it seeks to provide a short overview of the development of the VC industry to date, where both the international (particularly the US) and the Swedish markets are elaborated upon. Second, the report sets out to provide a broader understanding about the VC industry in general, with a special emphasize on performance and performance determinants, by presenting some major results arriving from the large body of studies undertaken by venture capital researchers. In excess of 120 peer reviewed papers, book chapters and reports were examined, whereof only a few will be referred to in this report. In times of major change, which apparently characterizes the VC industry at present, there is a particularly great need for timely and up-to-date analyses. However, VC research has to some extent been accused of lacking consideration of temporal contest and, therefore, conclusions have had a tendency to be somewhat outdated (Mason, 2009). Hence, in order to ascertain the state of the current situation, the literature review was complemented, not only by current business press articles and reports, but also by analyses of up-to-date primary and secondary data sources. Thereby, the report intends to provide an up-to-date status of the Swedish VC industry. These areas constitute the central part of the report.

In addition to the report's major focus on venture capital, it also seeks to examine VC in relation to other financing sources. Academic studies of financing for startups focus, almost exclusively, on one single source of capital (Cosh et al., 2009). As indicated previously, most attention from policy makers and scholars within entrepreneurial finance has been given to equity funding, especially venture capital, while other sources are widely ignored (Eckhardt et al., 2006; Vanacker and Manigart, 2010). This is remarkable since recent evidence not only shows that very few small firms appear willing or able to access equity-based risk capital and instead rely upon large proportions of debt – but moreover that this is also the case for most high-growth

companies (Robb and Robinson, 2010; Vanacker and Manigart, 2010; Minola and Giorgino, 2011). Furthermore most firms, even if they are small and young, do not make use of only one source of financing, but rather of several (Huyghebaert and Van de Gucht, 2007). Hence, since capital structure decisions have been found to have major implications on the operations of businesses, potential for future expansion, firm performance, and failure risk (Cassar, 2004), to only investigate one of several funding sources is likely to cause a too simplistic analysis. Therefore, this report also attempts to provide a somewhat more holistic perspective on financing sources for startup companies in general and for high-potential firms in particular. Such a perspective will hopefully offer a broader understanding about alternative ways for policymakers and others to promote necessary financing for young and small, especially high-potential, firms – besides venture capital. Which firms that constitutes 'high-potential' firms requires some further elaboration though.

High-potential startup firms

That young and small firms contribute disproportionately to net employment, productivity growth and regional development, is well documented (Van Praag and Versloot, 2008). A broadly shared view is that the major contributors to wealth creation are young firms that grow unusually fast (Storey, 1994; Birch et al., 1995; Acs and Mueller, 2008; Henrekson and Johanson, 2010). Such entrepreneurial firms with exceptional growth trajectories are typically referred to as high-growth firms or 'gazelles'. The gazelles stand in stark contrast to large companies, 'elephants', but also to 'mice', which constitutes the majority of firms that start out small – and remain small (Birch, 1981; Acs and Mueller, 2008). The gazelles are few in number, but highly valued by policy makers and scholars alike due to their considered significant societal importance, especially for job creation. In a meta-analysis of research about gazelles, Henrekson and Johansson (2010) found that 4-6 percent of new firms generate 60-100 percent of all new jobs.

A variety of common, and distinguishing, characteristics for gazelle firms have been proposed. First, the gazelles tend to be younger than average firms (ibid.). Second, company size is not a differentiating factor, and thus newness is more important than size. Third, in contrast to conventional wisdom gazelles are not especially overrepresented within high-tech sectors, although a slight overweight of such firms have been noticed within the service, knowledge-intensive, education, and healthcare industries (Acs and Mueller, 2008; Henrekson and Johanson, 2010). That is, the gazelles are found in almost every sector, whereby the large emphasis on technology-based industries actually excludes considerations of a vast majority of gazelles (Acs and Mueller, 2008). Particularly with regards to growth expectations, stakeholders tend to exaggerate the importance of technology-based firms (Autio, 1997). For example, despite periods of extremely rapid growth in international technology markets, the reality is that only 10 percent of European high-tech firms grow at any material rate (Schultz, 2011). Last, but not least, the patterns of growth among gazelles are extremely volatile, where few succeed to grow in a consistent linear manner (Delmar et al., 2003; Parker and Storey, 2010). Rather, as contemporary research by Parker and

Storey (2010) shows, the gazelle growth is characterized by a dynamic bust over a short period of time followed by stagnation where most firms fall into the industry average.

The narrow focus on exceptionally fast growing firms, i.e., on the gazelles, has been questioned, at least in two ways. First, within the frame of the gazelles vs. mice debate (Storey, 1994; Davidsson and Delmar, 2006). The debate concerns whether it is the rapid growth of a few firms, or the entry of many new firms, that generates employment growth. It has been suggested that the two views are complementary, where employments in the average new firms are of at least equal importance as the net job contribution of gazelle firms (Henrekson and Johanson, 2010). In other words, a continuous entry of new firms is required to achieve net job creation, not least since only a small subset of the gazelles show sustained growth as discussed above (Henrekson and Johanson, 2010; Parker and Storey, 2010). Second, recent research challenges the universally used assumption that firm growth is a sign of success in itself and that unprofitable growth usually leads to future profits via increased market shares (Davidsson et al., 2005; Steffens et al., 2009). Instead, Davidsson et al. (2005) showed that profitable low-growth firms are more likely to reach the desirable state of high growth and high profitability compared with high-growth/low-profitability types of businesses. In line with these arguments, the current report seeks to broaden the perspective by not only including high-growth (or even more narrowly, high-tech) firms – but instead referring to 'high-potential' firms when discussing young and small businesses with the ambitions and potentials to become viable, medium to large sized, companies.

1.2. Research purpose

The Swedish Entrepreneurship Forum (Entreprenörskapsforum), a Swedish network organization with the aim of generating and transferring policy relevant research in the field of entrepreneurship, has sought to engage an academic researcher to undertake a desk-based research project with the following objectives:

- To describe the current status of the venture capital market, as well as providing a schematic overview of the development of this particular industry in Sweden over the last decades in international comparison, and
- To identify and describe alternative sources of capital to startup firms.

1.3. Research methodology

This desk based research project is first and foremost based on a literature review of well-known peer-reviewed international academic journals and books. Examples of journals are, in alphabetical order: Administrative Science Quarterly, American Economic Review, Economic Policy, Entrepreneurship Theory and Practice, Financial

Management, Journal of Applied Corporate Finance, Journal of Business Venturing, Journal of Corporate Finance, Journal of Economic Perspectives, Journal of Finance, Journal of Financial Economics, Journal of Management Studies, Management Science, Quarterly Journal of Economics, Review of Financial Studies, Small Business Economics, Strategic Change, The Economic Journal, and Venture Capital. Also not yet published papers and reports from leading academic faculties and policy institutes such as SSRN (Social Science Research Network) and NBER (National Bureau of Economic Research), as well as academic working papers from leading European and north American universities are included in the review. In addition, non-academic sources, especially Swedish policy reports, have been valuable in order to understand trends and on-going discussions about financing for startups, for example, reports from the Swedish Agency for Economic and Regional Growth (Tillväxtverket), OECD, the European Commission, EVCA[1] , NVCA[2] , BVCA[3] , and related business newspapers and magazines. The main sources for the articles, papers and reports are the Stockholm School of Economic's electronic journal library and Google Scholar.

While this report primarily constitutes a literature review and summary of existing research about, above all, venture capital, it does also make an attempt to describe the current status of the industry. Hence, a few descriptive statistical analyses of more up-to-date data have been included in the report. The data used derives primarily from: (i) a unique and comprehensive dataset about VC funds founded and operational in Sweden in the period 1983 to 2008, collected within the frame for my dissertation (see Söderblom, 2011), and (ii) data from SVCA[4]. In addition, seven interviews with practitioners currently (October 2011) operational on the Swedish VC market were undertaken (see Appendix 1). The purpose for these interviews was to get a contemporary perspective of the discussions currently going on within the Swedish VC community.

1.4. Organization of the report

The report is organized as follows. Chapter 2 presents various financing sources available to startup firms and comments on the size of each source. Chapter 3 provides a review of micro-based determinants identified in academic research that have been found to affect the capital structures in small and young firms. In chapter 4, an attempt is made to present a very rough estimate of the size that each type of funding represents in relation to the total capital invested in small businesses. Chapter 5 constitutes the core of this report – a presentation of the venture capital field. The final chapter provides a discussion and some suggestions to policy makers.

1. The European Private Equity and Venture Capital Association
2. The National Venture Capital Association
3. The British Venture Capital Association
4. The Swedish Private Equity and Venture Capital Association

2

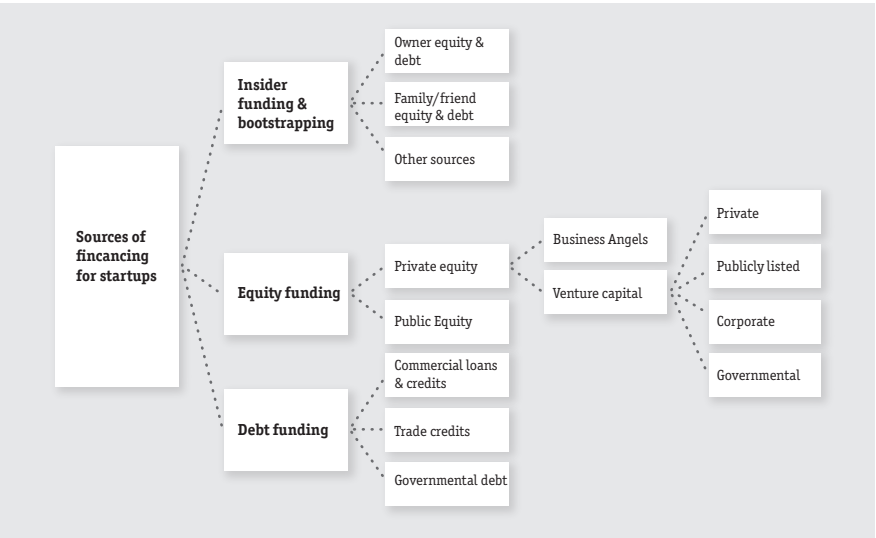
2. Financing sources for startup firms

There are a number of potential financing sources available on the market for startup firms, arriving from commercial banks, venture capitalists, business angels, governmental agencies, private individuals, leasing or factoring companies, shareholders, customers, and suppliers, amongst others. The various sources are often categorized into three groups[5]: (i) insider funding, (ii) equity-based funding, and (iii) debt-based funding. In this chapter, short descriptions of the more common and/or important capital sources for startup firms will be provided, including estimations of their respective proportion of the total capital available to startup firms.

Figure 2.1 provides a schematic overview of these various sources. Most companies obviously receive funding from multiple financiers. For example, Robb and Robinson (2010) put forward that firms that are financed by external equity on average have around 25 percent of its capital structure in debt. And Bozkaya and Van Pottelsberghe De La Potterie (2008) argue that a vast majority of firms that receive venture capital have prior business angel funding. Hence, it would perhaps have been more appropriate to discuss financing baskets for startups rather than separate funding sources. Given that such research is scarce (Huyghebaert and Van de Gucht, 2007), however, the traditional way to discuss each source separately will be followed here as well.

5. The borders between the groups are far from strict. For example, although the primary investment instrument for venture capital is equity, VC investments may include securities that have 'equity features' but actually are debt instruments, e.g., convertible preferred stocks or subordinated debts that include conversion privileges. Or, if a firm violates a loan covenant, i.e., conditions of a debt contract, the debt may be exchanged for ownership in the said firm. Furthermore, insider funding does both include equity and debt capital.

FIGURE 2.1 Overview of major financial sources for start up firms



2.1. Insider funding and bootstrapping

Insider funding refers to the capital provided by the owner/entrepreneur herself, either alone or in combination with family and friends. For a vast majority of startup firms, such funding is primarily constituted of equity whereby the owner invests personal savings into the firm (Robb and Robinson, 2010). To a lower extent, owner debt is used to finance startups, and then mostly in the form of debt carried on the owner's personal credit card (ibid.).

Insider funding is clearly the largest financing source to young and small firms (Berger and Udell, 1998; Bozkaya and Van Pottelsberghe De La Potterie, 2008; Revest and Sapio, 2010). For example, the GEM study shows that more than 60 percent of the startup capital to new ventures stems from the founders (GEM, 2004). Similarly, Berger and Udell (1998) put forward that the principal owner account for around half of the capital utilized in new US ventures. Also Bozkaya and Van Pottelsberghe De La Potterie (2008), for a set of Belgian technology-based startups, found that owner funding was used to finance more than 80 percent of the firms.

Beside the equity and debt-based capital sources that will be discussed next, there are a few other types of financing that are not easily classified but still deserve mentioning. Many of those would be referred to as bootstrapping (Winborg, 2009; Lam, 2010). First, company-retained earnings is obviously a very natural source of funding, which tends to gradually replace outside financing as firms grow (Berger and Udell, 1998; Vanacker and Manigart, 2010). Second, some firms use leasing and factoring

as ways to finance business operations and working capital because such activities free up cash that would otherwise be tied up in fixed assets (Cosh et al., 2009). Third, advance payments from customers are widely used by SMEs in many industries (Winborg and Landström, 2001). Fourth, newer forms of financing made possible by new technology are emerging as alternatives, or rather complements, to the more traditional funding sources for small firms. One example is crowdfunding, where capital is raised from a large audience providing very limited amounts instead of soliciting a small group of sophisticated investors (Agrawal et al., 2010; Belleflamme et al., 2011). Fifth, funding arriving from governmental vehicles. Governments intervene on the market in various ways to facilitate the supply of financing for startups, including the offering of governmental debt (see Section 2.3.3), through direct or indirect involvement in venture capital investing (see Chapter 5), and by providing incentives to private investors to undertake early-stage investments (Lerner, 2002; Leleux and Surlemont, 2003; del-Palacio et al., 2010)[6]. One stream of governmental funding is in the form of grants and subsidies – a very small stream, though, representing less than 0.5 percent of the capital available to startup firms (Berger and Udell, 1998). Finally, corporations have also important roles in the financing of young and small companies. Besides setting up their own corporate venture capital investment organizations or investing in independent VC funds (see Chapter 5), they constitute important financing sources to startup firms in roles such as customers and suppliers, acquirers, or strategic partners (Denis, 2004).

