



Arundale, Keith (2018) *Exploring the difference in performance between UK/European venture capital funds and US venture capital funds.*

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**Exploring the difference in performance
between UK/European venture capital
funds and US venture capital funds**

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**Submitted in fulfilment of the requirements of the Degree of
Doctor of Philosophy**

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University of Glasgow**

September, 2018

ABSTRACT

Investment returns of European venture capital (VC) funds have consistently underperformed US VC funds. This has led to reduced allocations of funds raised for European venture from traditional institutional investors and consequently less finance available for investment into high-growth entrepreneurial companies in Europe. The aim of this study is to investigate the factors that may give rise to a performance difference between European and US VC funds in the attempt to explain the reasons for the gap in performance. Potential factors are structural resulting from characteristics of the funds themselves, operational such as the investment practices of the VC firms which manage the funds and wider environmental such as culture and attitude to risk and the wider ecosystem in which the funds operate. The characteristics of the better performing funds in Europe and US are also investigated.

Previous studies offer incomplete explanations on the reasons for the difference in performance. Studies have focused on the UK in comparison to US and have not included continental European funds. There are no studies that have reviewed the entire investment process from sourcing deals to exiting deals, specifically contrasting Europe and the US in the context of the variables pertaining to the investment process and the impact on the fund performance gap. Previous studies have been largely quantitative in approach and influences that cannot be quantified, such as the cultural dimension, are therefore not captured in the analyses.

The study engages a critical realist philosophy and embraces an engaged scholarship, qualitative approach with some 64 semi-structured interviews with separate VC firms in UK, continental Europe and USA and 40 interviews with other stakeholders from those geographies who are related to the VC industry, including limited partner investors, entrepreneurs and advisors. Key findings of the research are that US VC firms have proportionately more partners with operational and entrepreneurial backgrounds than do European firms, they use a theme approach to identify future areas for investment, pursue a “home run” investment strategy, do most of their due diligence in house, have entrepreneurially friendly terms in their term sheets and are more proactive in achieving optimal exits for their investments than European VCs. The research has had impact in that the findings have been shared and discussed with the UK professional VC association.

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ACKNOWLEDGEMENTS

Whilst working in my former career at PwC, I became intrigued with the apparent inferior performance of European venture capital funds compared to their counterparts in the USA. On leaving PwC I decided to undertake research into the VC performance difference. I am particularly grateful to Professor Colin Mason for agreeing to take me on as a part-time doctoral researcher, initially at the Hunter Centre for Entrepreneurship, Strathclyde Business School, University of Strathclyde and subsequently at the Adam Smith Business School, University of Glasgow, so that I could pursue my interest in investigating the performance difference. Colin has provided me with unstinting guidance and support as I have embarked and progressed on a long and fascinating journey. His supervision and encouragement have enabled me to transform from a positivist, numbers orientated practitioner to more of a qualitative critical realist. I thank him for his insightful and helpful observations as the drafting of this thesis progressed and on the conference papers that I have submitted. I look forward to continuing to work with him in the years ahead. I was fortunate in retaining Professor Jonathan Levie of the Hunter Centre for Entrepreneurship at the University of Strathclyde as my second supervisor after I had transferred to the University of Glasgow following Colin's move. I appreciate Jonathan's insights, observations and guidance on my work. I would also like to extend my gratitude to all the staff at the Adam Smith Business School, and previously at the Hunter Centre, for their help during my studies.

This work would not have been possible without the participation of some 110 interviewees drawn from venture capital firms, limited partner investors, entrepreneurs, advisors, corporate VCs and other stakeholders. I thank them all for so freely giving of their time and for their insightful, and sometimes candid, comments. I would especially like to thank the BVCA and its VC committee for their involvement in discussing the rationale and approach to the research and in subsequently hearing (and agreeing to) the principal findings. I also thank the many contacts who provided introductions to VCs and other interviewees in UK, continental Europe and USA.

Val Turner expertly typed the transcripts for the 110 interviews; well over 2,000 pages of text and provided other secretarial assistance. Several other people provided encouragement to me with my studies, including the staff of the ICMA Centre, Henley

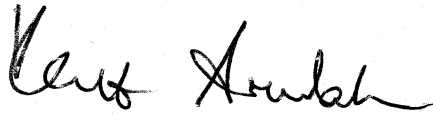
Business School, University of Reading where I teach private equity and venture capital as a Visiting Fellow. Most of all I am indebted to my wife, Kathy, for her wonderful love and devotion, unfailing support and belief in my efforts and for putting up with the long hours I spent on the research. It has been a most fascinating and rewarding journey and I thank all those who have, in whatever way, made it all possible.

AUTHOR'S DECLARATION

“I declare that, except where explicit reference is made to the contribution of others, that this dissertation is the result of my own work and has not been submitted for any other degree at the University of Glasgow or any other institution”.

Keith Arundale

Signature:

A handwritten signature in black ink that reads "Keith Arundale". The signature is written in a cursive style with a large initial 'K'.

Date: 18 September 2018

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CHAPTER 1: INTRODUCTION

1.1 Venture capital and its investors

Venture capital is medium to long term finance that is invested by professional fund managers in potentially high growth unquoted companies in return for equity stakes in those companies (Arundale, 2007; Lerner et al. 2011). It is a subset of private equity which also includes equity finance for much later stage established businesses often provided to assist management teams to buy out businesses from their existing owners (Arundale, 2010; Gilligan and Wright, 2014). Venture capital helps companies grow quickly and successfully (Gompers and Lerner, 2001), is regarded as a key component both in the development of an entrepreneurial economy (Mason and Harrison, 2002) and in the innovation process (Powell et al., 2002). The supply of venture capital is an important component of the so-called “funding escalator” for business growth (Mason and Botelho, 2013). This commences with the initial equity finance often provided by the business founder and his team and possibly family and friends, moving on to crowd-funding and / or business angel finance and VC funds which specialise in seed and start-up finance and on to other early stage VC. As growth continues further then later-stage expansion or development finance (growth capital) may be provided by venture and development capital funds and then, at the top of the funding escalator, by the public markets. Venture capital is typically provided in amounts of up to £1 million for seed and start-up ventures, up to £3 million for later stage VC and up to £6 million at the expansion stage (BVCA 2017a). Without an adequate supply of VC, companies with the potential for growth are unlikely to be able to scale up their operations and achieve business success.

Many private equity, and VC funds, are constituted as limited partnerships (Gilligan and Wright, 2014), whereby investors, such as pension funds, banks, insurance companies and endowment funds (the limited partners) commit capital to funds which are managed by VC fund managers (the general partners). The limited partners typically receive 80% of the gains made when investments made by the funds are realized in excess of their cost and the general partners receive 20% of the gains (the so-called carried interest). Investors choose to allocate a proportion of their assets to private equity funds as the returns, for the private equity asset class as a whole, have historically been superior to those achieved by more mainstream asset classes such as

equities and fixed income bonds. The consistent high returns achieved by the private equity asset class as a whole of around 13% to 15% on average per annum (BVCA, 2017b) compensate investors for the additional inherent risk in investing in private equity. However, as is discussed below, average returns for VC funds as a whole within the private equity asset class have been disappointing.

