
1 Introduction

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INTRODUCTION

The volume of research output on venture capital (VC) has expanded enormously since 2000, easily justifying a second *Handbook* on the topic. For example, the average annual number of papers with venture capital in the title in the five leading entrepreneurship/small business journals¹ has increased by 50 per cent in the period 2000–11 compared with 1990–99. There were 25 papers on venture capital topics in the most recent (2010) *Frontiers of Entrepreneurship Research*² compared with between 10 and 15 per annum in the second half of the 1990s (Mason and Harrison, 1999). And at 11 per cent of the total, the share of papers presented on venture capital topics has remained similar to that of the late 1990s in the context of a much expanded conference reflecting the significantly broader focus of entrepreneurship compared with the 1990s. Meanwhile, a search of Harzing's *Publish or Perish* found that the annual number of papers cited with venture capital in the title in Business, Administration, Finance and Economics averaged 97.3 between 1990 and 1995, rose to 203.3 between 1996 and 1999, and then more than doubled to an average of 470.7 per annum between 2000 and 2010. The significant period of growth occurred between 1997, when there were 138 cited papers, and 2000, when there were 420. Since then the number of papers has fluctuated between 446 and 553. Of course, the late 1990s saw an enormous expansion in the scale of venture capital investing in response to the dot.com boom. However, rather than declining in line with VC investment activity in the early 2000s as the boom turned to bust, research activity has actually increased. Since the late 1990s we have also seen the emergence of specialized academic journals which focus on venture capital, notably *Venture Capital: an International Journal of Entrepreneurial Finance* (<http://www.tandf.co.uk/journals/authors/tvecauth.asp>) and the *Journal of Private Equity* (<http://www.ijournals.com/toc/jpe/current>). So, quite clearly, VC represents a growing and significant research focus within the business (specifically entrepreneurship) and finance disciplines.

Volume 1 of the *Handbook of Research on Venture Capital* (Landström, 2007) provided a review and synthesis of the previous 25 years of venture capital research from its origins. However, there was rather less critical discussion of venture capital, nor much consideration of either the evolution of the venture capital industry nor its geographical and temporal dimensions. But what we have seen over the last decade is the emergence of more critical views on venture capital – especially relating to the institutional venture capital market – for example, regarding governance structures, competencies, performance and the applicability of the US business model of venture capital to other countries. This provides the rationale for this second volume of the *Handbook*, with chapters on governance issues and performance and on the emergence of venture capital in other parts of the world.

THE CHAPTERS IN THE SECOND VOLUME OF THE *HANDBOOK OF VENTURE CAPITAL RESEARCH*

Reflecting the theme of the changing nature of venture capital which runs through this volume, in Chapter 2 Jeff Sohl reviews the changing nature of the business angel market. Although there is a lack of reliable estimates on market size, Sohl nevertheless emphasizes that there is sufficient evidence in the USA to confidently claim that angels have consistently invested in more than ten times the number of deals than venture capital funds. He identifies four important trends. First, from the fragmentary statistics available, there has been a growth in angel investing in recent years. Second, the angel market has become increasingly organized into various types of portals – that is, organizations that provide a structure and approach for bringing together entrepreneurs seeking finance with business angels seeking investment opportunities. The most important of these portals are informal and formal angel groups – which dominate the US market – and matching networks – which dominate in Europe. Third, there has been a redistribution of angel capital from the seed and start-up stage to the post-seed stages, particularly in the USA. He attributes this, in part, to the restructuring of the market. Fourth, there is increasing government involvement in supporting angel investment activity, notably through tax incentives to investors, support for the establishment of angel groups and various publicly-funded funds that co-invest with business angels. Angel groups are typically key partners in such initiatives. However, Sohl does not see this increasingly organized angel market as an entirely positive development. On the one hand, it has probably expanded the population of active angels, makes angels more visible to entrepreneurs, and makes it easier to gather statistics on market activity. However, it is also the case that ‘as angels are becoming more organized they are morphing into a portrait of a venture capitalist and are losing some of the valuable characteristics of the angel investor that have led to reasonable returns in the past’. Specifically Sohl is concerned that the growth of angel groups is leading to the emergence of more passive angels which he believes will be detrimental to seed investing which, because of its inherent greater risks, needs a hands-on approach to investment.