2.2. Equity based funding

Since the middle of the 1990s, external equity, in the form of business angel and venture capital investments, has been put forward as a very suitable type of financing for high-potential firms. During a few years, alternative stock markets were also considered an important source of equity capital to young promising companies. These three equity-based funding sources will be discussed next.

2.2.1. Business angels

Business angels, or informal venture capitalists, are considered to play an important role in the financing of firms in their early phases. A business angel may be defined as (Mason and Harrison, 2008, p. 309):

"A high net worth individual, acting alone or in a formal or informal syndicate, who invests his or her own money directly in an unquoted business in which there is no family connection and who, after making the investment, generally takes an active

6. A large number of studies and reports have evaluated the outcomes of various governmental initiatives to increase capital supply for startups firms. A review of this research is, however, outside the scope for the current report.

involvement in the business, for example, as an advisor or member of the board of directors."

In other words, business angels invest their own funds directly into a small set of companies while taking on active roles. Angels, unlike formal VCs having fiduciary responsibility to other investors, tend to use various financial instruments ranging from pure debt to pure equity (Shane, 2008). Many business angels are active or former entrepreneurs, or top managers (ibid.). While most business angels work on their own, they do sometimes co-operate with others in small investment groups, e.g., in business angel networks.

A description of the traditional business angel's investing pattern is as follows. Angel financing is often, but not always, made in early company stages (Wong et al., 2009). On average, firms are about 10 months when they receive angel funding and have rarely realized any profit. Business angels usually invest in companies within geographic reach. Furthermore, the investment sizes are rather small: in the US less than 1 mUSD on average (ibid.), and in Sweden only 13.5 tEUR on average (Avdeitchikova, 2008). Business angels tend to undertake investments that formal venture capitalists find unattractive due to the high uncertainty associated with early stages and small sizes. One proposed reason for this is that the informal investors only commit a smaller part of their wealth to direct investments into unquoted companies. Mason and Harrison (1994) found that UK business angels allocate 5 to 10 percent of their investments into private small firms. Similar findings have been presented for Sweden, showing that Swedish business angels put aside 11 percent for this type of investments (Månsson and Landström, 2006). It has also been suggested that private investors have lower transaction costs in comparison with formal VCs, allowing for investments in earlier, and hence more risky, company stages (Avdeitchikova, 2008).

The primary motive for business angels to invest in unquoted companies is economically driven, and hence, just as formal venture capitalists, they seek to exit their investments primarily through sales of shares to third parties (Riding, 2008). However, given that business angels are not forced to make an exit within a certain time, contrary to formal venture capitalists operating closed-end funds with limited lifespans, the investment length is usually less critical. In a similar vein, business angels tend to be more willing to accept a stream of dividends from a company that has found a valuable niche, rather than constantly seeking to achieve complete exits. Moreover, in the literature business angels are often attributed with also non-economic motives for their investments, such as investing on 'moral' grounds (ibid.).

However, some changes seem to be take place within the angel community. A new type of business angel has entered the market, still scarcely researched but discussed intensely among practitioners and in the business press, i.e., the so called 'super angel' (e.g., Spencer, 2009, May 21; Southon, 2011, August 1). The term describes serial entrepreneurs and investors able to invest larger sums into startup firms, either directly or through fund structures, perceived to be particularly sophisticated, skilled, and well-connected. Furthermore, while traditional business angels have a

rather limited geographical scope for their investment activities, the super angels typically have broader, even international, reach when investing in promising early stage companies. According to anecdotic evidence, this type of private investor is currently taking on an important role on the startup scene[7].

To exactly quantify the size of the angel market is difficult for at least three reasons: (i) informal investors value privacy, and hence, there are no published or comprehensive listings of informal investors, making random sampling difficult, (ii) even when business angels are identified, it remains unclear whether the samples are representative for the full population, and (iii) angels are rare within the general population, making broad studies difficult (Riding, 2008). Notwithstanding these difficulties, a few studies have managed to approximate the size of the business angel market. In the US, the business angel segment has been reported to be somewhat larger than the institutional VC market in terms of capital invested (Sohl, 2005), which is similar to the findings made in the UK (Mason and Harrison, 2000). In a more recent study for Sweden, Avdeitchikova (2008) found that the size of the angel market ranges between 385 and 450 mEUR per year, which is approximately one percent of the Swedish GPD, considered a rather moderate figure. This is somewhat lower, but comparable to, the formal Swedish venture capital market. The number of firms receiving angel funding surpasses, however, significantly those financed by formal VCs, because investment sizes are substantially smaller in angel deals compared with VC ditto.

Similar to the formal venture capital market, the returns from angel investing is highly skewed (cf. Section 5.4.2). For example, Mason and Harrison (2002) found that 40 percent of business angel investments in the UK result in total or partial losses, while Månsson and Landström (2006) showed that 54 percent of the Swedish informal VC investments were total losses.

2.2.2. Venture capital[8]

Institutional or formal venture capital, hereafter referred to as venture capital or VC, is a financial type of investments targeting privately owned companies with large growth potential in their seed, startup or expansion phases. Given the focus on high-growth and scalability, venture capitalists primarily invest in areas where technology and other innovations are being developed, i.e. on knowledge-based sectors, seeking for applications with exceptional commercial potential. Hence, VC tends to be concentrated on industries such as telecommunication, IT, life science, biotechnology, and clean technology (Gompers and Lerner, 2001b; Fraser-Sampson, 2007).

Two major advantages put forward in favor of equity (i.e., VC and business angel) investments are the following. First, venture capitalists as well as business angels are considered 'value added' investors, who in addition to the supply of funding

7. The emerging importance of 'super angels' was mentioned several times in the interviews made within the frame for this study (see Appendix 1). Examples of Swedish super angels are the founders of Skype and Q-Med, i.e., Niklas Zennström and Bengt Ågerup.
8. See Chapter 5 for a lengthier discussion and review of the venture capital field.

also contribute with industry-specific knowledge and access to business networks. Second, neither does such funding increase the probability of company failure due to difficulties in paying interests and amortizations or fulfilling covenants (Carpenter and Petersen, 2002). Having said that, issuing new equity tends to be costly, particularly for small and unquoted companies, since entrepreneurs need to give away ownership stakes and certain control of their ventures. VC investors, for example, expect an average yearly return of between 20 and 50 percent (Sapienza et al., 1996), which has a significant impact on the required sizes of ownership shares in each portfolio firm.

Also from the investor perspective, VC is a costly form of finance due to the inherently large risks with a high number of failed or disappointing investments. Hence, VC firms need to generate high returns on their successful investments in order to stay economically viable, and consequently, only very few businesses attract venture capital. A large number of studies support this notion. For example, Ballou et al. (2008) showed that less than one percentage of the approximately 600,000 new businesses (that employ others) started in the US each year obtain venture capital financing. The GEM study (2003), arrived at an even lower figure, namely that less than 0.5 of nascent entrepreneurs launch their new ventures with formal venture capital. A rough approximation of the number of Swedish firms that receive venture capital based on data from the Swedish Agency for Economic and Regional Growth (Tillväxtverket) and from SVCA, gives that of the on average 46,000 firms that were founded yearly in Sweden between 2002 and 2009, 1.2 percent were financed by venture capital.

Although the share of firms that receive VC funding is tiny, there are strong arguments in favor of that the firms that get such capital are especially important for the society on an overall level. For example, Kaplan and Lerner (2010) argue that while few firms enjoy venture capital, a large proportion of the startups that make it to an initial public offering (IPO) were funded with venture capital, i.e., 60 percent of the firms that were listed on the US stock exchanges between 1999 and 2009. Furthermore, although the firms that receive funding from VC firms are few in number, once granted the amounts of capital arriving from VCs are substantial (Bozkaya and Van Pottelsberghe De La Potterie, 2008). Others maintain, however, that even among firms with high-growth potential, venture capital is far from widespread. Kedrosky (2009) studied the prevalence of VC financed firms among businesses on the Inc. 500 list of the fastest-growing private companies in the US. Only 16% of the unique 900 firms presented on this list from 1997 to 2007 were VC backed. That is, even among the fastest growing and most successful companies in the US, less than 20 percent are financed by venture capital.

2.2.3. Public equity

The provision of market-based support for European SMEs became immensely popular in the late 1990s when many major stock markets developed secondary exchanges in the hope of emulating the NASDAQ's success. Such markets have in general lower listing requirements than the main exchanges, and hence considered better

suited for smaller firms. In Europe, a wave of NASDAQ exchange copies aroused, with the expectation that these trading platforms would secure the long-term funding for many high-growth, mainly technology-based, startup ventures (Bottazzi and Da Rin, 2005; Carpentier et al., 2010; Revest and Sapio, 2010). Viable stock markets were also considered crucial for the European VC markets as a way to create profitable exit opportunities. In Sweden, a few alternative stock exchanges were launched, whereof the largest is First North.

However, the history of the new markets in Europe is paved with notable failures, with only a few exceptions including the UK AIM[9] stock exchange (Revest and Sapio, 2010). None of the European markets came even close to matching the size of the NASDAQ, and most of them collapsed in the wake of the Internet bubble crash. Since the year 2000, the number of introductions of new firms into the public stock markets on general, especially of young companies, has been low (Kedrosky, 2009). Two major explanations for the inability to create well-functioning public stock markets for small and relatively young companies have been proposed (Revest and Sapio, 2010). First, liquidity was often discouraged by poor diversification opportunities due to the high proportions of risky R&D companies. Other markets survived by broadening their scope to include firms from other sectors, e.g., high-tech firms on AIM never accounted for more than 25 percent (ibid.). Also the First North stock exchange in Sweden has a better spread in the types of companies listed. Second, the European market is not considered to be large enough for the number of stock exchanges that were operational around year 2000, and hence the competition became too severe (ibid.).

2.3. Debt based funding

Sources of debt include loans and credits from commercial banks and other financial institutions, trade credits and governmental debt.

2.3.1. Commercial loans and credits

Banks, and other financial institutions, offer long-term loans as well as short-dated credits. Collateral, i.e., all the assets a business can pledge as guarantees for a loan, are important principal determinants for access to debt capital from commercial sources. Moreover, many banks tend to include restrictive covenants in the debt contract to reduce adverse selection and moral hazard problems (Berger and Udell, 1998). Accordingly, the conventional wisdom argues that commercial banking would not be widely available to startup, especially technology-based, firms, until they have shown some success and generated assets that can be used as collateral (Berger and Udell, 1998). Furthermore, payments of interests and amortizations of loans may be difficult to liquidity constrained startups, and hence debt not an optimal funding source for young and small businesses.

9. The Alternative Investment Market

Nevertheless, there is clear evidence that commercial banks by some margin constitute the most common form of external financing for startup firms (e.g., Berger and Udell, 1998; Bozkaya and Van Pottelsberghe De La Potterie, 2008; Robb and Robinson, 2010; Minola and Giorgino, 2011). For example, Berger and Udell (1998) show that bank loans account for 45 percent of external financing to small US firms. The percentage of financing arriving from banks for a set of Belgian startups was exactly the same, i.e., 45 percent according to Huyghebaert and Van de Gucht (2007). Also Robb and Robinson (2010) found that more than 40 percent of US startup firms are funded by bank loans and line of credits. The same result has been found for the Swedish market, i.e. lending from banks is by far the most common way to finance small companies (Cressy and Olofsson, 1997; Winborg and Landström, 2001; Klagge and Martin, 2005). It is particularly interesting to note that also for high-technology firms, outside debt constitutes the largest source of capital (Robb and Robinson, 2010; Vanacker and Manigart, 2010; Minola and Giorgino, 2011).

That such a large proportion of funding to startup firms, including high-potential companies, arrives from external debt from commercial institutions may, as indicated above, be considered a violation of common perceptions. Several factors have been proposed to explain the high level of debt-based funding to startups. From the perspective of the entrepreneur, bank financing is generally considered a low-cost and attractive funding source that does not, contrary to equity, affect ownership or business control (see a more detailed discussion in Section 3.2.1). But not only does small firms tend to fancy debt – banks show also an increasing interest to serve small firms, due to several reasons. First, many small business loans provided by banks, or other financial institutions, need to be guaranteed by one or more of the owners, i.e., personal assets of the entrepreneurs are used as collateral to back the loan (Berger and Udell, 1998). Hence, also loans to startups are typically guaranteed, although by the owners and not by the firm in case. Second, providing loans is today just one part of a larger overall package that banks offer. These financial institutions have over the years developed a wide range of fee-based non-lending products and financial services for startup firms (de la Torre et al., 2010). Hence, cross-selling is a way for banks to maximize their incomes from also small companies. Third, banks are considered to be interested to build up long-term relationships that may pay off in the future, where the bank aims at becoming the principal banks for the growing firm (Hellmann et al., 2004; Huyghebaert and Van de Gucht, 2007).

Besides reducing exposure through guarantees provided by the owners, banks use other ways to decrease risk. Huyghebaert and Van de Gucht (2007) document that in case the risk of a potential loss is particularly high, banks would typically not decide to stay out altogether but simply finance a smaller fraction of the desired debt, or shorten the duration. Hence, the bank can secure long-term relationships while minimizing its risk exposure. Furthermore, recent studies show that advances in technology, which reduce banks' transaction costs for small businesses, together with an intensified global competition among financial institutions, also provides better

access to external debt financing for startups (de la Torre et al., 2010; Korosteleva and Mickiewicz, 2011).

In the US, a new phenomenon in the financial landscape of new ventures has emerged and gained large interest, namely venture debt (Fischer and De Rassenfosse, 2011). Such financing usually comes on top of venture capital, as an equity-efficient way to increase capital levels. Still, however, this funding source is negligible small in Sweden.

2.3.2. Trade credits

Another large source of debt capital to SMEs arises from suppliers in the form of trade credits. Such funding tend to be an important source when the companies have grown somewhat and show stable cash flows (Balling et al., 2009). The use of trade credits has clearly increased among European SMEs over the years. Berger and Udell (1998) found that trade credits represent 16 percent of all funding to startup firms, while Robb and Robinson (2010) show that trade credit rank the third largest source of financial capital to small firms, after external debt and owner equity. And Huyghebaert and Van de Gucht (2007) argue that 27 percent of external funding arrives from trade credits.

2.3.3. Governmental debt

A final source of debt capital that deserves mentioning is government granted loans, or soft loans, provided by governmental institutions (in Sweden e.g., ALMI and Norrlandsfonden). Such capital has usually a higher interest rate compared with commercial loans, but on the other hand may be written off, partly or completely, in case the venture fails (Isaksson, 2006). The proportion of capital arriving as soft loans is rather small, only representing around one percent of the total funding to startups (Robb and Robinson, 2010). However, for many firms soft loans represent a crucial first source of funding (www.almi.se). The largest supplier of soft loans in Sweden is ALMI. A rough estimation gives that around six to eight percent of all startups in Sweden receive loans from ALMI[10].