VCs are highly selective, investing in only around 1% of the business propositions that they receive (Silver, 1985). They carry out an intensive screening process prior to investing and then monitor these companies rigorously during the period to exit, adding value by providing advice and contacts to the companies, aiding their success (Bottazzi et al., 2008; Gorman and Sahlman, 1989; Lerner, 1995). Some of the long-standing VC firms have moved away from investing in early stage deals to focus on growth capital and buyout deals where returns have been considerably better. Nepelski et al. (2016) mention that, by 2014, 56% of VC financing was allocated to later stages (10% in 1995) and only 0.5% to the seed stage (7% in 1995).

The shift in focus of some VCs from the provision of early stage to later stage finance has led to the funding escalator not working effectively (Mason and Botelho, 2013). This means that start-up companies funded by business angel finance are less likely to be able to raise their next rounds of funding from VCs, with VCs moving away from early-stage financing, thereby causing a break in the “escalator”. This compounded with the attrition effect of the VC funding funnel, whereby prospective companies are filtered out at the various rounds of VC investment, leads to considerable difficulty for an entrepreneurial business finding adequate finance for the duration of its growth stages.

1.2 Performance of venture capital funds in Europe and US

The returns made by VC funds, particularly those in Europe, have generally been disappointing in recent years. At the commencement of this research, Clarysse et al. (2009) had reported that VC fund returns pooled over the period 1991-2007 were on average 6.9% per annum for Europe and 18.9% per annum for US. The latest performance data published by Invest Europe (formerly the European Private Equity & Venture Capital Association) prepared by Thomson Reuters for the year 2013, showed that the 10 year returns for VC funds were 5.03% for the US but just 0.84% for Europe (EVCA, 2014). Invest Europe has not published performance data since

2013 but more recent UK data for 2015 shows that UK VC funds had a performance of 5.1% over 10 years (BVCA, 2016) compared to 10.9% for US VCs (Cambridge Associates data). UK data for 2016, published in 2017, shows UK performance has improved in 2016 to 6.1% over 10 years.

The relatively poor performance of European VC funds has led to some institutional limited partners withdrawing from the VC asset class in Europe, whilst maintaining their support for the much better performing private equity funds which focus on later stage deals, such as management buyouts, which have returned on average 9.64% for US and 10.46% for Europe (EVCA, 2014). As a consequence, institutional funding from non-governmental sources into European based VC funds has declined in recent years. This is concerning as the continued provision of funds to finance VC backed investments is essential if the ecosystem for high growth businesses is to be maintained, notwithstanding increased activity by alternative sources of finance in the early stages of the funding escalator such as crowd funding and business angels. Consequently, European VC has become more dependent on government financing.

1.3 Consequences of low VC returns in Europe

The traditional institutional investors, such as banks, insurance companies and pension funds, have reduced their allocations to the European VC asset class because of the poor performance of European VC funds (Table 1.1). As a result overall funds raised for European VC have fallen. According to Invest Europe (Invest Europe, 2016) overall funds raised for European venture of €5.3bn in 2015 were 36% less than in 2007 (€8.3bn).

**Table 1.1 European funds raised from institutions and government agencies
(Invest Europe data)**

	2015	2007
Overall funds raised for European VC	€5.3 billion	€8.3 billion
% funds raised from banks	0.9%	8.3%
% funds raised from insurance companies	1.8%	3.6%
% funds raised from pension funds	4.7%	7.1%
% funds raised from government agencies	20.6%	7.9%

The reduced funding from institutional sources has led to the European VC industry being more dependent on funds from government agencies, such as the European Investment Fund (Aernoudt, 2017). Table 1.1 shows that funds raised from government agencies for allocation to European VC in 2015 were 20.6% of the total funds raised for VC, up from 7.9% in 2007, with €1.1bn of government funds being raised in 2015 compared to €0.6bn in 2007 (Invest Europe, 2016). This percentage allocation by government agencies may well be understated. In another presentation of their data Invest Europe quotes a figure of some 31% for the allocation by government agencies to European venture in 2015; this is after extrapolating unclassified amounts across categories of investor. Others put this as high as 40% (Feider et al., 2015: quoting EVCA 2012 data). The EIF itself backed 45% of funds raised by European VC firms in 2014 (36% in 2007) with 12% directly attributable to EIF (5% in 2007) (European Investment Fund, 2016). Continued support from the EIF for UK venture funds may be in question following the Brexit decision, though the British Business Bank may extend its venture capital investment programme in the UK to enable it to provide greater levels of investment into individual VC funds that would otherwise find it difficult to raise capital (BVCA, 2017a).

Venture capital funds available for investment globally at the end of the first quarter of 2016 are estimated at some \$152bn (Preqin, 2016). With Q1 2016 venture capital investments amounting to some \$34bn globally and VC funds closed in the quarter amounting to just \$10.5bn the global VC “dry powder” could amount to around just 1½ years of supply at the end of 2016. The supply time-line of “dry powder” for

Europe could be considerably shorter than this as a significant portion of the funds are allocated for US investment.

The overall reduced allocation of funds to the VC element of the private equity asset class and the refocus towards later stage deals within VC has led to a shortage of funds for investment into young, innovative, potentially high-growth European companies. This is notwithstanding increased activity from government agencies (principally the European Investment Fund as discussed above) and the availability of alternative sources of finance in the early stages of the funding escalator such as crowd funding and business angels. Such companies would then not have the adequacy of finance to enable them to grow and scale into substantial entities with consequent impact on job creation and the overall economy. Indeed, there is concern across Europe about its lack of scale-up capital (Coutu, 2014).

At the commencement of the research in October 2009 the VC industry in the UK and continental Europe had become increasingly concerned about the difference in performance between European and US VC funds that was being disclosed by data providers. EVCA had described the European VC industry as being in “deep crisis” as a result of institutional investors leaving the market unlike in the US where institutional investors and particularly university endowments were having “significant success” through investing in VC funds (EVCA, 2010). In order to better understand industry practitioners concerns, to explain the proposed approach to the research and to confirm the relevance of the research questions, a workshop was organised for UK VCs under the auspices of the BVCA (the professional association for VC in the UK) attended by practitioners and academics. The workshop included a discussion of the variables that can give rise to performance differences amongst UK VC funds. The workshop confirmed the relevance of the research and provided some initial views on possible reasons for the difference in performance. These are included in Appendix 1, along with a summary of preliminary meetings held with other VCs and related stakeholders which also confirmed the importance and viability of the research topic.

The poor performance of European VC funds has also resulted in organisations such as Nesta (an innovation foundation in the UK) and the BVCA commissioning research into the area (Lerner et al., 2011; Axelson and Martinovic, 2013; Marston et

al., 2013). The shortage of funds available for investment into scalable, high growth businesses in the UK, partly as a result of the poor performance of VC funds, resulted in the UK government commissioning a review into “patient capital”, i.e. long-term finance for growing firms (HM Treasury, 2017a).