The next two chapters address venture capital governance issues. One of the critical distinctions between business angels and private equity investors is that business angels are investing their own money whereas private equity investors have to raise their capital from institutional investors such as banks, pension funds and insurance companies. In Chapter 3 Sofia Johan looks at the investors in private equity, a topic that has attracted surprisingly little attention from researchers. The main method by which institutions invest in private equity is through limited partnerships (LPs) – a contractual arrangement between a group of limited partners, typically institutional investors – and a general partner – the fund manager. The fund manager initiates the fund and takes on absolute liability in return for almost full control over the business operations of the partnership and investment decisions. Institutional investors see private equity as an attractive asset class and primarily invest through this fund arrangement as a means of mitigating risks on account of the due diligence skills of the fund managers and mix of compensation incentives and restrictive covenants. However, Johan also looks at two alternative ways in which institutions can gain exposure to private equity without the use of financial intermediaries – by investing in publicly-quoted private equity funds and directly investing

in companies. The main focus of the chapter is on the two key features of the limited partnership model: the factors that affect the level of fees for the fund managers and the contractual covenants used in limited partnerships. Johan's view, echoing our discussion in this opening chapter, is that the institutional investors are now increasingly driving the venture capital industry.

In Chapter 4 Doug Cumming looks at the nature of contracting between the venture capital fund and the investee business. His focus is on the types of securities involved and the allocation of cash flow and control rights. His purpose is to challenge the US-centric nature of much of the research by highlighting the diversity of approaches used from around the world. First, he notes the contrast between the US where, because of tax law biases, VCs almost always use convertible preferred shares, and those outside the US, who use a variety of forms of finance. Second, he notes that veto and control rights will vary depending on whether the exit is pre-planned and whether it will take the form of an IPO or an acquisition. Third, he notes that the types of control variables are related to the type of legal system and the bargaining power of the VC and entrepreneur.

The next group of chapters cover various aspects of venture capital performance. Chapter 5 by Dirk De Clercq and Dimo Dimov looks at the role of human capital in a venture capital setting. Their overview takes account of both individual and collective human capital, the latter being defined as the breadth and depth of experience in a VC firm. Although it has been long attested that the success of VC firms is attributable to the superior skills of the investment partners, there is surprisingly little research on this theme. Human capital plays critical roles in both the pre-investment phase – all of the tasks leading up to and including the completion of an investment contract – and the post-investment phase, which comprises all activities that take effect after the investment is made. They also review the human capital rationale for syndication between VC firms, noting that here again it can benefit pre-investment tasks and also represent a means of achieving better post-investment performance. The available evidence consistently shows that differences in human capital account for differences between VC firms in both their portfolio characteristics and the performance of their portfolios. Specifically, 'more seasoned investors enjoy better performance'. De Clercq and Dimov contrast the extensive industry experience of the early US VCs with the high proportion of current VCs who have financial and consulting backgrounds. We might speculate on whether this has had an influence on the recent dismal performance of the VC industry (see discussion below). Track records, in turn, are an important factor in the ability of VC firms to raise further funds. As the next section notes, this effect has been at work in recent years.

Chapter 6 by Annaleena Parhankangas looks at the economic impact of venture capital. The belief that venture capital generates significant economic benefits, notably in terms of employment and innovation, is widely held amongst policymakers and scholars. Parhankangas draws three key observations from extensive literature review. First, VC-backed firms outperform other firms on a range of variables, including employment and sales growth and stock market performance. This could be attributed to the selection effect – the ability of VCs to pick 'winners' – or to the ability of VCs to boost the performance of their portfolio firms through their various value-adding skills. However, there are also a variety of potential methodological flaws in studies of the comparative performance of VC-backed firms which encourages caution in how their results are interpreted.

Second, VC-backed firms are more innovative, although Parhankangas notes that this is open to two contrasting interpretations. It could be that VC spurs innovation. However, it is also possible that innovation creates a demand for VC, hence innovative firms seek VC. Third, the economic impact of VC is limited to selected businesses, industries and regions.

The notion that the superior performance of VC-backed firms arises – at least in part – from the value-adding skills of investors is subject to scrutiny in Chapter 7 by Roger Sørheim. He identifies four contributions. First, VCs play a certification role, with at least top ranked VCs enhancing the reputation and credibility of their portfolio companies on account of their own prestige. Second, VCs are likely to play a strategic role in their investee companies through their role as board members. Additionally, they will use their specialist networks to connect their portfolio firms with key resource providers and partners. Third, VCs play monitoring and controlling roles in their portfolio businesses. This sometimes includes dismissing the CEO. Finally, VCs will facilitate the exit – whether that is through a trade sale or an IPO. The literature emphasizes that the value-added activities of VCs are a fundamental part of their activities, and occupies a significant proportion of a VC's time. However, Sørheim is at pains throughout this chapter to highlight just how little we know about the role and impact of VCs as smart investors. One specific unknown that Sørheim identifies is whether successful VCs take a different approach to their value-adding roles.