2.4. Summary

This chapter has discussed a number of financing sources available to startup firms. All in all, insider funding arriving from the owner constitutes the largest pool of capital to startups. Thereafter, commercial banks turn out to be the most important financing option for small, including technology-based, startup firms. Despite the large interest in venture capital from policy makers and researchers, VC represents a very small part of the total capital invested in startup firms. Having said that, venture

10. Calculated from ALMI's annual reports (www.almi.se) and data from Tillväxtverket (www.tillvaxtverket.se).

capital is undeniably an important source of financing for a number of elite companies needing financing beyond their debt capacity. The next chapter will elaborate upon factors that have been identified as having a decisive influence on capital structures in startup firms.

3

3. Determinants of capital structures

As discussed in the previous chapter, there is a wide range of capital sources used to finance startup firms. However, a firm's unique characteristics, in combination with the owner's attitude to different types of capital supplies, have been shown to have a major impact on its funding basket. While it is beyond the scope for the current report to offer a deep analysis of this extensive area of research, this chapter will provide a brief overview of some of the more common firm-specific factors that have been identified as determinants of small companies' capital structures[11]. The chapter starts by outlining probably the most commonly used theoretical approach to describe capital structures for companies, i.e., the financial pecking order theory.

3.1. Theoretical perspectives

One of the more influential ideas in the finance literature is the 'pecking order' theory of capital structure choice – an hierarchical order arising due to the presence of information asymmetries between companies and their potential financiers (Myers and Majluf, 1984). The lines of thoughts are as follows. Informational asymmetry arises when managers have more complete information about an investment opportunity than the investors who are asked for funding. Such asymmetries may become serious issues and result in adverse selection problems (Akerlof, 1970) or in moral hazard (de Meza and Webb, 1987). The former reduces the accuracy with which the investor can assess the quality of a company, while the latter refers to the situation when managers, once external funding has been issued, may misuse those funds for

11. Macro conditions will obviously also influence differences in capital structures among firms. Given the scope and size of this report, however, such factors will not be discussed here.

personal benefits. Hence, investors will demand a premium in exchange for capital due to this informational opacity – and the more risky the investment, the higher the premium will be since risk intensifies the effects of information asymmetry (Myers, 1984). Consequently, external finance is costly and therefore, managers prefer to finance new investments with internal funding as far as possible. Only when internal funds are insufficient to meet a firm's financing needs, managers will turn to the more expensive outside funds. Of the external sources, the theory stipulates that debt financing is preferred to equity since the former will suffer less from information asymmetries and hence is subject to lower premiums (Myers, 1984; Myers and Majluf, 1984). This hierarchy is referred to as a financial pecking order.

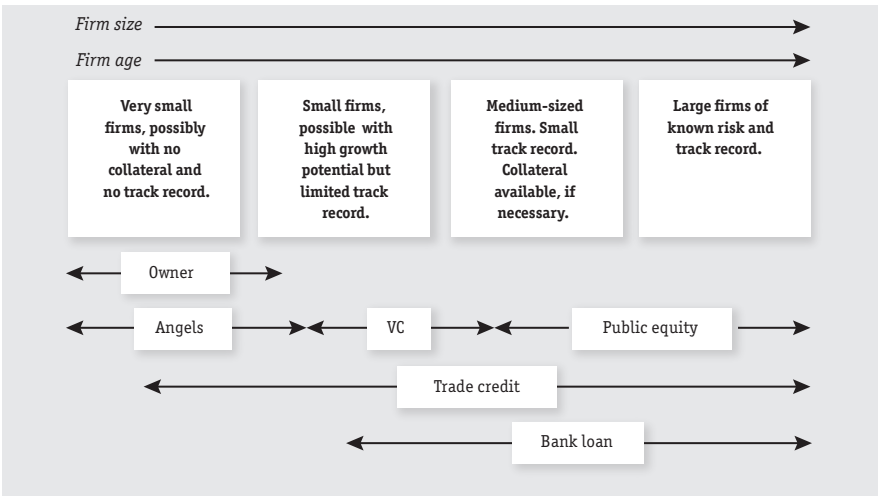
While the pecking order theory was originally developed to explain financial strategies of large and mature companies, scholars have investigated whether the theory is applicable to young and small ventures. Given that such firms have a set of characteristics that distinguish them from large corporations, it is not obvious that these ideas are fully applicable to the small firm (Cassar, 2004). Compared to larger (especially listed) companies, startup firms have: (i) limited histories and thereby no track records, (ii) no reputation at stake, (iii) limited tangible assets and thereby difficulties to offer guarantees, (iv) inherent uncertainty due to the innovation process, (v) less stringent rules regarding information disclosure, (vi) ownership often concentrated in the hand of the entrepreneur and members of the family who are willing to assume and share risk, and, (vii) significantly higher failure rates (Audretsch and Stephan, 1996; Berger and Udell, 1998; Cassar, 2004; Cressy, 2006; Huyghebaert and Van de Gucht, 2007). Taken together, startup firms are arguably the most informationally opaque type of businesses in the economy and, therefore, face extraordinary high information asymmetry problems (Berger and Udell, 1998; Cassar, 2004). Given this fact, in addition to the small scale of entrepreneurial projects, the widespread belief is that investing in small companies is expensive. Therefore, the premium for external funding is expected to be high for startup firms.

Consequently, several scholars acknowledge that the traditional pecking order hierarchy applies well also to startup firms. Just as larger companies, small and emerging firms prefer to finance new projects with internal means, and thereafter, if necessary, seek external debt capital and only lastly look for expensive external equity given the high costs associated with giving up ownership stakes (e.g., Berger and Udell, 1998; Huyghebaert and Van de Gucht, 2007; Robb and Robinson, 2010; Vanacker and Manigart, 2010; Minola and Giorgino, 2011). Hence, using external equity funding would be a signal of low quality since this is the last resort for firms. Other scholars, however, maintain that the traditional pecking order is reversed for entrepreneurial firms due to two reasons. First, the rank order is likely to be distorted if the investors have superior knowledge about the commercialization of an entrepreneur's innovation. For example, Garmaise (2001) shows that when investors are known to possess a greater ability to assess project quality relative to that of the entrepreneurial team, external equity finance will instead be indicative of a high quality firm. Second,

external equity may also be ranked higher in case the investors are able to add value to their investment projects (Garmaise, 2001; Carpenter and Petersen, 2002).

Another theoretical model used to investigate determinants of financing sources for firms concerns the company life cycle paradigm, with the proposition that different capital structures are optimal at different points in the cycle (Berger and Udell, 1998). The basic idea is that financial needs and options are likely to change as the venture grows, gains more experience and becomes less informationally opaque. According to Berger and Udell (ibid.), smaller and younger firm have to rely more on insider finance, trade credits and angel funding. As they grow, equity finance will also be available from venture capitalists, as well as debt capital from banks and other financial institutions. Eventually, if the firm continues to grow, it may gain access to public equity through an IPO. Figure 3.1 presents Berger and Udell's (ibid.) illustration of the financial growth cycle for small businesses (somewhat simplified). This model of how firms are financed has gained large popularity in business schools and among practitioners and scholars alike. However, the model has some inherent problems. First, the model gives the impression that all capital sources are broadly available, which is far from the truth as discussed in the previous chapter. Instead, several of the financing alternatives are only available to a very small set of firms, i.e., business angel investing, venture capital and public equity. Although Berger and Udell (ibid.) highlight that the growth cycle is not intended to fit all types of small businesses, this fact needs to be emphasized to an even higher extent. Second, the size of each financing source cannot be interpreted from the model, proving a false illusion of that all depicted funding options are of equal size and, hence, importance for the general firm.

FIGURE 3.1 The financial growth cycle of firms



According to Berger and Udell (1998, p.623), somewhat simplified.

There are also other factors that affect the financial structure for young and small firms in regards to the split among insider funding, external equity and external debt – factors that will be discussed next.

3.2. Other factors affecting capital structures

To what extent a company's characteristics and present financial situation, but also the owner's attitude and traits, impact firms' capital structures has gained large interest in the entrepreneurship literature.

3.2.1. Entrepreneur's attitude and traits

The entrepreneur's, or the owner's, attitude towards financing, not surprisingly, plays an important role on how the capital structure will be formed. Here, the entrepreneur's willingness to share control of the business when obtaining external financing is central. Keeping control and full power to decide on business strategies also increases the prestige and status that comes with ownership (e.g., Huyghebaert and Van de Gucht, 2007). There is clear empirical evidence that owners who have the choice, i.e., are profitable enough to reinvest proceeds or have sufficient levels of own capital, tend to avoid external financing (Vanacker and Manigart, 2010). Furthermore, in line with the pecking order hierarchy, such entrepreneurs would prefer external debt in case outside funding is needed since such funding avoid dilution of ownership and loss of control (Berger and Udell, 1998). In practice, creditors like banks may obtain some influence capability through covenants and thereby exercise control over a business, although to a substantially lower extent than business angels or VCs (Mitter and Kraus, 2011). Other entrepreneurs, however, seek to share risk with less risk-averse investors such as business angels and venture capitalists, and are highly interested in the value-added services that these types of investors bring to the table (Berger and Udell, 1998).

To what extent, and how, owner-specific traits affect company capital structures has been investigated by a number of scholars – with rather contradictory results. For example, Robb and Robinson (2010) found significant support for that entrepreneurs with prior startup experience tend to rely more on external equity than others, while entrepreneurs with more industry experience to a higher extent avoid outside funding. Mann and Sanyal (2010) propose that serial entrepreneurs have the choice to finance their businesses using their own resources, bank loans or external equity, since more information is available about these entrepreneurs. Furthermore, the authors (ibid.) maintain that educated entrepreneurs prefer debt financing. Colombo and Grilli (2007) suggest that the propensity to use internal capital as opposed to external sources is positively correlated with education in economics. On overall, however, owner-specific traits seem not to have any strong influence on the financial structures of startup firms, an observation that was put forward by Cassar (2004). Cassar (ibid.) showed that after taking firm-specific characteristics into consideration,

none of the factors; education level, experience or gender, have any impact on financing preferences.

3.2.2. Venture's age and size

According to the financial life cycle theory discussed above, younger firms are expected to first and foremost rely on capital arising from internal sources and to some extent from business angels, eventually move over to external equity in the form of venture capital and external debt from commercial banks, and potentially to capitalization from IPOs (Berger and Udell, 1998). However, this simplified way to describe financial needs in various stages turns out not to be fully accurate, at least not in the current financial market. For example, as addressed above, recent research shows that also very young firms to a surprisingly high degree rely on bank debt (Bozkaya and Van Pottelsberghe De La Potterie, 2008; Robb and Robinson, 2010). Moreover, formal venture capitalists who used to primarily target young pre-revenue businesses, have after the burst of the 'dot com' bubble moved to later and, thus less risky, stages (Kedrosky, 2009; Greene et al., 2010).

The size of the firm seems to have a more clear effect on the type of financing sources available. The theoretical explanation why size should affect company capital structures concerns factors such as economies of scale in lowering information asymmetries, scale in transaction costs, market access and risk exposure (Cassar, 2004). As a result, smaller firms are expected to be offered less capital, or receive capital at higher costs, in comparison with larger firms. In line with this, empirical research shows that larger startup firms, in terms of revenues and employees, have a greater proportion of debt and lower shares of insider funding compared with 'smaller' small businesses (Berger and Udell, 1998; Cassar, 2004).

3.2.3. Venture's financial status and asset structure

A startup firm's financial situation has a major impact on its funding alternatives. On general, in accordance with the pecking order theory, more profitable firms prefer to finance investments internally (Vanacker and Manigart, 2010). As discussed above, most startup firms would thereafter use external debt as their preferred alternative. However, companies with limited cash flows or excessive leverage are more likely to issue external equity, likely because additional debts are difficult to obtain (ibid.).

While companies with high growth potentials are more likely than others to apply for external finance (Cosh et al., 2009), Cassar (2004) found that also such firms prefer debt-based funding (Cassar, 2004). Similarly, Parker and Storey (2010) showed that the gazelle firms that continue to grow are the ones that are least willing to dilute their owner shares, e.g., by selling shares to venture capitalists (see also Chapter 1).

A firm's asset structure is found to affect its financing options. The more tangible and generic the company's assets are, the greater its liquidation value in case of default (Cassar, 2004). Moreover, tangible assets are considered to reduce adverse selection and moral hazard. Hence, startup firms with more physical assets are more likely to use external debt in their financing portfolios (Cosh et al., 2009; Mann and

Sanyal, 2010). On the other hand, as expected, firms having strong intangible and intellectual properties, e.g., patents, trademarks, and human capital, more often seek and receive external equity (Cosh et al., 2009; Robb and Robinson, 2010; Vanacker and Manigart, 2010). However, given the limited availability of external equity, these firms are in general more financially constrained than others (Cosh et al., 2009). Revest and Sapio (2010) argue that small firms with higher R&D intensity, more patents, lower shares of tangible assets and larger proportions of qualified employees, on general report more problems in accessing external finance.

Another factor highlighted in the literature as a financially related determinant of capital structures concerns the amount of funding required. The larger the project and the more capital needed, the higher the probability that the venture will turn to formal venture capitalists for funding (Schäfer et al., 2004; Ueda, 2004).

3.2.4. Industry and level of risk

Finally, the type of industry and the level of risk associated with the investment are factors that are found to significantly influence firms' capital structures – although not always as expected.

It is evident that young businesses in high-growth sectors more often receive external equity-based funding than firms operating in more traditional industries (Berger and Udell, 1998; Carpenter and Petersen, 2002; Robb and Robinson, 2010). And obviously, venture capitalists, in line with their business model, to a large extent focus on relatively young high-technology industries such as telecom, IT, biotechnology, life science, and clean tech (see Chapter 5). In other words, venture capitalists, at least traditionally, are more likely to fund entrepreneurial firms with innovative products or processes with large scalability and growth potential, rather than imitator firms (Hellmann and Puri, 2000). There are also strong arguments in favor of that equity investors, particularly VCs, would be in a better position to invest in high-risk ventures compared with external debt providers. The proposition is that venture capitalists have an advantage over banks in mitigating adverse selection and moral hazard problems since they get access to more comprehensive information about potential portfolio firms and their founders (Nofsinger and Wang, 2011). Furthermore, as discussed previously, equity financing is considered to have some advantages over debt for young fast growing firms, including no requirement of loan securities in the form of collateral, no cash-flow constraints due to interest and amortization payments, and more non-financial added value provided by the investors (Carpenter and Petersen, 2002). However, the conventional wisdom that small high-tech firms are not likely to attract finance from banks is found to be, as stated repeatedly in this report, wrong. Instead, a large number of studies testify that also for high-technology firms, banks remain the most common form of external financing (see Section 2.3.1). In a similar vein, while some studies tend to equate high-risk venturing with external equity (e.g., Berger and Udell, 1998), other studies do not find that risk have any predictive power on the likelihood of a company receiving debt or equity (e.g., Schäfer et al., 2004).