1.4 Prior research on the gap in performance between UK/Europe and US VC fund returns

At the commencement of this research in 2009 there were only a small number of empirical studies that sought to explain the reasons for the relative underperformance of European VC funds compared to US funds (Hege et al., 2003 and 2009; Gottshalg et al., 2003; Megginson, 2004; Dantas Machado and Raade, 2006; Schweinbacher, 2008). Subsequently other researchers have investigated the underperformance of UK VC funds, but not wider European VC funds, compared to US VC funds (Lerner et al., 2011; Axelson and Martinovic, 2013; Marston et al., 2013). Differences in the contractual relationships between VCs and entrepreneurs in Europe and US, the superior screening abilities of US VCs, the greater sophistication and better use of networks by US VCs and syndication used more effectively by US VCs (Hege et al., 2003 and 2009) and also the finding that European VCs are less “active” investors (Schweinbacher, 2008) have been suggested as contributing to the gap in performance between European and US VC funds. Other differences between US and European VC funds, which can have an impact on performance, include the different fund characteristics such as size, stage and sector focus although Lerner et al. (2011) and Marston et al. (2013) found that these differences do not explain the magnitude of the performance gap, at least between US and UK VC funds.

Whilst it has been suggested that differences in specific variables between European and US VC funds contribute to the difference in performance between European and US VC funds they do not fully explain the difference in performance between European and US VC funds. There are other variables “such as legal frameworks, stock market capitalisation and the tax environment” which “seem to be unimportant” in explaining the performance gap (Hege et al., 2009 p.10). There are many other variables where there is a difference between European and US VC funds where it is not known whether they contribute to the performance gap between European and US VC funds (Chapter 2.3). Either these variables, or other as yet unidentified variables, may explain the balance of the performance gap. Wider

environmental areas such as cultural differences (Marston et al., 2013) and serendipity and “unmeasured” factors are mentioned as possible factors for the variation in returns between UK and US VC funds (Lerner et al., 2011 p.21), but these have not been specifically investigated in the context of the performance difference.

1.5 Gap in research and understanding about the performance difference

There are a number of gaps in the literature on the fund performance differential between European and US VC funds. Firstly, previous studies offer incomplete explanations on the reasons for the difference in performance. There are several operational and structural variables impacting on performance that are different in the US and Europe. Some of these variables have been shown to impact on the performance difference between US and European VC funds and some have not, or it is not known whether there is an impact on performance (Chapter 2.3, Table 2.8). Secondly, wider environmental influences, other than tax and legal frameworks and stock market capitalisation (Hege et al, 2009), have not been specifically investigated in the context of the performance difference. Thirdly, recent studies have focussed on the UK in comparison to US and have not included continental European funds. Fourthly, whilst previous studies have investigated certain specific structural, operational and wider environmental factors affecting US and European VC funds, there are no studies that have reviewed the entire investment process from sourcing deals to exiting deals (Tyebjee and Bruno, 1984), specifically contrasting Europe and the US in the context of the variables pertaining to the investment process and the impact on the fund performance gap. Fifthly, previous studies have been largely quantitative in approach and influences that cannot easily be quantified, such as propensity for risk, growth ambition and a culture of sharing information and contacts, are therefore not captured in the analyses and subtle divergences in approach are lost.

The relatively few studies that have specifically investigated the difference in performance between US and European VC funds do not either separately or taken together fully explain the reasons for the totality of the performance gap. The performance difference between US and European VC funds is therefore in need of further investigation in order to confirm whether there are additional structural, operational and wider environment factors, other than those already identified by the previous studies mentioned above, that are contributing to the gap.

1.6 Research questions and methodology

In view of the inconclusive nature of previous studies in explaining the totality of the performance difference between European and US VC funds, the aim of the current research is to investigate the difference in performance between UK, continental Europe and US VC funds by taking a holistic approach in reviewing the entire investment process from sourcing deals to exiting deals in order to ascertain any differences in the structural, operational and wider environments in which the firms and funds operate which might conceivably contribute to the performance difference. Structural factors relate to the characteristics of the funds themselves, for example the size of the funds, their strategic focus or the backgrounds of the investment executives who manage the funds. Operational factors include the investment practices of the VC firms which manage the funds. Investment practices include the ways in which European and US VC firms go about originating, executing, monitoring and exiting from their investments. Wider environmental factors include culture, attitude to risk and the wider ecosystem in which the funds operate.

The overall research question is:

Why do UK/European VC funds have a poorer performance than US VC funds?

More explicitly:

What are the differences in the structures of the VC firms managing venture capital funds in UK, continental Europe and US, in the operations of those firms and in the environments in which they operate that contribute to the contrasting performance of UK, continental Europe and US VC funds?

As there are funds in UK, continental Europe and US which perform better than other funds in those countries a secondary question is to ask:

What are the characteristics of the better performing firms and funds in the UK, continental Europe and US and is there anything distinctive about those UK/European funds that perform to US levels, if any?

This secondary question is addressed separately in Chapter 7. It was apparent that each of the regions studied - UK, continental Europe and US - had high performing firms. In other words, successful VC firms are not confined to the US; there are also some high performing VC firms in UK and continental Europe. It is possible to achieve high returns regardless of location. The characteristics of these high performing firms were deemed to be worthy of further investigation, additional to the main research. Specifically, Chapter 7 examines whether there are factors that are common to the firms with better performing funds regardless of the region in which they are located or whether there are differences in the structural and operational characteristics of the firms with better performing funds in UK/Europe and the US. High performing UK/European firms may follow the same organisational models and investment strategies as their US counterparts or their route to success may be different. This additional study therefore provides further insights into the characteristics of top performing firms, seeks to identify anything distinctive in the way in which these firms operate and to identify any differences in approach between those top performing firms in Europe and US. This, in turn, has the potential to provide added insights into those key areas that contribute to the performance differential between European and US VC funds. The implication is that by adopting the characteristics of the better performing firms the overall European VC performance could potentially be improved.

Qualitative approach

Given the exploratory nature of the research questions and the diversity of venture capital firms in Europe and US, with different stage and sector foci, an extensive qualitative methodology is adopted for this study. Whilst previous research in the area of venture capital fund performance and investment practices has largely involved the use of regression analysis on large data sets or a questionnaire approach, the qualitative approach of this research includes semi-structured interviews with investment executives from 64 separate VC firms and with 40 non-practitioner industry stakeholders across industry sectors in Europe and USA (including limited partners, entrepreneurs, advisors and corporate VCs). The views of the VCs on the differences between the European and US environments are contrasted with those of the other stakeholders which provides a useful triangulation of the overall findings of the study. This is the first time that a relatively extensive comparison of the views of VCs with those of other, relevant stakeholders to the VC process is carried out.