The final group of chapters look at geographical aspects of VC. In Chapter 8 Sofia Avdeitchikova looks at the geographical organization of venture capital and business angel investing at both the international and national scales. The underlying theme is the uneven geography of investment activity. At the international scale VC has spread from its origins in the USA, initially to Europe in the 1980s and early 1990s, and subsequently to emerging economies. However, the prevalence of VC across countries is unevenly distributed. Key factors influencing the size of a country's VC market include the following: high level of economic activity, strong entrepreneurial culture, well developed financial system, low corporate taxation, investor protection and robust corporate governance and high quality human and social environment. Growing hand in hand with the internationalization of VC has been an increase in cross-border VC. This takes two forms. First, VC firms in one country may raise funds from investors (limited partners) in another country. Second, VC firms in one country may make investments in companies based in another country. In the second part of the chapter Avdeitchikova also highlights the concentration of VC firms in a small number of regions and the predominantly localized nature of their investments which leads to a geographical clustering of investments. Turning to business angels, she highlights the high concentration of their investments in metropolitan areas and university regions. Business angels based in these locations typically make local investments. These regions also attract long-distance investments from business angels located in other regions, especially peripheral regions.

The US-centric nature of much of the research on VC is a recurring theme of the various chapters. The three other chapters in this group are a further attempt to emphasize both the growth of VC beyond the USA and its distinctiveness. The development of venture capital in Israel is the focus of Chapter 9, by Gil Avnimelech and Shai Harel. Israel is particularly interesting in a VC context for two reasons. First, it is probably the

most successful instance of the diffusion of the Silicon Valley model of VC and high tech beyond the USA. Second, its development has been the outcome of targeted government policy. However, the specific context in which Israel's VC industry emerged is critical. Key factors included a strong science and technology base linked to the country's military needs, an entrepreneurial population, reinforced by well-educated immigrants from the former Soviet Union, highly skilled personnel with in-depth knowledge of technology and software acquired during their compulsory military service and the dense social networks which have also been created by military service. This provided a favourable context for government initiatives to create a high-tech industry, demand for a VC industry, and a VC industry which provided the supply. The key intervention was the Yozma Program, a fund-of-funds which invested in 10 domestic Limited Partners VC funds. One of the key requirements was that these funds were required to raise further private sector funds (typically from abroad) and to engage with a reputable foreign VC fund as a means of gaining investment knowledge. Interestingly, this has led to a division of labour between local and foreign investors, with the local VCs seeking out and nurturing start-ups in their early stages and then bringing in foreign VCs when large amounts of capital and other resources are required. However, these strengths have not prevented Israel from sharing in the VC crisis, which is reflected in a major decline in the amount invested in VC and low returns. The chapter concludes with a glimpse of possible new models of VC investing.

China is the focus of Chapter 10. China has become a growing focus for venture capital activity which can be traced back to the 1980s, although its substantive development did not occur until the later 1990s. The key theme of this chapter by Haitian Lu and Yi Tan is that mainstream Western theories of VC, and in particular information asymmetries with its emphasis on moral hazard and adverse selection, has limited explanatory power in China where VC has focused on conventional industries and later stage investments. Instead, they propose that a rent-seeking, institution-based perspective is more appropriate for understanding VC in China. US research ignores the role played by institutions because a stable, market-based institutional environment is taken for granted. Hence the main sources of risk come from industry-level and firm-level conditions. However, in emerging economies such as China the immature and frequently changing institutional environment is a significant risk factor. Thus VCs in such environments must place great emphasis on coping with institution-type uncertainties and capturing institutionally-generated economic rents. That means establishing good social and political ties with government and lobbying so that policy changes can become more predictable or that they might be given certain eligibility criteria. Using this framework the authors review the development of the Chinese VC industry from the mid-1980s, recognizing five distinct phases, and analyse a variety of contemporary VC practices in China. This includes the following: the importance of establishing relationships with intermediaries; the primary importance of political risk in the investment decision; and the role of trust between the entrepreneur and the VC to generate relational rents, including the sharing of information which creates a different type of post-investment relationship from that in the West.