When it comes to startup firms in traditional industries, or to imitator firms, the capital tends to arrive first and foremost from insider funding and thereafter from bank loans and trade credits (Berger and Udell, 1998; Huyghebaert and Van de Gucht, 2007; Mitter and Kraus, 2011).

3.3. Summary

This chapter has pointed at a number of factors that are found to influence the capital structures of startup firms. The financial pecking order theory, stating that firms prefer to finance their businesses with internal funding first and then, if necessary, seek external debt funding and lastly external equity capital, finds relatively broad support also for the vast majority of young emerging businesses. For very few, high-risk and high-growth firms, a reversed pecking-order hierarchy where external equity is preferred before external debt, may be more applicable. Furthermore, the review indicates that while owners' willingness to share control and ownership is important, owner traits seem not to have any major impact on capital structures. Moreover, the impression from the review is that larger 'small' firms, firms with more possessions of tangible assets, and startups in traditional industries, tend to rely heavily on debt in case external funding sources are used. Other companies, i.e., financially constrained, those having primarily intangible assets, as well as high-growth businesses, are also primarily funded by external debt, but are more likely than other firms to utilize funding from external equity sources, i.e., from business angels and venture capitalists.

4

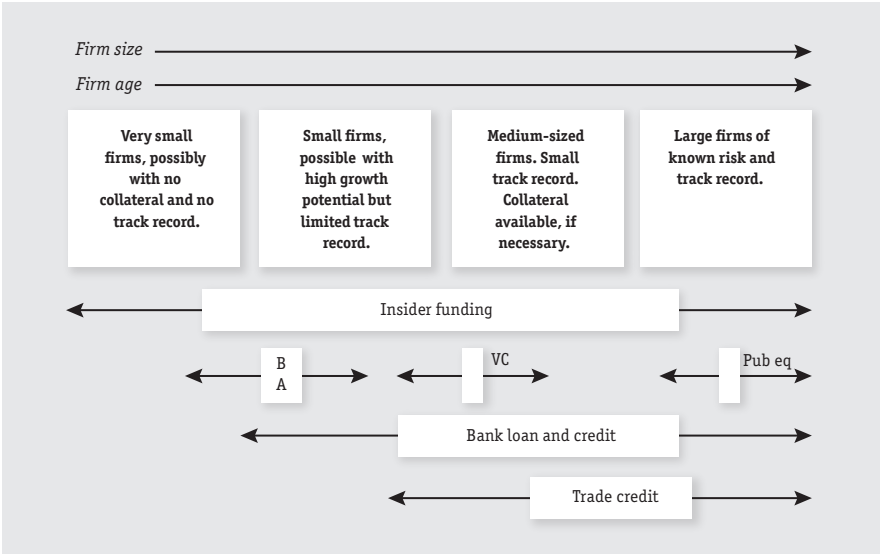
4. Capital contributions to startup firms

Based on the findings in the previous chapters, i.e., Chapter 2 and Chapter 3, a modified version of Berger and Udell's (1998) widely cited life cycle model of capital contributions to firms was developed. The model is changed in two dimensions: (i) modification of timings, and (ii) estimations of capital proportions (see Figure 4.1).

Berger and Udell's (ibid.) model illustrates when in a company's life cycle a specific type of capital source will be particularly common. However, as this review has indicated, the original model seems not to fully grasp the current financial situation for startup firms operating in the Western world. First, funding from internal sources, including capital provided by the owner(-s), turns out to be important throughout a company's life time and not only in a very early phase. Second, external equity, especially venture capital, tends only to be available to very few firms and in later phases compared with the situation around year 2000. Third, the number of IPOs is currently very few, which has been the case for quite a while. Hence, the public markets are not really a financing alternative available to small and young firms (with only few exceptions).

In addition, an attempt to make a very rough estimation of the size of each financing source was made. Given that that there are few studies that actually provide a full picture of all capital sources utilized by startups, this exercise turned out to be rather difficult. Still, based on the few existing studies covering different types of funding used to finance US and European small firms (Berger and Udell, 1998; Huyghebaert and Van de Gucht, 2007; Robb and Robinson, 2010), together with other indications as presented in the previous chapters, Figure 4.1 provides an approximation of the capital levels, where the size of each box represents the proportion of the total capital invested in startup firms that arrives from the type of financing source in question.

FIGURE 4.1 Modified model of financial sources used in firms



Based on Berger and Udell's (1998, p.623) model. The sizes of the boxes illustrate the proportion of capital arriving from each source.

As pointed out several times in this report, which is also obvious in Figure 4.1, VC represents only a small percentage of the capital invested in small firms. Still, this specific source is considered to be highly important for a small subset of firms. The next chapter, which constitutes the major part of the report, will provide a deeper understanding about venture capital.

5. Venture capital

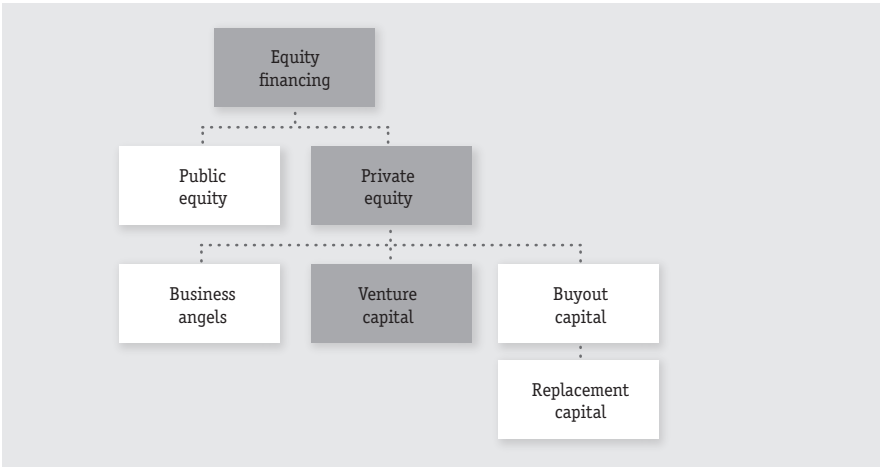
5.1. Definition of venture capital

Institutional or formal *venture capital* is a financial type of investments targeting privately owned companies with large growth potential, often technology related, in their seed, startup or expansion phases. The company or entity into which a VC firm invests is usually referred to as a *portfolio* or investee company. Venture capital is a subset within the *private equity* investment area (see Figure 5.1). Private equity (PE) provides equity funding to enterprises not quoted on a stock market and can be used to develop new products and technologies, to expand working capital, to make acquisitions, to strengthen a company's balance sheet, or to buy out other shareholders. Other categories of investments within private equity, except for VC, are *buyout* capital, *replacement* capital, and *business angel* investments. Buyout capital comprises investments in established private, or publicly listed, companies that are expected to undergo a fundamental change in strategy and operations. In a buyout transaction, the business, or business unit, is fully or partly acquired from other shareholders. Most buyouts are financed with a substantial level of leverage, where the target company's assets are used to secure loans and its operational cash flow is used for future repayments. Hence, an important criterion when selecting investments is that the target firm shows strong cash flows at the time of the investment. Replacement capital is used to change the financial structure of a company, normally to buy out debt. Business angels, sometimes referred to as informal VC investors, are individuals who provide both funding and business expertise to investee companies (for details, see Section 3.2.1).

A commonly used definition of venture capital is *"independent, professionally managed, dedicated pools of capital that focus on equity or equity linked investments in privately held, high-growth companies"* (Gompers and Lerner, 2001a, p. 146). As this quote indicates, the target businesses of interest to early-stage VC firms

primarily belong to high-growth industries, such as IT, telecom, life science, biotech or clean-tech (Fraser-Sampson, 2007). Few of these investee firms are profitable at the time of the first venture capital investment. However, venture capital can also be used in expansion phases (so-called expansion or growth capital), where investments are made into more mature companies or to distressed companies, i.e., turnaround capital. Hence, venture capital includes, among other things, the capitalization of firms for developing new products and technologies, expanding operations, commercialization activities, internationalization, making acquisitions, or turning around unprofitable businesses. Although convertible debts may be used in venture capital transactions, the primary investment instrument is equity.

FIGURE 5.1 Structure of equity funding – venture capital emphasized



A venture capitalist would typically seek minority stakes in the firms she invests in, leaving the majority ownership (at least initially) to the investee firm's management (ibid.). Despite a minority ownership, however, a venture capitalist will through comprehensive contractual restrictions ensure decisive influence on strategically important decisions and thereby keep close control of her investee firms (Kaplan and Strömberg, 2003; Cumming, 2008). Another characteristic of VC firms is the propensity for syndicated investments, i.e., investing alongside other venture capitalists and thereby sharing financial and operational risks (Sorenson and Stuart, 2001).

One of the unique traits of venture capital investing is the *active ownership style*, so-called 'value-added investing', where the investors are expected not only to bring capital but also to provide non-financial services in terms of relevant knowledge and experience, business contacts, and certification (Fraser-Sampson, 2007). Hence, in contrast to most shareholders in public companies, VC investors put a great deal of effort into monitoring, managing and restructuring their investee companies to

create value (Sahlman, 1990). Such operations require specific skills and practices, whereby a VC management team consists of specialist professionals working closely with their investee companies while maintaining significant influence and control of strategic decisions and operational activities.

There are several types of VC firms. A number of them are *private*, owned by its management team, managing capital of their own or by a close circle of investors and thus operate similar to groups of business angels. Some VC companies are listed on *public stock exchanges*, whereby the capital naturally arrives from a broad range of larger and smaller investors. VC businesses may also be affiliates or subsidiaries of banks, insurance companies or industrial corporations, and may make investments on behalf of their parent firms. These firms are typically called *corporate* or *captive* VC firms, with objectives linked to the parent company's strategy. Other VC entities are *government-affiliated investment programs* that support early-stage companies either directly through state or regional funding, or channeled through governmentally funded VC firms. Such VC firms tend to put developmental objectives related to national innovation and growth above commercial success.

The most common organizational structure in the VC industry, however, is the *limited partnership* structure that is an investment vehicle in the form of independent and fixed-life funds (Sahlman, 1990; Gompers and Lerner, 2001a). While the number of VC firms structured in limited partnerships in Sweden correspond to less than 20 percent of the firms that have been present on the Swedish market over the last 20 years, these firms supervise the lion's share of the capital, i.e., almost 60 percent (SVCA). In such structures the VC firm serves as the general partner (GP) and is fully responsible for the management of the fund, while institutional investors provide the bulk of the capital in passive roles as limited partners (LPs). The LPs are mainly constituted of institutional investors and wealthy individuals. In Europe, banks are the largest financing source for private equity funds, followed by pension funds, PE fund of funds and insurance companies (EVCA). In Sweden, PE fund of funds, closely followed by public pension funds and then corporate investors have over time been the largest providers of capital to VC funds. In terms of number of fund investments made, however, public pension funds, insurance companies and family offices have made most VC fund investments (Söderblom, 2011).

In most fund agreements, the LPs commit to disburse a certain amount of capital to the fund during a predetermined time, i.e. not all at once but along the pace of making investments, whereby the LPs' money at risk is limited to the committed capital. A typical VC fund has a duration of ten years; four to six years to make investments and build up a portfolio, and the remaining time to realize it. Given these closed-end fund structures, another common feature of most VC firms is that they build *portfolios of investee firms*. The number of portfolio companies per fund depends on the size of, and the strategic directions for, the fund (Sahlman, 1990). When one fund is closed for further investments, the VC firm needs to raise new funds in order to stay in business. A final distinguishing characteristic of venture capital is that paybacks and rewards to investors, to the VC management team and to the investee firm's management will

be released first when an investee firm has been exited. Investments may be exited in several ways, whereof IPOs or trade sales, where the entire firm is bought by a third party, are considered the most advantageous (Gompers and Lerner, 2001a).

Table 5.1 provides an overview of general similarities and differences between venture capital and buyout capital investing.

TABLE 5.1 Characteristics of PE investments

Formal VENTURE CAPITAL	BUYOUT CAPITAL
• Target firms in their early or expansion phases • Investee firms are rarely profit-making • Invest mainly in high-growth industries • Primarily use equity or equity-like instruments • Typically seek minority ownership	• Target mature established firms • Profit levels of investee firms crucial • Invest in various sectors • Large proportion of leverage used • Typically seek majority ownership
• Involve active ownership to drive value creation • Invest (primarily) third-party capital on a professional basis, often structured as limited partnerships • Build portfolios of investee firms • Medium- to long-term holding periods • Seek to exit the investments through IPOs or trade sales	

Inspired by Fraser-Sampson (2007, p. 9) and the European Commission (2006, p. 10 ff)

5.2. Rise and development of the VC industry

The international roots of private equity investing are traced back to the establishment of the venture capital firm American Research and Development Corporate (ARDC) in 1946 as an effort to commercialize innovative technologies developed during the Second World War (Bygrave and Timmons, 1992). Also the passage of the Small Business Investment Act of 1958 and the establishment of the Small Business Administration (SBA) to provide financial and managerial support to small entrepreneurial businesses in the US, are considered important starting points for the modern venture capital industry.

Until the late 1970s, capital provisions to the venture capital market were made in a rather unstructured and fragmented way. Investments were undertaken predominantly by wealthy families, industrial corporations or financial institutions, which invested directly into issuing firms (Fenn et al., 1997), or originated from governmental initiatives. Up to this point, private equity was primarily a US-specific phenomenon.