The qualitative approach with semi-structured interviews of VCs and other stakeholders allows for unexpected but relevant topics to emerge and the opportunity to provide in-depth and nuanced answers. The interview process used in the current study permits all relevant areas to be appropriately investigated including any especially interesting or unusual points made by the interviewees. Previous, largely quantitative studies, do not capture subtle divergences in approach, such as propensity for risk, growth ambition and a culture of sharing information and contacts. The semi-structured interview process allows certain lines of questioning to be pursued as themes develop, for example the use of entrepreneurially friendly as opposed to investor friendly terms by VCs or the focus on the development of investment themes by some VCs. Previous quantitative studies have suggested that previously unmeasured factors or unquantifiable factors might impact on the performance difference between European and US VC funds (Lerner et al., 2011). The qualitative approach adopted in this study better allows such factor to emerge.

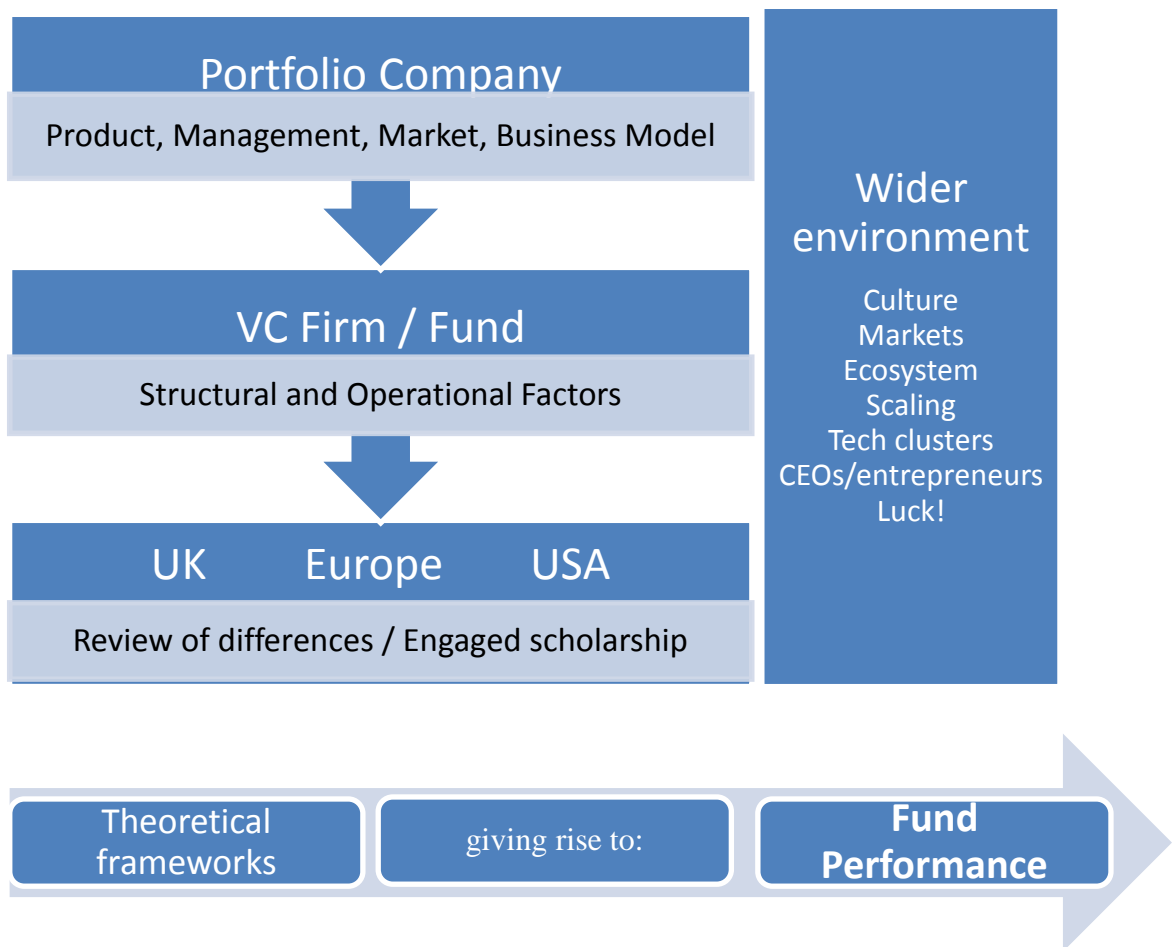
The research is conducted within the context of the critical realist philosophical framework (Bhaskar, 1975) engaging a mixed methods approach (Creswell, 2009) with quantitative review of secondary data and qualitative, semi-structured interviews, analysed using thematic analysis to identify emergent themes (Boyatzis, 1998). Critical realism has an objective ontology that presupposes the existence of a mind-independent reality and adopts a subjective epistemology where there are no predefined criteria providing particular views of reality. The research embraces engaged scholarship (Van de Ven, 2007) whereby practical experience in the VC industry (gained during a working career with PwC) is utilised in carrying out interviews of around one hour's duration with senior VC practitioners and other stakeholders in both Europe and the US. Engaged scholarship is a participative form of research for obtaining the different perspectives of key stakeholders in studying complex problems (Chapter 3.2). Engaged scholarship can produce knowledge that is more penetrating and insightful than when academics or practitioners work on the problems alone as by engaging people from various backgrounds a complex problem can be triangulated through the use of multiple sources of information. Sapienza and Villanueva (2007, p.68) endorse engaged scholarship as an optimal means of combining theory and practice commenting that "theory that is not informed by practice is neither useful nor interesting".

1.7 Theoretical framework

The research introduces a multi-theoretical conceptual framework for studying the many different variables impacting on the performance gap between European and US VC funds. Wijbenga et al. (2003) likewise used a multi-theoretical approach in their research on the influence of VCs on the performance of new ventures. Early VC research was largely atheoretical with an emphasis on collecting empirical data with little attempt to develop the theoretical context. Subsequently the approach has been more akin to grounded theory, as in case study research, with no preconceived theoretical perspectives that may bias the findings, beginning with data collection and building the theory by comparison with the data as the research progresses (Glaser and Strauss, 1967; Strauss, 1987). Agency theory and real options theory have been referred to most frequently where theories have been proposed.

With so many different structural, operational and wider environmental variables potentially impacting on the performance gap and with the number of different stakeholders involved in the VC investment process (individual VCs, syndicates of VCs, entrepreneurs and management teams, wider networks, limited partner investors) the conceptual framework proposed for this research is depicted in Figure 1.1.

Figure 1.1: Conceptual framework: Overview



The conceptual framework combines a theoretical and practical approach, embracing the concept of engaged scholarship and involving a range of stakeholders as recommended by Sapienza and Villanueva (2007). The framework is structured around the structural, operational and wider environmental factors in which VC funds operate.