David Lingelbach reviews venture capital in developing countries in Chapter 11. Some readers might find it surprising to discover that 18 middle-or low-income countries currently have active national VC industries. The most active of these are India, Brazil,

South Africa and Russia. These countries are typically at the 'efficiency driven' stage of economic development. VC and PE (private equity) activity in developing economies is therefore now a significant part of the global VC/PE industry. However, as noted by Lu and Tan in their chapter on China, venture capital in developing countries takes place in a significantly different context from that in which it was first established and to where it initially diffused. Critical differences include the weak institutional environment, economic volatility, poverty (which needs frugal innovation and reverse engineering), pirated IP and lack of connectivity arising from peripherality. These conditions have shaped the nature of VC in developing countries. Lingelbach offers a four-stage model of VC emergence in developing countries comprising: simultaneity (or enabling conditions), co-production (where government is typically active), diffusion of VC practice from elsewhere, and the VC cycle where an active VC industry begins to replicate itself. In concluding his chapter, Lingelbach emphasizes that one of the key challenges for scholars who are researching VC activity in developing economies is to develop appropriate theoretical frameworks.

The concluding chapter takes the form of a virtual round table discussion with several of the contributors who discuss the future of venture capital and future directions for venture capital research. This discussion emphasized the changes that have occurred in VC since its 'birth' in 1946 with the creation of ARD (American Research and Development) and the inevitability of change in the future. Several implications follow. Context matters. Geographical context has shaped VC: as several of the contributions have noted, VC takes different forms in different regions of the world. As VC continues to expand beyond its US/NW Europe core, it becomes increasingly important to recognize that the US model of VC is not the norm. But equally, time periods matter, and researchers need to be more aware than they have been up to now of the processes of change. Perhaps too much previous research has been guilty of being 'timeless' in the sense of not reflecting the influence of the time period in their findings. The organization of VC also requires more attention. Previous research has tended to refer simply to 'VC firms' without recognizing their diversity and the implications of this diversity for investment activity. This is particularly important in the case of VC investing across borders, where research has generally ignored the organizational models of global VC firms. Current trends suggest that we are seeing the emergence of greater varieties of VC. This is already evident in the business angel space with the emergence of angel groups, super angels and the blurring of the distinctiveness between, on the one hand, angels and VCs, and on the other hand, angels and retail investors. The harvest event is another theme that is both changing and under-researched. Traditionally there was a strong association between VCs and the IPO market but over the past 10 years the IPO market has become much less significant. The issue of returns, although fraught with data access issues, needs attention. The harvest process of both VCs and business angels is also woefully understood – indeed, it is striking to compare the volume of research on the investment decision compared with research on the harvest process. In short, the VC research agenda needs to reflect developments in the VC industry more closely. That will demand closer engagement between researchers and practitioners and less emphasis on the quantitative analysis of databases (whether commercially sourced or hand-built through survey methods) and renewed emphasis on qualitative methodologies.

VENTURE CAPITAL IN CRISIS: DOWNSIZING OR TRANSFORMATION?

The birth of the venture capital industry is taken to be the formation of ARD (American Research and Development) in 1946 (Ante, 2008). It has expanded considerably in the decades since then in the USA, subsequently taking root in Europe, and it is now becoming established in developing economies. Nevertheless, the US still accounts for around 80 per cent of all global venture capital activity, with Europe accounting for 13 per cent. It has also evolved from its initial focus on investing in start-up and growing companies, to become the smaller part of a much larger private equity sector which is dominated by large investments in established companies to facilitate ownership change. Initially this took the form of management (leveraged) buyouts which provided the financing to enable management teams to buy their companies from their existing owners (Wright and Bruining, 2008). This typically occurs in two situations: (i) a management team buys their subsidiary or division from a parent organization and (ii) a management team of a smaller company buys it outright from its owners, for example where there was no family successor in a family-owned business. However, from the 1990s onwards private equity began to make much larger investments, for example, taking listed companies into private ownership. But even venture capital has shifted its focus towards bigger investments: as Shane (2011) observes, it 'is no longer about making small early stage investments in high potential companies. Today, VC is much more about later stage deals involving much follow-on investing'.

In recent years there has been growing comment from both inside and outside the industry that the VC industry is undergoing further significant transformation (Mason, 2009). Various observers have suggested that it is in 'crisis' and needs to downsize (Kedrosky, 2008; 2009); we note below that this trend is already in progress. The majority of VCs think that the industry is 'broken' (Austin, 2009). However, others take a more sanguine view, arguing that any problems are only 'cyclical'. As developments have become clearer, there is growing support for the view that rather than simply downsizing, the industry is undergoing 'transformation' or even a 'Darwinian evolution' or process of 'creative destruction'. While much of this debate is occurring in the USA and refers to the US venture capital industry, it is clear that similar developments are affecting Canada, Europe and Israel. In short, whatever the label used, it is difficult to avoid the conclusion that we are in the early stages of the transformation of the traditional venture capital industry. While some of these trends are identified in the following chapters they are too recent to be reflected in the research literature but need to be addressed in its research agenda. We therefore conclude this chapter with an attempt to identify the main themes in this transformation.