However, towards the end of this decade and during the beginning of the next, an international private equity market emerged. At the same time, the institutional capital flows to the industry increased dramatically. The main catalysts behind this development stem from regulatory and structural shifts in both Europe and the US (Bance, 2004). In the US, clarifications of the Employee Retirement Income Security Act (ERISA) in 1978, the so-called 'prudent man rule', relaxed many of the limitations of pension fund investments policies, including investments in private equity and other alternative strategies (Gompers and Lerner, 1999). In the UK, the move towards the Competition and Credit Control policy in the beginning of the 1970s provided banks with greater investment flexibility (Bance, 2004). Similar structural and legal changes occurred throughout the rest of Europe, including changes in pension fund and insurance company regulations, which expanded the investment universe for institutional investors. In addition, a few tax reforms in Europe, e.g., more attractive gains from capital investments, positively affected financial institutions' propensity to invest in this particular asset class. At the beginning of the 1970s, the structure of limited partnerships arose as the dominant organizational form for PE fund investing. As such, the institutional investors' liabilities were limited to the committed capital at the same time as they avoided labor-intensive direct investment activities (Fenn et al., 1997). This in turn enabled higher allocations to the asset class. Taken together, these catalyst factors promoted a rapid increase in the amount of capital used for venture capital investing.

The steady growth of capital into the VC market in the late 1970s and early 1980s caused a virtual explosion of new VC firms in the US market. This resulted in an overcrowded market with large numbers of inexperienced venture capitalists, intense competition for promising investment opportunities, and over-investments (Gompers and Lerner, 1999). However, these commitments came to a sudden halt in the late 1980s due to declining returns, a collapsing stock market and the withdrawal of international capital from the US market. After a thorough shakeout and consolidation of the industry in the beginning of the 1990s, only the more successful firms survived.

Eventually, the returns became attractive again, after which the industry once again expanded, constituting the basis for a new, this time worldwide, VC boom, i.e., the 'dot com bubble' era (Metrick, 2007). The boom occurred in the late 1990s, when many high-tech startups benefited from massive public interest in nascent Internet technologies and when initial public offerings of technology stocks were frequent occurrences. During the peak of the 'bubble' period, i.e., 1998 to 2000, the valuation of new technology firms skyrocketed as well as the inflow of capital to the VC investment market (Ofek and Richardson, 2003). However, this unsustainable way of investing in largely unproven concepts eventually gave way to reality, leading to the NASDAQ crash in March 2000 and thereby to a massive valuation drop of startup technology firms. In practical terms, this turn of events paralyzed the entire global VC industry. Over the years to come, VC firms were forced to write off large proportions

of their investments. A significant number of venture capital firms were swept away from the market since fund investors to a large extent abandoned the industry. By mid-2003, the industry had decreased in size to less than half its 2001 capacity (Kedrosky, 2009).

The Swedish venture capital market took off toward the end of the 1970s. After a period of stagnation and industrial crisis, the Swedish government considered VC to be an important contributor to entrepreneurial innovation and growth and hence took an active role in forming the Swedish market (Karaömerlioglu and Jacobsson, 2000; Isaksson, 2006). In the mid 1980s, 30 new regional and governmentally managed investment companies had been established and, in addition, about 20 privately held VC firms were operational (Olofsson and Wahlbin, 1985). In the late 1980s, however, due to the Swedish financial crisis with falling stock prices, high interest rates, etc., the market collapsed. Beside the environmental factors, also micro-related reasons behind the challenges facing the Swedish VC industry in the beginning of the 1990s have been put forward, mostly related to a general lack of experience from, and hence a thorough understanding for, venture capital investing (Karaömerlioglu and Jacobsson, 2000; Isaksson, 2006).

However, similar to what happened in the US and, for that matter, in most other European countries, towards the end of the century the Swedish VC market boomed. There were several reasons behind this upturn, including a flourishing stock market, a number of governmental initiatives for increasing the general supply of early stage capital, and the permission for public pension organizations to invest in VC funds – factors that together resulted in a huge inflow of capital to the VC industry (Isaksson, 2006). In addition, demand side factors in terms of a strong increase of investment opportunities also contributed to the rapid expansion of the industry, e.g., the explosion of Internet-related projects and spin-offs of technology-based entities from large enterprises such as Ericsson, Volvo and Astra (Baygan, 2003). As a result, a large number of new VC firms entered the market during this period: from 1998 to 2000 a total of 24 new Swedish VC funds were founded, which was three times more than in the substantially longer period 1983 to 1997 (Söderblom, 2011).

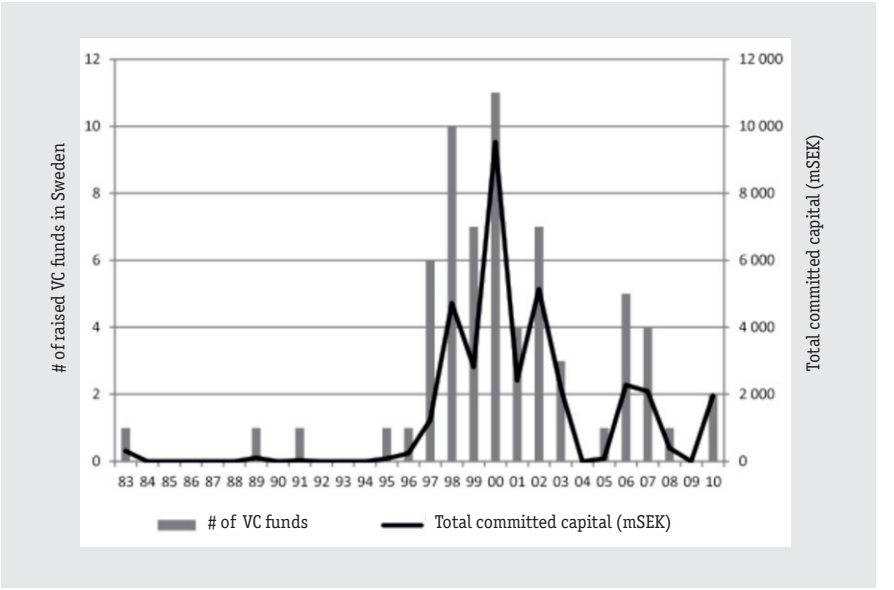
In parallel to the situation facing most markets around Europe and the US, however, the burst of the 'bubble' at the millennium shift had a severe negative impact on the Swedish VC industry. The competition among VC firms for attractive investment opportunities but, even more, for funding became intense, leading to a large shakeout where a vast majority of young VC firms disappeared from the market. And, the few remaining VC firms to a high extent fled to later stage investments, or focused solely on existing portfolio firms. In this period, the number of newly established VC funds decreased by 42 percent to a total of 14 funds (ibid.).

5.3. Current state of the Swedish VC industry

A decade after the 'dot-com' collapse, the general conclusion is that little recovery has been seen in the VC industry on a broad basis (Kedrosky, 2009; Mason, 2009).

Based on information arriving from SVCA, Argentum[12], and own data (for details, see Söderblom, 2011), attempts to capture the current situation in the Swedish VC industry have been made. Given challenges associated with getting a complete understanding of the levels of capital managed by VC firms targeting Swedish early stage firms (see discussion below), two separate analyses were carried out as a way to triangulate data.

FIGURE 5.2 Number of raised Nordic VC funds (active on the Swedish market) and total commited capital 1983-2010



Source: Söderblom (2011) and Argentum (www.argentum.no)

First, an analysis of how the levels of capital managed by VC firms have changed over time was made. Given limitations in data access, only venture capital firms investing third-party capital organized in fund structures (i.e., in limited partnerships) were included. As discussed above such VC companies manage more than 60 percent of the capital on the Swedish market (Söderblom, 2011), and moreover, to a large extent constitute the role models for how to carry out VC investments (Sahlman, 1990). Hence, the assumption is that an examination of VC firms operating within fund structures will provide a fairly good approximation of how the availability of VC capital has changed over the years. In Figure 5.2, raised Nordic VC funds that target

12. Norwegian Argentum is one of the larger governmental PE fund in fund investors in the Nordic region, www.argentum.no.

the Swedish market are included, i.e., make VC type of investments in Swedish firms. Both the number of funds raised and the total amount of committed capital for the particular year are depicted in the graphs. In total, 66 funds were raised, whereof 15 percent of the funds were based in Norway, Denmark and Finland. The graph illustrates how the number and capital levels in VC funds investing in Swedish firms clearly have decreased over time. The proportion of non-Swedish funds has increased over time, e.g., the last two funds raised were Norwegian and Danish. Moreover, anecdotal evidence suggests that a few non-Nordic VC firms recently have appeared on the Swedish market, showing a selective interest for a few superior startup firms, i.e., some Swedish high-potential firms tend to bypass the local VC industry and directly seek international VC capital[13]. This is an indication of that the investment market also in the early stages has become more international.

Second, an analysis of how the number of active VC firms on the Swedish market has changed over time was carried out, see Table 5.2. A natural start was the statistics provided by SVCA. According to SVCA, its association membership represents 95 percent of all private equity firms in Sweden[14]. In addition, a thorough search for press releases, new articles, or other Internet-based information, not least information provided by Argentum, was made in order to complete the list of PE firms operating on the Swedish market from its emergence until today. To avoid 'survivor' bias, special efforts were taken to identify not only surviving PE firms, but also non-survivors. In total, 192 VC firms were identified, whereof: (i) 179 had been, or are, members of SVCA, (ii) five additional Nordic VC firms, non-SVCA members, targeting the Swedish market were identified through Argentum, and finally (iii) eight VC firms were found through own Internet-based searches.

The second column in Table 5.2 shows the number of VC firms that were active on the Swedish market in 2002, mainly measured by their membership status in SVCA, split on the type of firm. The next column presents the number of VC firms currently operating on the Swedish market, i.e., in 2011. As shown in the table, the number of venture capitalists has decreased to 90 active firms over this nine-year period. The picture gets even gloomier after adjusting the data captured from SVCA and Argentum by leaving out companies that have stopped VC-based investing according to official information published by the firms in question. After a removal of these firms, there were only 52 active VC companies left [15].

13. Results that came through in the several of the interviews made within the frame for this report, see Appendix 1.
14. When analyzing the member lists available from SVCA supplemented with other data sources, the impression is that the interest to be a member of the association to some extent has declined over time. That is, the association membership is not likely to represent 95 percent today.
15. The number could obviously be even lower, since only those VC firms that officially have announced that they have stopped VC investing were removed. On the other hand, there are probably a few VC firms currently operating on the Swedish market that has not been identified within the frame for the current review.

To summarize, the number of VC firms operating on the Swedish market has, according to these calculations, been reduced by 65 percent. A particularly large number of fund based, publically listed and corporate VC firms, have disappeared from the industry, while privately financed firms and especially governmental-based VC companies to a larger extent have continued to operate on the Swedish market.

TABLE 5.2 Number of venture capital firms operating on the Swedish market

TYPE OF VC FIRMS	VC FIRMS 2002 [a)]	VC FIRMS 2011 [a)]	VC FIRMS active SEP 2011 [b)]	REDUCTION
Fund based [c)]	40	21	8	80%
Private [d)]	36	28	18	50%
Corporate	28	12	5	82%
Publically listed	14	4	2	86%
Governmental	31	25	19	39%
TOTAL	149	90	52	65%

a) VC firms that were members in SVCA, listed by Argentum, or identified through other secondary data sources.
b) VC firms that were members in SVCA, listed by Argentum, or identified through other secondary data sources after leaving out those VC firms that have stopped VC-based investing according to official information.
c) VC firms making investments from funds capitalized by third parties, i.e. based on limited partnership structures, or similar.
d) VC firms operating as investment companies investing private capital.

Before outlining possible reasons for this identified massive decrease in terms of both capital supply to, and firms active on, the Swedish VC market, a brief overview of the existing body of research concerning how venture capital may contribute with value to their investee firms, to the society, and to the capital providers will be presented.

5.4. The impact of VC financing

Over the last two decades, venture capital has received substantially academic attention. Today, VC research is a multifaceted discipline with topics ranging from the relationships between VC firms and either their investors or their portfolio companies, through governance and control on several levels, to valuation and performance of portfolio firms, VC funds and the industry as a whole. Areas of particular importance concern the impact of venture capital – on the investee firms and on society.

5.4.1. VC impact on investee firms and the society

One of the central and most enduring questions in the VC literature is the extent to which venture capitalists have any real impact on the firms in which they invest and on the society on a general level.

Hence, an area that has attained great interest from scholars is determining the extent to which VC firms add any value over and above the infusion of capital. The first studies within this stream simply described how VC firms, in contrast to most other investors, take on rather active roles in the development of their investee firms by providing non-financial services. Identified value-added areas included: acting as sounding boards, assisting in additional financing rounds, recruiting management and boards of directors, monitoring financial and operating performances, and providing access to networks and contacts (Gorman and Sahlman, 1989; Rosenstein et al., 1993; Barney et al., 1996). Or, shorter, non-financial contributions in terms of knowledge, networks and certification. Earlier studies tend to be somewhat overenthusiastic about VC firms' ability to bring substantial value in addition to pure capital (Gorman and Sahlman, 1989; Muscarella and Vetsuypens, 1990; Sapienza et al., 1996; Fried et al., 1998; Hellmann and Puri, 2002; Arthurs et al., 2008). Following these studies, however, a more nuanced view began to emerge wherein differences between various VC firms' capabilities to add value were identified. To what extent an investor could contribute with anything more than money was found to be related to the individual investor's experience (Sørensen, 2007; Bottazzi et al., 2008; Zarutskie, 2010), prominence (Gompers, 1996; Stuart et al., 1999; Podolny, 2001; Hsu, 2004), ability to create open environments (Sapienza, 1992), or her learning capability (Barney et al., 1996). A few studies have even questioned whether VC investors actually do add value in addition to the capital infusions (Busenitz et al., 2004). Berg-Utby et al. (2007), for example, argue that there is a significant gap between entrepreneurs' expectations and the perceived contributions from venture capitalists. Along the same lines, a recent review on this topic finds little consensus in the literature about value added outcomes, i.e., whether venture capitalists contribute to the success of their investee firms tends to be unclear (Large and Muegge, 2008).

Related to the stream of research about VC firms' abilities to add value is the research question whether venture capital-backed firms perform better than others, a question that has been in central focus for many studies. This literature focuses on the financial as well as non-financial outcomes of venture capital-backed firms, typically matched with a control group of similar types of private companies that have not received VC capital. Measurements that have been used for evaluating the performance of portfolio companies include exits through initial public offerings, stock price development, employment growth, patent intensity, or company survival rates. Within the VC research stream, a change in opinion has been noticeable. Earlier studies provided a relatively unified consensus that venture capital-backed companies develop better than non-VC backed companies (Barry et al., 1990; Brav and Gompers, 1997; Jain and Kini, 2000; Kortum and Lerner, 2000; Hellmann and Puri, 2002; Davila et al., 2003). Later studies, in line with the previous discussion, suggest

that the successes of VC-backed firms to a large extent depend on the respective VC firm's capabilities to add non-financial value. The issue of causality seems, however, often to be bypassed; is better, or worse, performance merely an effect of a superior ability to pick winners (cf. Diller and Kaserer, 2008)? A few VC studies indicate that VC-backed firms do not generally perform better in terms of growth or financial returns than other companies (Bottazzi and Da Rin, 2002; Florin, 2005).