The current research investigates the multi-variables impacting on fund performance in a multi-theory conceptual framework. For example, where there are differences between US and European investment practices and other areas in which the funds operate these could lead to greater information asymmetries in the European VC environment as compared to the US VC environment. It could be that US VCs are better at dealing with the information asymmetries in these areas as is described in agency theory. There are other areas of difference though that extend beyond information asymmetries and agency theory. These include investment strategy and exits (real options theory), syndication (organisational and social network theories),

adding value (resource-based and stewardship theories), cultural issues (institutional and human capital theories) and regulatory differences (institutional theory). In addition, prisoner's dilemma theory is an alternative to agency theory and models the social relationships between entrepreneur and VC which aids cooperation and hence mutual success and gain, that is an "upside" focus, compared to agency theory's more "downside" protection focus on monitoring, control and ownership incentives.

1.8 Contribution of the research to scholarship and to practice

The contribution of this research is to investigate, for the first time in a holistic and extensive manner, the entire investment process from sourcing deals to exiting deals specifically contrasting Europe and the US in the context of fund performance, in order to explain the reasons for the performance difference. The research contributes to the literature in a number of areas by proposing additional factors in the investment activities of VC firms that have not been considered in previous studies in connection with the performance differential between Europe and US such as the adoption of a "home run" investment strategy by US firms, pursuing outlier deals at the behest of a senior partner, the use of entrepreneurially friendly terms in the term sheets of US VCs, the more prevalent approach to working together in teams on deals, a theme approach to identifying new investment areas and the greater local sector knowledge and deep networks of US VCs that aids in-house due diligence and the exit process. A conceptual model to encapsulate the different theoretical bases underlying the performance difference is proposed. The research also uncovers differences in the characteristics of the better performing firms in Europe and US that have not been mentioned in previous research.

The research puts forward suggestions as to how the performance of European VC funds could potentially be improved by adopting the investment practices of US VC funds, where practical under the specific conditions in which European VC funds operate, and by creating an appropriate environment for investment. Improved fund performance should lead to increased investment in the asset class and increased finance for young, innovative, potentially high-growth European companies.

1.9 Structure of dissertation

Following this introduction to the research topic, research gap, research questions and methodology the thesis continues in Chapter 2 with a review of the academic literature on the difference in performance between UK and continental European VC funds and US VC funds, an overview of the different investment practices and other variables that can impact on fund performance, a detailed review of the academic literature that has specifically investigated the difference in performance and of the theoretical frameworks that may impact on the variables affecting fund performance. Evidence of the performance returns gap between European and US VC funds, including a review of the historic and current data on European and US VC fund performance is included. The research gap and research questions are also included here.

The methodology for the research is addressed in Chapter 3, including the philosophical approach embracing critical realism and engaged scholarship, methodologies used in previous research, qualitative semi-structured interviews undertaken for the current research and research design, including sample selection, data gathering and thematic data analysis.

There then follow four chapters which discuss the principal findings of the research from interviews with both the VCs and the other stakeholders. Chapter 4 discusses the structural differences between European and US VC funds, including size of funds, sector, stage and geographic focus, background experience of investment partners and age of VC firm and the use of venture partners and technical advisory boards. Chapter 5 discusses operational differences, including deal flow, evaluation and approval of deals, due diligence, structuring deals, investment terms, monitoring deals post investment, adding value to investments and exit routes. Chapter 6 discusses the wider environmental factors in which VC funds operate, including differences in culture and risk propensity, wider ecosystem factors, fragmented markets in Europe, difficulties in scaling up companies in Europe, the shortage of experienced CEOs and serial entrepreneurs in Europe and the importance that technology clusters have to VC investment and returns.

Whilst not part of the main study the characteristics of VC firms with better performing funds are discussed in Chapter 7. This is an additive part of the research

and is therefore treated differently from the main study. A comparison with non-top performing funds is made as is a determination as to whether these characteristics differ between VC firms operating in UK, continental Europe and US. This may provide further insights into the Europe and US performance gap. Finally, Chapter 8 concludes on the research and considers the implications of the findings to scholarship and practice. Research limitations and possibilities for further research are addressed.

CHAPTER 2: LITERATURE REVIEW

2.1 Introduction

The objective of this research is to explain the difference in performance between UK and continental European VC funds and US VC funds. This chapter reviews the literature on this topic. The research gap is identified. The theoretical framework is also explained. The chapter commences with an overview of the historic and current data on the performance of European and US VC funds to demonstrate the continuing existence of the performance gap. This is followed in Section 2.3 with an overview of previous research into variables that impact on fund performance. A more detailed summary of the literature covering the various structural, operational and wider environmental areas in which VC firms and funds operate which impact on performance is provided in Sections 2.4 to 2.6. There then follows in Section 2.7 an historical analysis of the relatively few studies that have sought to investigate the impact of these areas in the context of the fund performance differential between European and US VC funds. Section 2.8 introduces a multi-theoretical conceptual framework organised into structural, operational and wider environmental areas for studying the many different variables impacting on the performance gap. The framework combines a theoretical and practical approach, embracing the concept of engaged scholarship (Van de Ven, 2007). Section 2.9 discusses the limitations of the existing research and the gap in the literature where further detailed investigation into VC fund performance in Europe and the US is required.

2.2 Evidence of difference in performance

2.2.1 Fund performance data – sources, definitions and critiques

There are a number of organisations which collect and provide data on private equity and venture capital fund performance, including Thomson Reuters, Cambridge Associates, Preqin, Pitchbook and Burgiss. Professional associations, such as the BVCA, also collect data as do various limited partners, such as CalPERS, and fund of funds, such as Capital Dynamics. Performance data from different sources is often not comparable as the various data providers collect, classify and analyse the data in many different ways. There are differences in the funds covered by the different providers, valuation bases used for unrealised assets by general partners differ, and there is also

the issue of the inclusion or non-inclusion of investments outside the home country territory of a general partner (Harris et al., 2010).

Private equity and venture capital returns are traditionally measured by the industry, including practitioners, data providers, limited partner investing institutions and professional associations in two ways: the internal rate of return (IRR) and the multiple. The IRR is an annualised rate of return achieved over the life of investment which is based upon cash flows from investors and from the realization of assets on exit and on valuations for unrealized assets. The multiple is a measure of the amount returned from an investment compared to the cost of investment; it is not time-sensitive unlike the IRR. Academics sometimes measure performance in terms of PME (public market equivalent) but this is not commonly used by practitioners (Diller and Kaserer, 2004; Kaplan and Schoar, 2005; Phalippou and Gottschalg, 2007). This research, with its practical orientation, uses the IRR as the measurement for venture capital returns.

Ljungqvist and Richardson (2003) have criticized data provided by some principal providers in that the data is only available in the aggregate, rather than on a fund by fund basis, the data is provided on a voluntary basis by VC funds and therefore subject to selection biases and the data is partly based on unrealized investments whose valuations are inherently subjective (as opposed to realized investments where the value at exit is known in cash terms). Lerner et al. (2011) agree with the shortcomings highlighted by Ljungqvist and Richardson. They comment that performance databases, for example Reuters Thomson One, are subject to selection biases as the data is provided largely on a voluntary basis and that the data is based on unrealised as well as realised investments with the former involving subjective valuations. Lerner et al use the Private Equity Intelligence database (Preqin) as their primary source of performance data (as is used here for the sample of firms interviewed in this research). Whilst 60% of Preqin's performance data is provided voluntarily by GPs, Preqin is able to verify and correct data as necessary as it is one of only two major data sources (along with Pitchbook) that identify GPs by fund name (Kaplan and Lerner, 2014). The remainder of Preqin's data is derived from public pension funds and other LPs through voluntary reporting and freedom of information requests and may omit some high performing funds that do not have public pension funds as investors. Also actual cash flow data is not reported by some funds, unlike the Burgiss data, with only IRRs and multiples reported.