The Seeds of Crisis

The root of VC's current predicament is the dot.com era. Because VCs typically raise funds with a 10-year duration, change typically occurs in slow motion. The euphoria associated with the commercialization of the Internet in the late 1990s (Valliere and Peterson, 2004) resulted in a 250 per cent increase in deals from 1997–2000 and a quintupling of dollars invested. Returns also rose spectacularly. This, in turn, attracted a huge

amount of money from a variety of investors. This money enabled existing VCs to raise larger funds and new VCs, many of them inexperienced, to enter the industry. The effect of the much increased size of funds was to increase the size of investments compared with the 1980s and 1990s, largely because of a big increase in follow-on investments (now accounting for \$4 for every \$1 initially invested, compared with less than \$3 prior to 2001), and a move to later stage investments, with seed investing accounting for less than 10 per cent of investments compared with 18.7 per cent in the 1990s and 25 per cent in the 1980s (Shane, 2011). All of this additional money competing to invest in companies inevitably drove up the cost of investments and, in turn, drove down returns. In what has been termed the 'golden era' for VC investing, from 1980–97, average quarterly returns from VC were 22 per cent, representing a significant premium over the S&P 500. However, in the 2000s VC returns have fallen below the S&P 500, and at the end of 2009 the 10-year return turned negative (Ghalbouni and Rauzles, 2010). Tom Perkins, co-founder of Kleiner Perkins, one of the key figures in the industry, has observed that 'mathematically, there's no way VC in America will make . . . \$10 for every dollar invested – a fairly typical return in past years.'

Falling returns have been driven by three factors. First, as the post-2000 dot.com boom turned to crash, many of the businesses that had attracted VC investments in the boom years failed, highlighting the poor quality of the investments made. Second, the returns from a VC fund depend on it having a small number of investments that make very high returns – 'home runs' in the industry jargon. The returns from these investments more than offset those in businesses which fail and which achieve only moderate success. These 'home runs' are generally achieved through Initial Public Offerings (IPO) which on average generate five times the returns from acquisitions (Ramsinghani, 2011). However, for much of the 2000s the IPO market has been 'closed' (Weild and Kim, 2009; 2010), meaning that there have been significantly fewer IPOs than in the past, and those that have occurred have taken longer to achieve. This has been attributed to a variety of factors, notably over-regulation and high compliance costs (Weild and Kim, 2009), while others have argued that it reflects the decline in demand for equities in developing countries because of ageing, shifting pension regimes and the growth of alternative investments. There has been a particularly severe decline in smaller \$200m–\$300m companies completing an IPO. Fewer exits has, in turn, meant that VCs have paid back less to their LPs than they took in. The Deloitte and Touche LLP 2011 Global VC Survey reports that VCs the world over think that the level of IPOs is too low to sustain the VC industry. And because non-US-based VCs look to the NASDAQ for exits, the implications of the low level of US IPOs are not confined to the US VC industry. Hope that LinkedIn's IPO in May 2011 would be the 'new Netscape', opening the floodgates to new IPOs in the way that the Netscape IPO did in 1996, have so far failed to materialize. The third factor is that it exposed that venture as an asset class does not scale. This point was developed in a blog entitled 'The venture capital math problem' by VC Fred Wilson (2009). Assume that VCs raise about \$25bn per year. That money has to generate 2.5 times net of fees and carry to deliver a decent return to the Limited Partners. Fees and carry increase this to three times gross returns, meaning that \$25bn needs to be turned into \$75bn per year in proceeds. However, VCs typically own 20 per cent of the businesses that they invest in. This means that \$75bn per year must come from exits producing \$375bn in total value. Moreover, because of syndication, many of these businesses have multiple investors:

if we assume an average of two, then to get \$75bn per year in distributions we need to get \$150bn a year in exits. However, in the late 2000s VC was generating about \$100bn which, in turn, produces \$50bn in proceeds for VC firms per year. After fees and carry that reduces to \$40bn which is only 1.6 times the investor's capital if \$25bn per year is going into venture funds. Assuming investors' funds are tied up for a five-year period before being distributed, the annual return is around 10 per cent. Wilson concludes as follows: 'you cannot invest \$25bn a year and generate the kinds of returns investors seek from the asset class.'