Taking on a macro perspective, a number of studies have been concerned with the overall supply and demand for venture capital on a societal level. The drivers for a 'venture capital demand' include areas such as overall new venture growth and thereby the size of a possible investment market for VC firms, the competitiveness in the national science base, how technical innovations may be transferred from universities to industry, and the ability of entrepreneurs to capture the fruits of their inventiveness. The drivers for 'venture capital supply' include the presence of well-functioning stock markets, the overall tax climate for entrepreneurs and investors, as well as other legislatures and overall structural issues. Examples of factors that are considered to increase the supply of venture capital are GDP growth, deep and liquid stock markets, lower labor market rigidities, decreases in capital gains tax rates, and regulatory changes (Manigart, 1994; Black and Gilson, 1998; Leleux and Surlemont, 2003; Romain and van Pottelsberghe de la Potterie, 2004; Zacharakis et al., 2007)

Since poor performance from venture capital investing is put forward as a major cause behind the current challenging situation for the VC industry in general, the remaining part of this review will be devoted to present research in this area.

5.4.2. VC performance and performance determinants

Fundamental pillars of the VC industry are the institutions that provide most of the capital pouring into the market. A vast majority of these investors have primarily commercial objectives for their investment activities, and hence, satisfactory returns will be of high importance. In other words, a long-lasting lack of competitive returns will make investors to avoid VC investments, or to only invest in VC firms with proven track records. Hence, the financial performance of the VC industry as such turns out not only to be of key interest to investors, but also for other parties interested in the existence of a vibrant VC market. A first challenge, though, is actually to evaluate returns from investing in the asset class venture capital.

How to evaluate VC performance

Private equity is an asset class with rather unique characteristics, and hence, evaluating VC fund performance is not a simple task. As private equity investments are rarely traded on secondary markets or at least the pricing of such transactions is not disclosed, scholars as well as practitioners usually rely on the cash flow history of fund investments and divestments when determining returns. For that purpose, the internal rate of return (IRR) or a public market equivalent (PME) is typically used (Diller and Kaserer, 2008). IRR is calculated as an annualized effective compounded rate of return, using monthly cash flows, which can be calculated in net (i.e., including

fees to the managing PE firm), or in gross terms. During a fund's life-time, it is common to refer to the 'interim' IRR, which is a theoretical exercise to estimate the current status and future potential of an unrealized PE fund portfolio, whereby realized and unrealized IRRs are calculated, the latter at fair market value using different assumptions.

Analyses of the profitability of investments in private equity, including venture capital, face a number of problems. First and foremost, since information within the private equity industry by definition is 'private', compared to public markets, transparency requirements are limited. To the extent that public data are available, primarily from vendors such as Thomson Venture Economics or Dow Jones, they are largely collected from PE firms on a voluntary basis and thus subject to selection bias. For example, only roughly half of all private equity funds are estimated to be sampled in Thomson Venture Economics' VentureXpert database (Kaplan and Strömberg, 2009). Second, PE firms' unclear and inconsistent reporting of net or gross returns, i.e., whether the reported results include or exclude fees to the PE firms, makes comparisons problematic. Third, reported data are based on unrealized as well as realized investments, which introduces noise and potentially biases due to subjective accounting treatment (Ljungqvist and Richardson, 2003). External valuations of portfolio companies only exist in the events of: (i) initial public offerings, (ii) trade sales based on tradable securities or cash, (iii) additional financing rounds with new investors, or (iv) if the company files for bankruptcy. Therefore, according to Ljungqvist and Richardson (ibid.), the calculations of interim IRRs that are computed before a fund reaches maturity are not very informative. In a similar vein, Cumming and Walz (2010) claim that there are systematic biases in the reporting of interim IRRs. Fourth, there is a limited history on private equity, as compared to other asset classes (Conroy and Harris, 2007). Hence, useful and comparable data are lacking. Fifth, evaluating performance returns alone provides an incomplete picture if the process of analysis does not incorporate the risks associated with an investment. Investing in venture capital is considered to be associated with especially high risks in several dimensions (Phalippou and Gottschalg, 2009). Hence, given the increased risk in addition to long investment periods, illiquidity and large investment sizes, a higher return compared to other asset classes is required a priori when investing in VC funds.

Comparing results from different analyses on VC performance is thus complicated. Having said that, there are a number of high quality academic studies, which together with data from EVCA, NVCA and BVCA, provide a fairly good understanding of returns from venture capital investments, as described in the following section.

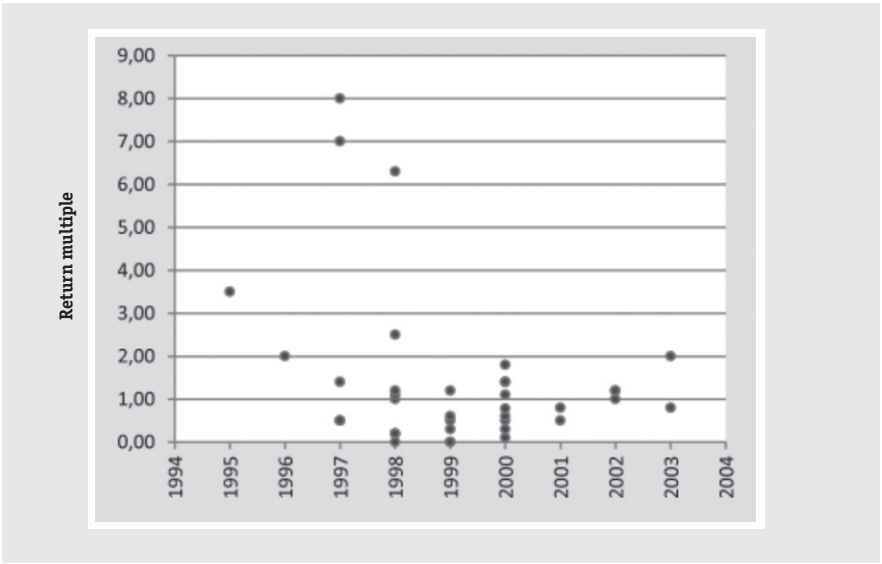
Returns from VC investing

A growing body of literature has evaluated the performance of private equity, including VC, funds. While the initial studies tended to be optimistic about returns, more contemporary studies are rather negative about the performance of the asset class

on a global basis. For example, Chen et al. (2002) examined 148 venture capital funds that had been liquidated between 1969 and 2000. They found an average annual return of 9.99%, with the highest annual IRR of 74% and the lowest of -72%. Jones and Rhodes-Kropf (2003) evaluated the performance of 1 245 US-based funds, 70% VC and 30% BO, in the period 1980 to 1999. They did not find any excess return even though the average fund alpha was positive (but small). In a sample almost identical to that used by Jones and Rhodes-Kropf (2003), Kaplan and Schoar (2005) analyzed 746 US-based private equity funds, whereof 78% where VC-based, over the years 1980 through 2001. They found that average fund returns net of fees were slightly less than the S&P 500 index and that fund returns are relatively persistent over time. Using a sample similar to the one employed by Kaplan and Schoar (2005) but adjusted for sample selection and writing off the residual value of 'living dead' funds, Phalippou and Gottschalg (2009) found a significant underperformance of private equity funds. The authors show that their sample, consisting of 852 VC and BO funds whereof 64% US-based, lagged behind the S&P 500 return by as much as 3% per annum. The underperformance was largely attributed to the low performance of the VC funds. Similarly, Driessen et al. (2008), studying a mix of US VC and BO funds, found that venture capital funds are associated with a high market beta and significant under-performance, while buyout funds show a low beta but no abnormal performance.

In one of few studies about the performance of Swedish VC funds, Söderblom (2011) utilized unique data when analyzing the returns from all venture capital funds raised in Sweden over a 20-year period. In line with international studies, this analysis did reveal significant underperformance of VC funds. Figure 5.3 depicts the 45 VC funds included in the study, raised by Swedish VC teams between 1995 and 2003. On average, these funds returned 1.45 times the invested capital. As the figure also indicates, however, Söderblom found severe differences in the best and worst performing VC funds. That venture capital performance includes a great deal of heterogeneity and skewness, i.e., there are large differences between the best and worst performing funds, is supported in a broad number of studies (e.g., Kaplan and Schoar, 2005; Conroy and Harris, 2007; Phalippou and Gottschalg, 2009).

FIGURE 5.3 Swedish VC fund performance multiples (n=45)



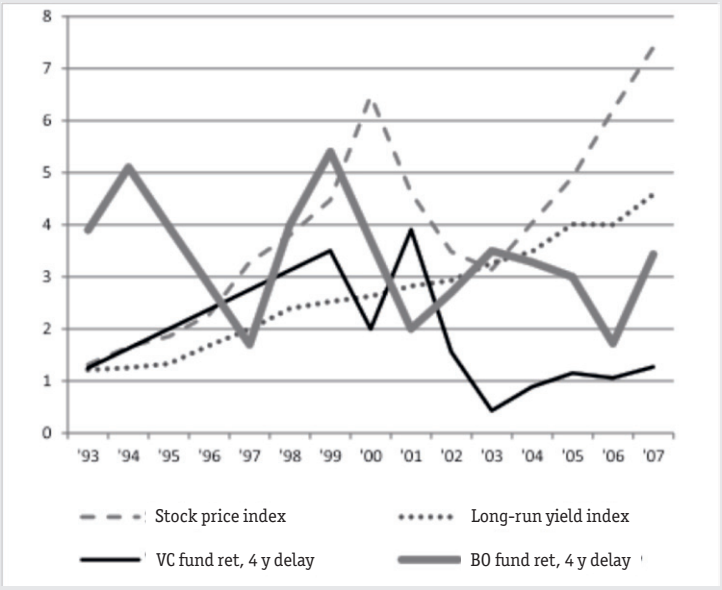
Source: Söderblom (2011)

Söderblom (2011) compared the return multiples per vintage for Swedish VC funds with the performance of Swedish BO funds, returns from the Swedish stock exchange market (i.e., the NASDAQ OMX Nordic Exchange) as well as the Swedish long-run government bond yield index, depicted in Figure 5.4[16]. The diagram indicates that both VC and BO fund returns are linked to macro-economic conditions. That PE returns co-vary positively with business cycles and stock-market indices has also strong support in the international private equity literature (e.g., Gompers and Lerner, 2000; Kaplan and Schoar, 2005). Furthermore, the diagram shows that VC funds are even more affected by downturns compared with BO funds, which has been pointed out in earlier studies as well (Diller and Kaserer, 2008).

Taken together, the overall finding from these studies is that VC funds, in general and especially after adjusting for risk, have generated lower returns than comparable public indices. At the same time, it has been found that these performance measures conceal a significant amount of heterogeneity. In other words, VC firms vary in their ability to generate excess returns. A key question is what causes these differences in returns, a topic that will be discussed next.

16. The return multiples for the included VC and BO funds were delayed by four years, taking into account that exits from PE investments are on average executed at the earliest three to five years after fund establishment.

FIGURE 5.4 Swedish avg. PE fund performance multiples in comparison with stock and bond indices



Source: Söderblom (2011)

VC performance determinants

Scholars have identified factors affecting VC fund performance in all possible areas, ranging from broad macro determinants to rather narrow portfolio firm related factors, of which a few will be discussed below (see Söderblom and Wiklund, 2005, for a detailed review of VC fund determinants).

The phase focus of VC funds, i.e., the development stage of targeted portfolio firms, is considered to have a strong impact on performance. Manigart et al. (2002) show that early-stage VC firms require a significantly higher return for an investment than companies focusing on later phases. Das et al. (2003), in a similar vein, argue that a high rate of early-stage investments has a negative impact on the proportion of successful exits. In addition, the geographical origin and focus of a fund seem to impact returns. European VC funds are considered to generate lower returns than US-based funds, where Hege et al. (2008) found that US VC firms on average exhibit significantly higher performances in terms of IRR than their European counterparts. The geographical scope itself may influence performance as well. Manigart et al. (1994) found that European VC firms with a local focus generate lower returns on average than VCs with broader geographical focuses. Furthermore, the degree of

specialization of a VC fund is considered to be related to subsequent performance. Gompers et al. (2009) found, when studying a set of 122 VC firms, that generalist VC firms tend to underperform relative to specialist firms. In a similar vein, Das et al. (2003) showed that there is a high cross-sectional variation in the probability of an exit across industries. Thus, not only is industry specialization per se important, but similarly significant is the ability to focus on the 'right' industries. Finally, the characteristics of the VC funds themselves may matter as well, where especially large fund sizes have been attributed to better outcomes (Laine and Torstila, 2004; Hochberg et al., 2007). Size captures several performance-related dimensions such as prominence, learning and economies of scale (Gompers and Lerner, 1999). However, there are also contradictory views about optimal VC fund sizes, indicating that too large funds may underperform relative to their smaller peers, where the diminishing returns for larger funds are for example attributed to the challenges of finding sizable and potentially lucrative deals, risk of opportunistic behavior, and possible negative effects on the incentive structure with excessive management fees for GPs (Gompers and Lerner, 1999; Kaplan and Schoar, 2005; Phalippou and Gottschalg, 2009; Lerner et al., 2011). Related to fund size is the issue of the number of investments in a portfolio, where Schmidt (2006) shows that there is a high marginal diversifiable risk reduction of about 80% when the portfolio size is increased to include 15 investments, and that an ideal VC portfolio contains between 20 and 28 investments. Jääskeläinen et al. (2006) argue that the number of portfolio companies a venture capitalist manages and the total returns of the VC fund will exhibit an inverted U-shaped curve. Their data suggest that venture capitalists reach their respective optimum level with slightly over 12 portfolio companies per partner of a VC firm.