An issue for researchers is the comparability of research samples from different countries. Geringer et al. (2002) acknowledge that cross country research (such as the comparison of European and US VC firms described here) can be challenging. It is preferable to use the same data provider using the same methodology for data collection and analysis in US and Europe. This is achieved in this research by using Preqin data, where available, for both the European and US VC funds included in the sample of VC firms interviewed.

There is anecdotal evidence that some firms may not report underperforming funds for reputational reasons; equally firms may not report extremely well performing funds (in order not to increase the overall average reported returns which would make it more difficult to remain in the top quartile going forward). However, Kaplan and Schoar (2005) found no evidence to support the hypothesis that funds stop reporting their performance, to in this case Venture Economics, once their performance becomes very good. If there is a bias it would most likely take the form of underreporting by worse performing funds, although it is understood from Venture Economics that they observe very few incidents of funds that stop reporting when returns worsen.

Kaplan and Lerner (2014) have recently reviewed venture capital performance data and conclude that Thomson Venture Economics data (the predecessor to Thomson Reuters) should not be used as they comment that TVE had stopped updating performance on around 40% of the VC and private equity funds in their sample. However, Thomson Reuters is now providing private equity benchmarking data to Cambridge Associates and the EVCA continues to use Thomson Reuters data, though has not yet reported any performance data subsequent to 2013. Whilst there may be some issues with the TVE and / or Thomson Reuters data all data providers confirm a disparity in performance between European and US VC funds.

Harris et al. (2014a) use data compiled by Burgiss in their work on the persistence of private equity and venture capital returns in the US. Burgiss data is derived from LPs, utilising underlying cash flows derived from record-keeping and performance monitoring services provided by Burgiss to LPs, rather than self-reported data via GPs or from freedom of information requests from LPs as used by other data providers such as Thomson Venture Economics, Cambridge Associates and Preqin. Harris et al. refer to the potential biases of different datasets as follows: Burgiss may

have only a selected sample of LPs, Venture Economics depends on LPs and GPs providing information, Preqin is partly dependent on public filings and freedom of information requests and may therefore be missing some high performing funds that do not have public pension funds as investors, Cambridge Associates data may be biased towards GPs who are raising new funds and who therefore may have performed well in the past. Harris et al. conclude that, despite the different criteria used by the different data providers in their sample selection processes, Preqin, Cambridge Associates and Burgiss data all provide reliable measures of buyout and VC fund performance. They comment that it is highly likely that Venture Economics data understates buyout and, possibly, VC fund performance.

Despite the above differences in data methods and sample selection a difference in performance between European and US venture capital funds has been apparent and consistent for the various data providers showing that European funds have performed below the performance of US funds on average as described below.

2.2.2 Prior academic studies on performance

A number of researchers have highlighted the poor returns of the European VC industry in comparison to the US. Murray and Marriott (1998) were early researchers into the issue who questioned why the investment performance of European VC funds, in their case specialising in the technology sectors, had been so poor, generating the lowest returns in private equity with pooled IRRs of 5.7% compared to 17.6% for management buyout funds. Without providing US performance data, they posed the question as to whether successful investing in new technology based firms is a purely American phenomenon. Clearly it is not as there are successful funds in Europe which invest in technology, as is evidenced in the current research.

The first researchers to specifically investigate the US and European performance differential were Hege et al. (2003). Their data, derived from Venture Economics, which may therefore understate performance as discussed above, showed that US VC firms had significantly higher performance on average than European VC firms.

Other researchers continued to investigate the performance differential, some between US and European funds and others between US and UK funds as shown in

Table 2.1. In a review paper Megginson (2004) commented that European private equity returns have been significantly lower than American VC returns. This can be seen for periods up to 2007, the latest year covered by the literature, in Table 2.1. More recent data is provided in Section 2.2.3 below.

Table 2.1 Academic studies on performance differential between European and US VC funds

Authors	Time period	US returns	Europe returns	UK returns
Hege et al. (2003)	1997-2003	5.95%	1.06%	
Xu (2004)	1993-2003	4.86%	1.15%	
Dantas Machado and Raade (2006)	1983-2003	54.9% over 5yrs	-1.8%	
		37.0% over 10 yrs	1.3%	
Leleux (2007)	10 yrs to 31.12.04 (US) and 31.12.05 (Europe)	45.8%	-0.1%	
Clarysse et al. (2009)	1991-2007	18.9%	6.9%	
Lerner et al. (2011)	1990-1997	32.95%		12.71%
	1998-2005	-0.21%		-1.21%
Marston et al. (2013)	1990-1997	33.34%		13.98%
	1998-2007	3.87%		-0.53%
Feider et al. (2015)	Not specified	14.3%	0.9%	

The magnitude of the difference in performance is related to the time periods measured. Xu (2004), using Venture Economics data up to 2003, found that US VC funds outperformed European VC funds by four times compared to Hege’s difference of almost 6 times which excluded the period 1993 to 1996. This concurs with Megginson’s observation that European VC funds only achieved “dramatically positive returns during the boom years from 1997 to 1999” (Megginson, 2004 p.103), that is prior to the dotcom fallout.

A large difference in performance was found by Dantas Machado and Raade (2006), specifically investigating early stage venture funds, with US early stage funds having IRRs of 54.9% and 37.0% for five and ten year horizons, respectively,

compared to European early-stage funds as low as -1.8% and 1.3% for five and ten year horizons, respectively, both as at the end of 2003. Leleux found a similar magnitude in the performance differential, commenting that the European venture capital sector was “seriously shaken on its foundations” by the publication in early 2005 of VC industry benchmark returns (Leleux, 2007 p.245). The average 10 year investment horizon returns as at 31 December 2005 for early stage investments were shown to be -0.1% pa compared to a figure of +45.8% pa for early/seed stage VC funds in the US as at 31 December 2004. Leleux states that this difference between European and US funds was the largest reported in the last 20 years and suggests that lessons from the “natural selection process” that led to a strong performing US industry were either not transferable or not adopted by the European industry. He suggested that the performance difference warrants further investigation.

Research by Clarysse et al. in 2009 confirmed the earlier studies that US VC funds had reported significantly higher IRR performances than their European counterparts. However, Clarysse et al. did show that VC performance in the UK had improved post the dot com bubble with a pooled IRR of 0.3% for funds started in 2002-3 compared to -6.6% in the bubble period of 1998-2001 and 13.3% in the pre-bubble period of 1980-1997.