Falling returns have reduced the attractiveness of VC as an asset class for financial institutions. Even though it only attracts a small proportion of the assets of these institutions – under 4 per cent – some major institutions have been reducing their exposure. For example, the California Public Employees' Retirement System (CalPERS), one of the biggest investors in venture capital, is reported to be planning to reduce this asset class to just 1 per cent of its portfolio (Ramsinghani, 2011). This trend has already had several consequences for the shape of the VC industry. First, there has been a significant decline in the amounts raised by VC firms since 2000. Indeed, the amounts invested by VCs have exceeded the amounts raised since 2008. Second, there has been a decline in the number of active VC firms, possibly by as much as two-thirds. Because of the venture capital investment cycle, it takes more than 10 years to dissolve a fund, so the best indicator of this decline is the number of VC funds successfully raising finance. In 2011, 169 US VC firms raised \$18.2bn. Ten years earlier, 1100 firms raised \$100bn. It is a similar story in both Israel (Grimland and Vaysman, 2010) and Canada (Kiladze, 2011) where venture capital funds have also struggled to raise finance. Third, both the number of investments and the amount invested have fallen. Investment activity in 2009 was the lowest since the start of the dot.com boom in 1997. Fourth, those VCs that have been able to raise new funds are the small minority that have generated high returns for their limited partners. As Bryce Roberts (2011) observed, 'just as no mid-level manager ever got fired for buying IBM . . . today's Limited Partners will never get fired for backing anyone on the approved list'. These VCs (for example Accel, Bessemer, Greylock, NEA, Sequoia) have a strong brand from having invested in companies such as Apple, Cisco, Google and the like. This, in turn, attracts a high-quality deal flow. Sitting on the boards of such great companies has given them unsurpassed know-how on how to build great businesses. And they have strong pools of talent. These VCs are now managing mega funds which, for the reasons outlined above, are making large investments in later stage businesses. Fifth, in terms of its geography, VC in the USA, Canada and Europe has contracted to economic core regions, prompting governments to intervene to address regional equity gaps. Mason and Pierrakis (2011) note that in all regions of the UK apart from London and the South East, the majority of VC investments now involve the public sector, either investing on its own or co-investing with venture capital funds and, increasingly, business angel groups.

Meanwhile, on the demand side there has been a fundamental change in 'start-up economics'. It costs considerably less to start a business now compared to ten years ago or more: '\$500k is the new \$5m' – in other words, in the 1990s it might have taken \$5m to start a company. Now, cloud-based software enables companies to build technologies, web and social media campaigns enable low-cost distribution, and independent e-commerce businesses can trade using Amazon.com's platform. When combined with lean start-up techniques to provide capital efficiency (Blank, 2005; Ries, 2011) companies

can now be launched for \$500 000 or less and can sustain a low burn rate. This means that new businesses can start with little or no capital, before going on to raise VC, but equally might be able to achieve profitability or an exit with little or no follow-on capital. When companies need less money, VCs also need less money (Kedrosky, 2010). This has created various difficulties for traditional VC firms. First, because of the size of their funds, they are not well positioned to make such small investments. Second, these investments require different skills involving helping such companies to scale.

However, VC and prolific blogger Fred Wilson (2009) has added two important qualifications to this 'low capital needs' perspective. First, he argues that the significant change is timing, rather than capital requirements. 'What has changed in technology VC is not so much the total capital requirements, but when they are required. Entrepreneurs now raise big money later when the business is worth more. It also means VCs don't need to take any risks early on'. This is because nearly all of the costs involved in scaling up a sustainable product relate to headcount. Second, these trends are confined to software. The economic models of industries such as cleantech, biotech and other capital-intensive, technology sectors have not fundamentally altered, and VC operates largely as before. This prompts Wilson to warn that 'I don't think you can make blanket statements about the VC business anymore'.

Changing Financial Landscape

The outcome of these changes is not a downsized VC industry that looks the same except a lot smaller. Rather, it is creating a reconfigured financial landscape (Gobry, 2011) with new market entrants and new models of investing (Suster, 2011a).

First, new late stage private equity funds and secondary private markets have emerged in response to the difficulties in the IPO market which have encouraged the more successful companies to put off their IPOs. Secondary markets have created liquidity for the company insiders – founders, employees and early stage investors – of cash-rich, adolescent companies (such as Facebook and Groupon) but without the downsides of regulatory compliance costs and unwarranted transparency that come with an IPO. Moreover, both dilution and control loss are minimized – funds will typically not take board seats. The overall impact has been to reduce the imperative to go public. Secondary markets have yet to appear in Europe.