Several scholars argue that one of the most important determinants of excess returns from VC investing is related to the management teams' skills in several dimensions, including their ability to identify beneficial investments, to provide professional support to portfolio companies, or simply to make better deals (Kaplan and Schoar, 2005). For example, Phalippou and Gottschalg (2009) found that more experienced and skilled VC firms offer higher returns and have higher survival rates compared with their less experienced peers. Also, Diller and Kaserer (2008) showed that fund returns are positively correlated with the managing VC firm's skills, not least their selection capabilities. Furthermore, Hochberg et al. (2007) suggest that cross-sectional differences in returns are closely related to VC firms' abilities to nurture investments, i.e., to add value to portfolio companies. Walske and Zacharakis (2009) showed that nascent VC firms founded by managers having prior venture capital or senior management experience were more likely to raise subsequent funds.

Following the reasoning that experience has a strong impact on performance, there is an expectation that the returns from a subsequent fund will be in line with, or better than, the previous fund's return. This so-called 'persistence phenomenon' has been documented by several researchers (Kaplan and Schoar, 2005; Diller and Kaserer, 2008; Phalippou and Gottschalg, 2009). In other words, it is widely believed that a VC investment team that outperformed the industry benchmark with one fund

is likely to outperform the industry with the next, as well. Consequently, first-time funds, i.e., the first funds raised by newly established VC firms, are found to generate lower returns compared with follow-on funds (Hochberg et al., 2007; Phalippou and Gottschalg, 2009). Similarly, sole funds, i.e., those not followed by a subsequent fund, have lower proportions of successful exits than others (Laine and Torstila, 2004). Therefore, a fund sequence number has been suggested as a valid predictor of fund performance (Kaplan and Schoar, 2005; Phalippou and Gottschalg, 2009). In addition, the extent to which VC firms' exercise of governance and control of their portfolio companies can affect returns has garnered substantial interest from scholars. For example, Kaplan et al. (2003) analyzed venture capitalists' use of financial contracts in the US and in non-US, primarily European, countries. They found that VCs using US-style contracts fail significantly less often. Hege et al. (2008) indicate that greater monitoring intensity with shorter time intervals between financing rounds increase the ratio of successful returns, which supports the idea of using staged capital infusions (i.e., payments in steps that are linked to the fulfillment of negotiated mile-stones).

Macro-oriented factors are considered to have significant effects on VC fund performance as well. Scholars seem unified in their view that market entries in venture capital are cyclical; in other words, funds raised in boom times are less likely to be followed by a subsequent fund compared with funds raised in other economic situations. This implies that 'boom-time' funds in general yield poor results (Kaplan and Schoar, 2005; Diller and Kaserer, 2008). One of the main drivers of an overheated market is the increased level of capital allocated to venture capital. Gompers and Lerner (2000) show that portfolio firm valuation in a financing round is increased when more money is poured into the industry in the year before the deal was closed. They argue that there is a limited number of favorable investments in the venture capital industry, giving way to the so-called 'money chasing deals' phenomenon, which has been supported by several researchers (Ljungqvist and Richardson, 2003; Hochberg et al., 2007; Diller and Kaserer, 2008). Kaplan and Schoar (2005) suggest that established VC firms are less sensitive to business cycles than are new entrants. Along the same lines, Gompers et al. (2008) found that the level of variation in success between the most experienced and the least experienced venture capital groups increases in 'hot' markets.

When analyzing performance determinants for VC funds operating on the Swedish market, a study undertaken by Söderblom (2011) indicated the following. First, there is a clear period effect – funds raised up to the year 1997 in general perform better than funds raised between 1998 and 2003, which supports earlier findings. Second, adjusted for period effects, subsequent VC funds do not in general perform better, or worse, than previous funds, a result that contradicts existing research. Having said that, subsequent funds generate on average significantly better returns than first-time funds. Third, VC firms that have delivered poor returns in their first fund run a large risk of not being able to raise a second fund. Fourth, fund sizes appear not

to have any effect on the returns. This was a somewhat surprising result, given that there is relatively broad support in the PE literature for the notion that larger funds are associated with superior performances (see above). Fifth, geographical focus does not affect fund performance. The result contradicts earlier findings, although the factor has not been studied to any great extent previously.

To summarize, the above sections have pointed at a severe decrease of active VC firms on the Swedish market and a general underperformance of the asset class. These findings, as also discussed above, follow the current patterns for many European, and also the US, VC markets. Hence, debates of whether this is a temporary down-turn, or if more fundamental changes at various levels are needed before the industry will flourish again, are going on at multiple places, i.e., among practitioners, researchers, and policy makers. An attempt to summarize the debate is provided below.

5.5. The VC industry challenge – cyclicality or a broken model?

That the venture capital industry is in a deep crisis with low average returns, a dramatically decrease of operational VC firms, and, hence, fewer investment made into promising entrepreneurial firms in comparison with the boom days before the millennium shift, is without doubt. This pattern is similar in the US, in Europe and not least in Sweden, as discussed previously. Hence, there is a growing and important debate about where the industry will go from here, where two opposing views can be discerned: (i) this is a natural downturn due to the inherent cyclicality of the industry from which it will recover, or (ii) the VC model is broken and needs to go through fundamental changes. Both perspectives will be addressed below, with an emphasis on the latter.

5.5.1. Downturn due to normal cyclicality

Some of the more prominent scholars within the field of venture capital research argue that the current downturn in the industry is mainly due to the inherent cyclicality of VC (Kaplan and Lerner, 2010). When more capital has been committed and invested in venture capital, vintage year returns suffer (Gompers and Lerner, 2000). However, Kaplan and Lerner (2010) argue that the VC market has a self-correcting mechanism where a period of poor performance leads to decreased capital inflows, which in turn leads to a recovery in returns. Hence, there has historically been a strong element of 'mean reversion' in VC returns. Kaplan and Schoar (ibid.) also emphasize that for LPs that have an invitation to invest in the top quartile, or at any case in top decile, VC funds, returns have indeed been great.

Empirical support for the view that the current challenges facing the VC industry mainly is due to a natural evolution is provided by Block and Sandner (2011). When analyzing VC funding of the US Internet industry, they found that the VC market in 2011 is back to its pre-crisis boom levels, where the number of funding rounds and the average amount of capital raised is at the same level as before. Block and Sandner

(ibid.) even talk about a next potential bubble, when amongst other things referring to the extreme valuations of LinkedIn and Skype, and that this might be "*the next phase of investors' irrational exuberance*" (ibid, p. 168).

To summarize, the view of the current state of the VC industry put forward by this group is that VC investments and returns have been subject to several boom-and-bust cycles over time, which should be considered a natural evolution of the market. And that there is "*a great deal of evidence to support what is now a highly developed theory of how the U.S. VC model provides an efficient solution to this basic problem of entrepreneurial finance*" (Kaplan and Lerner, 2010, p. 36). Others, however, argue that there are fundamental functional and structural problems within the VC industry – problems that need to be corrected before the market will truly flourish in a healthy way again.

5.5.2. The VC model is broken

While few would deny that the venture capital industry has been, and will continue to be, crucial for the development of several high-potential companies in sectors such as IT, telecom, life science, biotech, and clean-tech, all of which are risky and partly require high capital investments, an increasing number of scholars (and practitioners alike) have started to questioning the way this industry actually functions (e.g., Kedrosky, 2009; Mason, 2009). On a high level, these criticizers argue that the problems facing the VC industry is not simply an outcome of a present financial crisis, but reflect more fundamental issues. They maintain that the industry needs to undergo radical changes including: major revisions in the structure and setup of VC funds, introduction of new working methods, and especially, a permanent industrial downsizing – changes that will result in a rather different VC industry. In this section six, more or less interconnected, arguments for why the current VC model is broken as discussed in recent VC research and forums will be addressed.

1. An oversized industry

While Kaplan and Lerner (2010), as discussed above, do not consider the VC market to be overcapitalized, others maintain that this is exactly the case where the industry needs to downsize radically to become well-functioning again (Kedrosky, 2009; Mason, 2009). Several arguments for why there is a limit for how large a VC industry can be and still being financially sound – or simply put, why too much capital will make the whole VC industry to underperform – have been proposed, where three seem to dominate.

The first argument for an existence of a 'VC industry limit' concerns the relationship between size and the value of exit markets, typically referred to as the 'VC math problem'. The line of thoughts was initiated by Fred Wilson, a leading practitioner from the VC industry (Wilson, 2009). Wilson calculates the amount of exit values that must be generated in order to receive even a minimum return from VC fund investing – a number that turns out to be significantly larger than what the US VC market has managed to generate on average over the years (ibid.):

"We need $150bn per year in exits and we are getting about $100bn. That $100bn produces roughly $50bn in proceeds for venture firms per year. After fees and carry, that $50bn is around $40bn. Which is only 1.6x [investment multiple] on the investor's capital if $25bn per year is going into venture funds. If you assume the investors capital is tied up for an average of 5 years [..], then the annual return is around 10%."

Wilson's (ibid.) conclusion is that the venture capital asset class does not scale: "*If $100bn per year in exits is a steady state number, then we need to work back from that and determine how much the asset class can manage*". The 'math problem' argument finds also support by scholars (e.g., Mason, 2009) (see also the discussion about shrinking exit markets below).

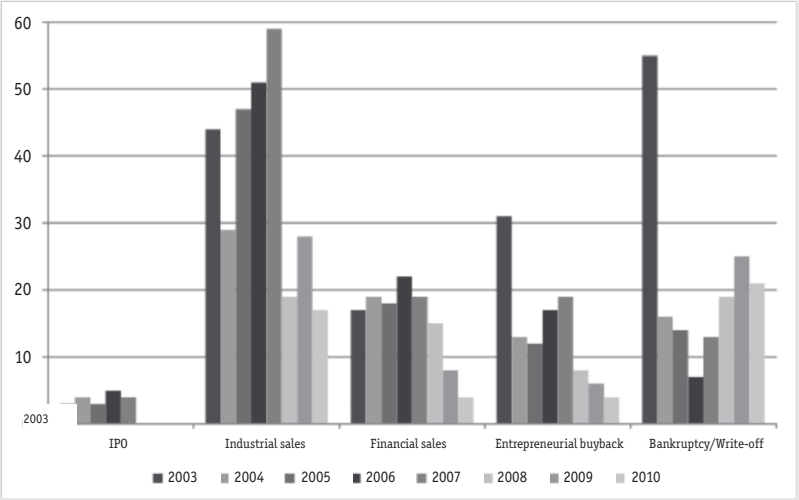
A second argument has to do with the supply of attractive investment opportunities, which is considered limited. When the inflow of capital into the VC market is excessive, valuations of attractive deals are increasing, leading way to the so called 'money chasing deals' phenomenon (Gompers and Lerner, 2000). As a result, the returns from VC investing are obviously adversely affected. Furthermore, in such markets, LPs without invitation to the most promising investments have a tendency to invest in ventures with more limited growth and scalability possibilities (Mason, 2009). The current transformations ongoing in parts of the targeted industries for VCs (as discussed below) are also considered to decrease the number of 'VC-investment' ready deals.

The third argument relates to that in an oversized industry, exit multiples will more or less automatically be reduced (Kedrosky, 2009). This leads to the next area of arguments for why the current VC model needs to undergo some fundamental changes, i.e., shrinking exit markets.

2. Shrinking exit markets

As outlined above, IPOs and trade sales, where the portfolio firm is sold to a larger player in the industry, are the two major exit routes for venture capitalists (Jeng and Wells, 2000; Gompers and Lerner, 2001b). Of these, IPOs have, at least historically, been considered the most advantageous since such exits in general generate higher multiples than trade sales. Hence, vital stock markets are regarded as important for the existence of fully functional VC industries (Black and Gilson, 1998; Giot and Schwienbacher, 2007). However, after the frequent occurrences of IPOs of high-tech startups during the Internet 'dot com' bubble period, the activity levels on the public stock markets in Europe and in the US have been very low when it comes to listing of small young companies (Block and Sandner, 2009; Kedrosky, 2009. See also Section 2.2.3). Some argues that the stock markets' general acceptances of young, money-losing companies back in the 1990s will not return – at least not on a broad basis (Kedrosky, 2009). Sarbanes-Oxley has also been put forward as a further discouragement to smaller firms aiming to go public (Mason, 2009).

FIGURE 5.5 Type of exits made by Swedish VC firms 2003-2010



Source: SVCA reports 2003-2010 & own calculations

That the exit situation for venture capitalists has been challenging during the last years is illustrated in Figure 5.5. The graph depicts the type of exits made by Swedish VC firms from 2003 to 2010 (based on SVCA reports and own calculations). While the number of positive exits (i.e., IPOs or trade sales) has decreased to a third in comparison with the quantity in 2003, the bankruptcies and write-offs have continued to grow.

3. Changes in the target industries

Another presented argument for why the VC industry is in need of radical adjustments and downsizing, is related to the changes taking place in some of the industries that traditionally have constituted the target markets for VC investors. To a large extent, the VC investment model was designed to invest in capital-intensive sectors within the IT/telecom and life science/biotech industries, such as in semi-conductors or drugs, i.e., investment areas with large scalability potentials but requiring major amounts of capital that were difficult to access from other sources. However, these industry segments have gone, or are currently undergoing, significant changes.

Within the IT/telecom sectors, many sub-segments have matured and are long past their innovative peaks (Mason, 2009). In still emerging market, such as Internet-related services, startup costs have decreased considerable compared to the situation 10-15 years ago due to: (i) shorter timespan for software development projects, (ii) reduced expenses for hardware, (iii) lowered costs for software due to open source technologies or introduction of new pricing models such as SAAS

(software-as-a-service), (iv) access to international labor markets, and (v) lowered marketing and distribution costs over the Internet (Kedrosky, 2009; Mason, 2009). As a result, several of these types of companies can bootstrap to start and grow, or use other financing sources. That is, the financing needs are in general smaller and can be met by business angels rather than by venture capital funds.

Also the suitability of venture capital for funding some sub-segments within the life science sector is debated. For example, the long timelines for drug development have turned out to be inconsistent with the traditional 10-year structure of VC funds. This has forced many life science/biotech VC firms to move to later phases or to primarily invest in medical technologies (Greene et al., 2010; Philippidis, 2011, Sep 8).

Furthermore, the promising area of clean tech investments that became immensely popular within the VC community a few years ago, have also to a high extent resulted in disappointments. Anecdotic evidence suggests that a majority of investments made within this area to date have been of infrastructural nature, rather than into scalable new technologies. Hence, debt funding has often been the preferred funding source[17].

Taken together, this suggests that the target markets for formal venture capital are shrinking. A factor that also contributes to the view that there is a limit for the size of a healthy VC market.