Looking specifically at UK fund performance compared to the US, research by Lerner et al. (2011) for Nesta indicated that the historic performance gap between the UK and the US was narrowing, particularly for post-boom funds from 1998 to 2005 with a performance of -1.21% for UK and -0.21% for US (Table 2.1). However, in a later report by Marston et al. (2013) for Nesta, the gap between UK and US had widened again with average IRRs of -0.53% for UK funds and 3.87% for US funds for the period 1998 and 2007. Marston et al. (2013) explained that this recent better performance of US funds could be driven by a resurgence of successful technology IPOs in the US and lucrative trade sales to cash-rich giant internet companies.

It is clear from this discussion that the performance differential depends on the year of formation of funds and the period over which returns are measured. Lerner et al. (2011) found a higher variance of returns in US versus UK for the periods 1990-1993, 1998-2001 and 2002-2005, though the variance was much lower for the last two periods. They also found that the best US funds outperformed the best UK funds by

89 percentage points for funds raised in the 1994 to 1997 period. Comparing US VC funds with European funds, Feider et al. (2015) quoting AFIC (the French VC association) states that US VC has historically outperformed European VC by an average of 13.4% (14.3% for US compared to 0.9% for Europe), although they do not appear to specify the time period to which this relates. They also refer to French VC returns of -0.9% on average and German VC returns of -1.7% in 2012, both of which they comment are considerably worse than those for US and UK.

These studies, which have investigated different time periods, all demonstrate that European VC funds have consistently underperformed US VC funds no matter what time periods are considered. This confirms the starting point for this research.

2.2.3 Recent and current industry evidence on the performance differential

The performance difference between Europe and US VC funds evidenced in the literature has been confirmed by more recent and by current data which were obtained specifically in connection with this research. Thomson Reuters data obtained in 2011 at the commencement of the fieldwork showed that the overall pooled average since inception VC return for funds formed from 1980 to 2010 was almost 6 times greater for US than for Europe (Table 2.2).

Table 2.2 Fund performance data (Source: Provided by Thomson Reuters to author in 2011)

	Europe	US
No of funds	768	1,272
Av fund size	\$78m	\$194m
Pooled average since inception IRR return for 1980-2010 funds	2.53%	14.54%
Range of start of top quartile	-2.98% (2009 fund) to 20.16% (1992 fund)	1.23% (1999 fund) to 94.24% (1996 fund)
Maximum IRR	311.12% (1999 later stage fund)	721.01% (1998 seed/early stage fund)

The difference in performance was significant in most years, especially from mid 1980s to 1998, mixed through the dot.com / internet bubble period, and in 2002 to 2010 US overall performance was better for each year than Europe, though not as significant as in some of the earlier years as had also been noted by Lerner et al. (2011) as discussed in Section 2.2.2 above. As can be seen from Table 2.2 the IRR for the start

of the top quartile of funds was considerably higher in the US than in Europe. There was mixed variability in performance between US and Europe for the very best funds with maximum IRR depending on year. The overall maximum IRR for the US at 721.01% (a seed/early stage 1998 fund) was more than twice as large as that for Europe at 311.12% (a later stage 1999 fund).

However, in this Thomson Reuters data some of the best European funds outperformed the best US funds in the bubble years (1999 to 2001) and several of the post bubble years (2002, 2003, 2006, 2008 and 2009). For example, for 2006 the maximum IRR was 15.37% for US and 39.66% for Europe; there were three European funds that had better performance than the maximum US performance for that year. Data on individual funds is not disclosed by Thomson Reuters for confidentiality purposes and so it is not possible to comment further on the performance of these specific high performing funds. However, the characteristics of better performing funds in Europe and US are specifically investigated in Chapter 7 for the sample of VC firms covered in this study.

For seed and early stage funds only, as opposed to all venture stages, the US upper quartile was generally at a higher IRR than the Europe upper quartile for this Thomson Reuters data, except for two years pre-bubble and two years in the bubble and immediately thereafter. The maximum IRR overall for all years for seed/early stage funds for US (721.01%) was greater than the maximum IRR for seed/early stage funds for Europe (293.66%). However, there were several years post bubble where Europe outperformed the US in terms of maximum performance in individual years, whilst the average overall performance for European funds was nevertheless lower than for US funds. For the sample of funds included in the current research the best US funds outperform the best European funds (Chapter 7.6.1). It can also be seen from Table 2.2 that the average fund in the US is 2½ times the size of the average European fund, a feature that was present in the sample of VC firms included in the study (Chapter 4.2).

Further more recent data were accessed in 2015 following the conclusion of the interview fieldwork. These data were generated by Thomson Reuters and accessed through Said Business School, University of Oxford. The data again showed that US VC funds outperformed European VC funds, this time for the more recent period from

inception to 31 December 2013. Table 2.3 shows that the pooled average returns for European VC funds were 8 times smaller than for US VC funds. Upper quartile European funds commenced at 4.24 compared to 15.91 for US funds. The maximum return for a European fund was 311.12 compared to 721.01 for the best performing US fund which had not changed from the earlier Thomson Reuters data referred to above. These figures exclude balanced funds as these funds may include buyout investments.

Table 2.3: Overall VC returns from inception to 31 December 2013 (all sectors)
(Source: Thomson Reuters data accessed through Said Business School in 2015)

	Europe	US
Pooled average	2.08	16.96
Upper quartile	4.24	15.91
Max return	311.12	721.01
Fund capitalisation	\$34,285m	\$136,084m
No of funds	564	820
Average fund capitalisation	\$61m	\$166m

The performance of funds focused on the IT sectors, including computer hardware, software and services and internet specific sectors, also showed the much better performance of US VC funds (Table 2.4).

Table 2.4: VC returns for IT sectors from inception to 31 December 2013
(Source: Thomson Reuters data accessed through Said Business School in 2015)

	Europe	US
Pooled average	1.69	9.50
Upper quartile	7.14	11.98
Max return	94.80	294.63
Fund capitalisation	\$5,647m	\$23,685m
No of funds	84	103
Average fund capitalisation	\$67m	\$230m

The performance of funds focused on the healthcare sectors, including biotechnology and medical / health related sectors, also showed the much better performance of US VC funds (Table 2.5).

Table 2.5: VC returns for healthcare sectors from inception to 31 December 2013
 (Source: Thomson Reuters data accessed through Said Business School in 2015)

	Europe	US
Pooled average	2.48	18.80
Upper quartile	6.15	14.33
Max return	24.37	454.91
Fund capitalisation	\$3,683m	\$23,089
No of funds	58	153
Average fund capitalisation	\$64m	\$151m

VC funds focused on the healthcare sectors outperformed those focused on the IT sectors for both European and US funds. Lerner et al. (2011) and Marston et al. (2013) have commented that fund characteristics, such as sector focus, do not explain the magnitude of the difference in performance between UK and US funds. The maximum return for European IT funds in the above data is greater than that for healthcare funds but the maximum return for US healthcare funds is greater than that for IT funds. It could therefore be that there have been some very well performing European funds focused on the IT sector, for example funds investing in Skype¹.