Second, the VC industry is bifurcating into a small number of mega funds and large number of micro funds, with a few funds in the middle maintaining the traditional model. The growth of mega funds reflects the flight to quality by Limited Partners which has resulted in, on the one hand, a sharp decline in the number of funds able to raise new capital, and the growth of mega funds managed by the small number of VCs with strong investment performance which have raised billions. Various commentators express concern about this concentration, noting potential dangers arising from the reduced number of (very large) investments, the overly cautious attitude of such funds and the lack of diversity and innovation. Bryce Roberts (2011) argues that 'the less diversity in upstream capital the less diversity [sic.] the idea that gets funded will be.'

Third is the emergence of micro-VC funds – typically \$20–\$30m in size and investing \$1–\$3m per business. This is a response to the new era of low capital start-ups resulting from the cheap costs of computing and storage discussed earlier, which enables new

businesses to test ideas and validate business hypotheses inexpensively. This makes smaller funds realistic while sheer maths enables such funds to deliver ROI to their investors based on 'singles' and 'doubles' rather than 'home runs'. Their investment approach is to invest in niche businesses where the founders have significant industrial expertise, providing them with extended runways because of their capital efficiency and resulting low burn rates, and contributing value-added in the areas of product development, marketing and sales and connections to downstream investors and acquirers. Their investment decision is based on the quality of the team rather than the product. This is because of the importance of fast iteration, loops and product pivots to gain traction, which great teams can do. The objective of these funds is either to build better opportunities for larger scale VCs or businesses that might become attractive candidates for acquisition. Indeed, the emergence of large, cash-rich technology companies such as Google, Microsoft and Cisco as buyers of young technology companies has facilitated this micro-VC investment model. The Limited Partners – the financial institutions that invest in VC – have not caught up with this trend to micro-VC funds and still want to invest anywhere from \$10–\$25m per fund. However, this is clearly incompatible with the size of micro-VC funds (\$20m–\$30m) and the preference of LPs not to want more than 15 per cent of a fund (Suster, 2011a). Hence, most of these micro-VC funds are funded by high net worth business angels ('super angels') flush with cash from several successful exits who have switched from investing as individuals to investing through fund structures. Amy Siegel's (2011) observation that in the process, 'some VC-like horns may sprout on these halos' suggests that this may not necessarily be a desirable process.

Fourth, there has been a huge surge in seed funding as a result of the growth in business angel investment activity and the emergence of super angels. Of course, business angels are not a new phenomenon, but awareness of them has increased in the past decade, there are now more of them, and a significant part of the market is now organized (OECD, 2011). Many business angels got burnt during the dot.com collapse, suffering high losses as a result of businesses failures and dilutions forced on them by VCs. Many dropped out of the market but others have regrouped, recognizing the benefits of investing in organized groups. Hence, we have seen a major expansion in angel groups, particularly in the USA, with sufficiently deep pockets to make substantially bigger investors than the traditional solo angels investing on their own or in ad hoc syndicates, and follow-on investments, as well as stimulating an increase in the numbers of active business angels (see Sohl's chapter). Some of these groups are now investing together, in order to give themselves more funding capacity to make follow-on investments when either VC funding is scarce, or to avoid, or delay, involving VCs in the deal. As an aside, the emergence of angel groups has resulted in the emergence of a new actor – the angel group manager, or 'gatekeeper' (Paul and Whittam, 2010). In the past it was the norm for angels to routinely pass their investee companies up the food chain to VCs. However, a combination of the lower capital requirements of start-ups, the greater financial resources of angel groups and the decline in the number of VC funds has meant that angels are increasingly looking to take their investee businesses to exit without recourse to VC. Some angels – with memories of the dot.com collapse still raw – now avoid investing in businesses that are likely to require VC funding because of the high dilution risk that arises from the unequal power relationships. Meanwhile Basil Peters (2009) has argued that the investment objectives of angels and VCs, particularly their return aspirations, are at variance. He has advocated

that angels take advantage of the lowered costs of starting a company to follow a 'fast exits' investment strategy involving investing in companies with limited funding needs and which can, over a relatively short period of time, become an attractive acquisition candidate for a bigger technology company. And while the investment return in terms of multiple may be quite low (for example, $\times 2$ or $\times 3$) the low dilution and short holding period means that the internal rate of return (IRR) is high.³ Moreover, more investments can be made for a given budget.