4. Long investment horizons

The fundamental model for how to operate fund-based VC investments is to: (i) set up a 10-year fund in a limited partnership, where institutional investors such as insurance companies, pension funds, banks, etc., as LPs commit the capital, (ii) identify, evaluate, and invest in 10-15 entrepreneurial firms with large growth potential, which are expected to be found primarily in high-tech sectors such as IT/Telecom, life science/biotech, or clean tech, (iii) given the large risk and failure rate amongst such companies, rely upon excellent exits through IPOs or trade sales for 2-3 portfolio firms before the fund closes, and subsequently, to (iv) distribute the proceeds between the GP and the LPs. However, for many investments, the time to liquidity, i.e. the time from initial investment into a startup to the time when it is sold, has been too long to fit with the closed-end fund structure – not only for investments in life science as discussed above, but for many other VC investments. On general, both in the USA and the EU, times to liquidity for VC investments have increased substantially over the last 15 years (Segalla et al., 2010). This has led a number of VC firms to extend the life of their fund beyond 10 years, having severe negative impacts on IRR.

17. Views collected from interviews made within the frame for this report, see Appendix 1.

5. Extraordinary exogenous events behind high returns
Some scholars and practitioners alike suggest that the extraordinary returns that were generated by VC fund in the 1990s[18], i.e. in the golden age of the industry, to a large extent were distorted by exogenous events such as the birth of the Internet (Segalla et al., 2010). As outlined previously in this chapter, the valuation of Internet-based firms exploded and huge amounts of money were poured into the industry. When the VC industry, as well as its target markets, has reached a more mature level such almost bizarre valuations are not expected, at least not on a broad basis (Mason, 2009).

6. Large investors abandon the asset class
As outlined above, the returns to VC fund investors have on general been poor. Although a few top quartile, primarily US, VC funds have generated excellent returns, a large number of VCs have returned less money to the limited partners than they received. This has led to a situation where many institutional investors have taken the decision to write down current VC fund holdings, and to abandon the asset class altogether (Söderblom, 2011). Not only institutional investors without invitations to invest in top tier VC funds, however, seem to be reluctant to continue to invest in the asset class. Some of the larger LPs refer to the increased transaction costs associated with investing in such a small asset class (ibid.). Others question the excessive fee levels to GPs, leading to situations where a lot of potential outperformances are captured by the GPs rather than by LPs (Kaplan and Lerner, 2010). There are indications of that investors with higher flexibility and longer investment horizons, such as family offices, endowments, and wealthy individuals, will dominate among investors in VC investment vehicles in the future (Mason, 2009; Söderblom, 2011).

5.6. Summary

This chapter started by presenting and defining the venture capital phenomenon. Thereafter an overview of how the international and Swedish VC industries have evolved over time, to a large extent following the same trajectories, was provided.

The next subsection presented two analyzes of the present situation in the Swedish VC industry. First, an analysis of how the amount of capital invested in Swedish funds has changed over the years. Second, an investigation of how the number of active VC investors on the market has shifted during the last decade. The results were unequivocal: formal VC investors' activity levels have clearly declined over the years, where the number of operational VC firms on the Swedish market has been reduced by at least 65 percent during the last decade.

18. E.g., Kaplan and Schoar (2005) found that US VC funds from 1980 to 1997 outperformed the S&P 500.

Next, a literature review about the impact of VC investing was presented. The conclusion from studies about VC fund performance is that the average risk-adjusted returns from VC investing have not been nearly as attractive as expected. Having said that, performance across funds shows significant heterogeneity, where top-quartile VC funds outperform most other types of asset classes. A few VC fund performance determinants were identified. First, later-stage VC funds perform better than early-stage funds. Second, VC funds with narrow industrial scopes realize superior returns in comparison with generalist funds. Third, more experienced VC teams are found to perform significantly better than others. Fourth, performance seems to be strongly related to fund size, where larger funds tend to generate better returns than smaller – as long as the funds are not too large. Fifth, US-based VC funds outperform European funds. Sixth, the macro-economic situation seems to impact fund performance, in that funds raised in boom times generate lower returns compared to other funds.

Finally, given that the VC market is still largely within a deep crisis, thoughts on where the industry will go from here were elaborated upon. Two opposite views were identified from the literature: (i) this is a natural downturn due to the inherent cyclicality of the industry from which it will recover, and (ii) the VC model is broken and needs to go through fundamental changes, in terms of downsizing, changes in working models, shifts in investor base, etc.

6. Discussion and policy recommendations

That venture capital has been of vital importance for some of the most successful firms in the world is without doubt. Also that a number of VC firms have managed to generate extraordinary returns to their investors. Still, as this report shows, the VC industry is currently subject to a great deal of uncertainty and controversy, where one of the more critical questions concerns the future direction of the market. The debate tends to be polarized into two main viewpoints.

One group of scholars argue that the current downturn just represents a natural evolution of an industry characterized by large cyclicality (Kaplan and Lerner, 2010; Block and Sandner, 2011). Hence, the expectation is that the VC market soon will recover and flourish again. The proponents of this idea maintain that this industry has a self-correcting mechanism where a period of poor performance leads to decreased capital inflows, which consequently result in less competition and falling pricing levels, which in turn should lead to a recovery in returns. Thereby, there has historically been a strong element of 'mean reversion' in venture returns. Moreover, Kaplan and Lerner (2010) argue that there is clear evidence that the VC model, at least in the US, "*provides an efficient solution to this basic problem of entrepreneurial finance*" (p. 36).

A contrary view is put forward by another group of researchers and practitioners who claim that the VC model is broken and needs to be radically changed (Kedrosky, 2009; Mason, 2009; Segalla et al., 2010; Gobry, 2011, Nov 02). No one is arguing that the venture capital industry will cease to be crucial in catalyzing the growth of promising startups within capital intensive high-technology areas characterized by high risk. That being said, this group presents clear arguments for why the VC industry will end up having different size and structure in the future. In other words, the problems facing the VC industry are not simply the result of an isolated downturn, but reflect long term structural issues. The differences between the present

downturn and previous ones include: (i) some fundamental changes taking place in a number of the VC industry's traditional target markets, not least within the web technology sector, (ii) shrinking exit markets since the IPO window for small firms to a large extent has closed, and (iii) that a large number of institutions permanently have withdrawn from the asset class (ibid.). Since the proponents of this viewpoint argue that the VC market has become too large, the downsizing that is currently taken place is considered healthy. Moreover, not only does the industry need to slim down but also to radically restructure through major revisions in the investment model and introduction of new working methods.

There are strong arguments in this group in favor of that the VC community will split into two main sub-segments – one consisting of a large number of smallish boutique-like VC firms and the other of a few companies managing mega-funds (Mason, 2009; Gobry, 2011, Nov 02). The new financial landscape is considered to favor smaller VC structures with investment models requiring lower amounts of capital for developing technology companies (Mason, 2009). The capital is expected to come from angel groups, or 'super angels', and from family offices, endowments and wealthy individuals. Investment vehicles could be evergreen, or closed-end, fund structures, depending on the case. While obviously also the boutique-like VC firms expect attractive returns, the investment horizons are likely to become somewhat longer in comparison with traditional VC structures. The small format is expected to be successful since: (i) Internet-based businesses are capital efficient and hence small fund sizes should make sense, (ii) higher flexibility and lower operating costs are considered beneficial, and (iii) there should be possibilities of quicker exits through small trade sales. The mega VC funds, on the other hand, will be run by the most experienced and successful VC firms. Although institutional investors generally are cutting their overall commitments to venture capital, the smaller allocations they maintain are likely to be directed to the very top VC names. Hence, in addition to the trend toward an overall smaller industry, it is likely that the market will be rather different with a large number of small (micro or tiny) funds on the one hand, and a handful of very large funds on the other hand. Stuck in the middle will be a greatly reduced number of firms trying to stick to the traditional model (Gobry, 2011, Nov 02).

Virtually every major economy has implemented initiatives to promote early stage financing, typically focusing on one specific source of capital at a time. Within the area of startup funding, venture capital has been the key area of interest to both policy makers and entrepreneurship scholars, where a number of initiatives to promote venture capital financing have been suggested. Without denying the relevance of such initiatives, this report stresses the importance of widening the perspective to include more sources of funding when analyzing the financial situation of startup firms, i.e., to take on a holistic perspective. There are a number of reasons for this, most of them interlinked:

- **Venture capital is only targeting a small proportion of firms**
  Most VC capital is targeting high-technology firms with large grow potential within the IT, telecom, life science, biotech and clean tech segments. This is a small group of firms in the global universe of startups, and hence venture capital constitutes a very small proportion of both amounts invested and the number of startup firms funded. In other words, VC financing plays a minimal role in the grand scheme of new venture creation. As addressed in this report, given the large changes currently taking place in the target industries for VCs, it is likely that the investment universe will be even smaller in the near future, at least for traditional VC firms.

- **Many high-potential firms would not seek VC funding**
  Closely linked to the previous argument is what startup firms seek. As discussed above, gazelle firms do not occur only in high-technology sectors, but rather in all industries. Moreover the 'mice' businesses, i.e., the large number of small firms that remain small, are also considered important in terms of contributing to new job creation (Henrekson and Johanson, 2010; Parker and Storey, 2010). For most non high-tech gazelles and mice, other types of funding than venture capital, such as debt, are often better suited and of larger interest to the entrepreneurs.

- **Debt funding most important source of external funding for small firms**
  A great part of the discussion about financing for entrepreneurial startup firms has revolved around the unsuitability of debt and the merits of equity, primarily venture capital. However, contrary to conventional wisdom, traditional bank debt remains, by some margin, the most common and important source of external funding for small firms (e.g., Berger and Udell, 1998; Klagge and Martin, 2005; Robb and Robinson, 2010). And not only for firms in any industry, but also increasingly so for high-growth and high-technology firms where contemporary research propose that commercial banks play a key role in financing early stage technology-based firms (de la Torre et al., 2010). Banks have been found to consider startup firms as a core and profitable segment in increasingly competitive markets (ibid.). While there has been a great deal of interest in how to improve the 'investment readiness' of many small innovative firms, efforts to improve 'credit readiness' may prove fruitful (Freel, 2007).

- **Other funding alternatives**
  Obviously, there are several other sources of funding heavily used by young emerging firms. Alternatives mentioned in this report include business angels, governmental agencies, leasing or factoring companies, and trade credits from suppliers. As discussed above, new forms of funding are constantly emerging, often enabled by new technologies. Examples are crowdfunding and venture debt.

6.1. Policy recommendations

This report has discussed the major changes that the venture capital market is currently undergoing. Strong arguments put forward in the literature for why the venture capital industry needs to make some fundamental revisions to the existing investment model, as well as why there is a limit for the size of this specific sector, have been presented. It has also been made clear that venture capital never has, and never will be, the answer to the universal issue of startup financing – not even for the average high-potential firm. That is, without denying the historical and future impact of venture capital for a small set of exceptional firms, other funding sources will continue to have a much greater importance for the vast majority of small and young companies. Despite this fact, researchers and policy makers interested in startup financing have over the last two decades almost exclusively focused on venture capital and how to promote a flourishing and well-functioning VC market. This report underlines the importance of widening the perspective to include a broader set of funding sources – and for a need to study these various sources simultaneously.

In order to develop policies on how to promote funding to young and promising firms, a solid understanding of the phenomena in question is obviously needed. Still, the overall area of financing for startups is relatively unexplored. For example, while a few recent studies investigate the overall capital structures of small and young firms on an international level, there is no equivalent study for the Swedish market. That is, a basic understanding of the current financial landscape for Swedish startup firms in general, and for high-potential firms in specific, is missing. Furthermore, the existence of multiple, among them highly different, sources of funding raises the question whether the source of funding matters for the future development of the entrepreneurial firm. That is, given that financing is considered a key driver for growth and prosperity of young and small firms, and that the capital structures clearly differs among startup firms, research that more in-depth analyses possible links between specific early-stage funding options and subsequent venture performance ought to be of high importance. Again, the VC literature has presented studies comparing how VC financed versus non-VC financed firms develop, but studies that simultaneously investigate possible links between various capital sources and future firm development are lacking. Another change taking place pointed at in the report is that startup firm investing clearly has become an international phenomenon, where foreign investments flow directly into Swedish firms. Hence, a deeper knowledge about the process of international startup firm investing and possible effects is of large interest in order to get a full picture of the funding situation of small and young firms. Yet another example of an area that deserves further research is the possible negative effects of startup financing, where anecdotic evidence claims that too early funding may be harmful for the firm's future development. Also here the knowledge is scant at best. This is just a few examples within the area of finance for startup research that need further investigations – but there are certainly more. With a broader understanding of the various funding sources for startup firms and how

they interact, policy makers will be in a significantly better position to take decisions aiming at improving the financial landscape for a considerably larger group of startup firms.

The bottom line is that the financial landscape for early stage companies is currently undergoing major changes. Only by taking a broader, but also a more nuanced, perspective of all possible funding sources available to startup firms, a more holistic understanding of the financial system for such businesses may be acquired. This should result in a broader and more up-to-date perspective that hopefully in a better way will guide policymakers and others in their stimulation efforts of young and small, especially high-potential, firms.

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Appendix

APPENDIX 1. Overview of interviews

#	TYPE OF RESPONDENT	PLACE	TIME	INTERVIEW LENGTH
R1	Founder VC firm	Face-to-face, Sweden	September 2011	60 min
R2	Investment manager VC firm	Face-to-face, Sweden	September 2011	60 min
R3	Business Angel	Telephone	September 2011	35 min
R4	Founder VC firm	Face-to-face, Sweden	September 2011	80 min
R5	SVCA representative	Face-to-face, Sweden	September 2011	70 min
R6	Incubator founder	Face-to-face, Sweden	September 2011	45 min
R7	Partner VC firm	Telephone	October 2011	40 min

Näringspolitiskt forum är Entreprenörskapsforums mötesplats för frågor rörande det svenska näringslivets utveckling och svensk ekonomis långsiktigt uthålliga tillväxt. Ambitionen är att föra fram policyrelevant forskning till beslutsfattare inom politiken samt inom privat och offentlig sektor.

Rapporten *The current state of the venture capital industry* beskriver den svenska riskkapitalsektorns utveckling och struktur. Den ger ett internationellt perspektiv på den svenska riskkapitalsektorn och analyserar tillgången på riskkapital och alternativa finansieringsformer för nystartade företag. Vidare diskuteras hur krisåren påverkat utbudet av riskkapital. Rapporten mynnar ut i en rad policyförslag på hur politiken kan utformas för att stödja entreprenörskap och underlätta finansieringen av nya företag.

Rapporten är författad av Anna Söderblom, Handelshögskolan i Stockholm

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