Super angels are extremely wealthy, often high profile cashed-out serial entrepreneurs. Their motive for investing has been explained as follows: 'They're bored. They don't want to own 10 cars. They would rather put their Rolodex's to work' (Waters, 2011). They have a greater investment capability than most, if not all, angel groups. Sudek et al. (2011) define them as investors who have the capability to invest large sums of their own money (several hundreds of thousands of dollars per annum, year on year). Thus, what differentiates super angels from angel and angel groups is their scale of investment. However, their investment strategies are often similar, seeking small but fast exits. Although there is considerable diversity amongst angel groups (Sudek et al., 2011) a common strategy is to make lots of small investments, supporting the small number of promising ones which have proved that the concept works but before they have proved the market, which requires considerable further investment, with a view to selling them to a defined group of cash-rich acquirers (Knowledge@Wharton, 2010). As noted above, some super angels have 'blended' their money with that of others to create micro-VC funds, hence there is a blurring of the two categories.

Finally, business accelerators emerged in the mid-2000s as a new model for supporting technology start-ups. Accelerators have five distinguishing features: a competitive application process, provision of pre-seed equity investment (typically \$25 000 for a 6 per cent ownership stake), a focus on small teams rather than individual founders, time-limited 'boot-camp' style support, and cohorts of start-ups rather than individual companies (Miller and Bound, 2011; Tozzi, 2011). This approach has grown rapidly throughout the USA and is now being replicated in Europe. Accelerators are typically geared to Internet companies that can build products quickly and cheaply. Their growth is therefore closely associated with the changing economics of starting such companies, as noted earlier. Angel investors and micro-VC funds have supported accelerators because they create a pipeline of investable companies that have been filtered and are then connected to mentors and strategic resources.

Various commentators are now expressing concerns about whether this new VC landscape is sustainable, with some talking about a 'start-up bubble' created by this rapid increase in seed capital. Mark Suster (2011b) predicts that VC is 'going to hit a brick wall The explosion in the number of start-ups coupled with the decrease in the numbers and dollars of VCs portend this.' In other words, while getting started is now cheap, it still requires a lot of money to build a big business – even a web business. Very few will be able to do this on the basis of sales revenue. This means that there is an emerging demand for Series A rounds from start-ups that have been funded by angels, super angels, accelerators and micro-VC funds. This leads Roger Ehrenberg (2011) to claim that with the increase in deal velocity, successful ideas are being validated at a more rapid rate, making VCs as necessary as they ever were. However, other commentators question whether amongst the thousands of start-ups raising finance there are enough

that are solving big enough problems to aspire to \$100m exits and hence be attractive to follow-on VC investment, whether there is enough market space to differentiate hundreds of new companies (Kedrosky, 2010) and, fundamentally, whether there is sufficient Series A money available.

Others have raised concerns about the economic impact of such trends. The first relates to the fast exit investment strategy of angel groups and super angels. It is argued that by selling these companies they may be reducing the deal flow of later stage VC funds, thereby destabilizing the traditional VC food chain. Even more significantly, they may be cutting short the lives of potential new ‘gorillas’. In other words they may be eliminating the possibility that one of their investee companies becomes ‘the next Google’ by selling it to Google (Knowledge@Wharton, 2010). Second, companies which complete IPOs typically engage in a flurry of job hirings. Fewer IPOs therefore imply less job creation. Instead, companies are being acquired by large companies – this process is often associated with consolidation and job losses.

Summary

VC is certainly in a period of contraction and change. There are fewer VC funds, they have less capital under management, and both the number and size of investments have declined in recent years. But at the same time at least in some sectors companies are able to ‘do more with less’ and so have reduced start-up capital requirements; hence angels are a more realistic funding source. Meanwhile new sources of seed capital have emerged, giving start-up businesses more alternatives than existed five years ago. Is this cyclical or a permanent change? Many commentators seem to want to write the traditional VC fund out of the script. However, this seems to be premature. As the *Financial Times* notes, ‘a new IPO boom would serve as a reminder that despite the upheavals they [VCs] still have a central place in the system’ (Waters, 2011).

NOTES

1. *Entrepreneurship Theory and Practice; Journal of Business Venturing; Small Business Economics; Entrepreneurship and Regional Development; and International Small Business Journal.*
2. *Frontiers of Entrepreneurship Research* is the conference proceedings of the Babson Entrepreneurship Research Conference.
3. A 10 times return after five years gives an IRR of 58 per cent. A 2.5 times return in two years also gives a 58 per cent IRR (Huston, 2011).

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