In terms of most recently available data, the latest performance data published by Invest Europe, prepared by Thomson Reuters, which is for the year 2013, showed that the 10 year returns for VC funds were 5.03% for the US but just 0.84% for Europe (EVCA 2014). No data is as yet available from Invest Europe for Europe as a whole for 2014, 2015 and 2016. More recent data is available for UK funds only, from the BVCA, for 2014, 2015 and 2016 (Table 2.6). Cambridge Associates provides data on US funds for these periods but does not make publicly available separate data for European VC funds.

¹ Sector focus of the firms included in the sample of VC firms interviewed in this study is discussed in Chapter 4.3.

Table 2.6: Most recent data on VC fund performance
 (Source: Cambridge Associates (2016) and BVCA (2017b))

Period covered	US (Cambridge Associates) IRR	UK (BVCA) IRR
3 years to 2014	18.0%	10.9%
10 years to 2014	10.3%	4.6%
3 years to 2015	21.2%	16.0%
10 years to 2015	10.9%	5.1%
3 years to 2016	11.8%	12.4%
10 years to 2016	9.4%	6.1%

UK VC funds improved in 2015 with a performance of 16.0% over 3 years and 5.1% over 10 years compared to 10.9% and 4.6% over 3 years and 10 years, respectively, in 2014 (BVCA, 2016). However, the UK returns were up to 2¼ times lower than the US returns for these periods as shown by Cambridge Associates data in Table 2.6. For the most recent data issued by the BVCA in July 2017 for the year 2016 UK, VC funds returned 12.4% over 3 years and 6.1% over 10 years. In comparison, Cambridge Associates data showed returns of 11.8% over 3 years and 9.4% over 10 years. The statistics suggest that the UK leads the US on the 3 year returns; however, UK data does not include pre-1996 funds which were negatively performing at -3.2%. If these were included the 3 years returns would fall. The data illustrate that European VC funds continue to underperform US VC funds on an overall basis.

2.3 Introduction to research into variables that impact on fund performance

Having established that there is an historic and continuing difference in performance between European and US VC funds the literature review now considers the evidence on the causes for the performance difference. An overview of the research that has been carried out into variables affecting VC fund performance is first provided as some or all of these may have a bearing on the difference in the performance between European and US VC funds. Studies which specifically investigate the performance difference are discussed in Section 2.7.

Variables impacting on fund performance include the size of funds, track record of VC, strategy (investment stage, sector classification and geographic focus), timing and amount of VC financing provided, number of tranches of financing, capital inflow and vintage years, monitoring and control processes over portfolio companies, how VCs add value, syndication, skills / experience of the VC partners, valuation of

unrealised investments, timing and type of exits, and the general economic environment (Kaplan and Schoar, 2005; Lerner, Schoar and Wong, 2005; Diller and Kaserer, 2004; SVB Capital, 2010; Ljungqvist and Richardson, 2003; Gottshalg et al., 2003; Aigner et al., 2008; Lerner et al., 2011; Schwienbacher, 2008; Phalippou and Gottschalg, 2007).

Certain drivers of VC fund performance have been identified (Landstrom, 2007; Leleux, 2007 and Parhankangas, 2007). These include VC controlled investment factors (such as fund size, deal flow, screening and selection skills, syndication, monitoring and control, specialisation, track record, reputation, value add), environmental factors (such as stock markets, regulatory, tax and legal, overall economic cycle) and the VC's decision making process (screening and evaluation). The variables pertaining to the structural, operational and wider environment aspects in which VC firms operate are discussed in detail in the following sections (Sections 2.4 to 2.6).

In the context of private equity as a whole there remains limited understanding of the “numerous endogenous and exogenous factors” that influence returns (Aigner et al., 2008 p.63). Endogenous factors include region, industry sector, financing stage (VC, buyout) of each deal as well as vintage year and GP of each fund. Exogenous factors include performance of public market, interest rates, GDP growth. Aigner et al. comment that these factors have barely been considered by other studies (see for example Ljungqvist and Richardson, 2003; Cumming and Walz, 2004; Diller and Kaserer, 2004; Phalippou and Zollo, 2005 and Lossen, 2007).

In 2006 the UK Small Business Service (a UK government agency), which was concerned about the difference in performance between UK and US VC funds, commissioned Soderblom and Wiklund to review the academic literature in order to identify factors that impact on VC fund performance (Table 2.7). They did not carry out any new empirical work but they did review some 120 academic papers and found that industry specialisation, large fund sizes with large and rapid investment into portfolio companies, good deal screening abilities, use of “US-inspired” investment contracts, syndicated deals and taking the lead investor role, early abandonment of non-performing investments, were all associated with better investment and fund performance (Soderblom and Wiklund, 2006).

Table 2.7: VC fund performance variables from literature

VC fund performance variables	
<i>From Soderblom and Wiklund (2006)</i>	<i>From other literature (see Sections 2.4 to 2.6)</i>
Size of funds (S)	Affiliation of VC firm (S)
Age of VC firm (S)	Ambition (of VCs+ entrepreneurs) (WE)
Track record (O)	Number of tranches of financing (O)
Skills/experience of VC (S)	Entrepreneurs/management team skills (WE)
Strategic focus (stage, sector, geography) (O)	Valuation of unrealised investments (O)
Timing and amount of VC financing provided (O)	General economic environment/ecosystem (WE)
Staged financing (O)	Trust between VC and entrepreneur (O)
Capital inflow and vintage years (WE)	Ability of VC to pick technology winners (O)
Deal flow/number of investments (O)	Ability to scale/grow big companies (WE)
Screening competence (O)	
Use of convertible securities (O)	
Syndication (O)	
Monitoring and control (O)	
Replacement of entrepreneurs (O)	
Adding value (O)	
Networks (WE)	Key
Exits and timing/type (O)	Structure (S)
Stock markets (WE)	Operational (O)
Tax and legal environment (WE)	Wider environmental (WE)
Government involvement (WE)	

Whilst many of the variables reviewed by Soderblom and Wiklund (2006) affecting VC fund performance have been subject to academic investigation there are only a relatively small number of studies that have sought to explain the reasons for the relative underperformance of European VC funds compared to US funds (Hege et al., 2003 and 2009; Megginson, 2004; Dantas Machado and Raade, 2006; Lerner et al., 2011; Axelson and Martinovic, 2013; Marston et al. 2013).

Lerner et al. (2011) in their work for Nesta found that various fund characteristics, such as size and stage and sector focus of funds, do not explain the magnitude of the difference in performance between UK and US funds. Later research for Nesta (Marston et al., 2013) also concluded that fund choices and fund characteristics do not explain the performance gap for pre-1998 or post-2003 funds. However, it did conclude that UK exits take longer to achieve and are less profitable than US exits which would certainly impact on performance. Schwienbacher (2008) comments that European VCs face less liquid exit markets than in the USA which forces European VCs to shop around for longer periods when trying to sell their shares. Sapienza et al. (1996) note that trade sales in Europe are the most important means of divestment, unlike the USA where IPOs are more dominant. Europe lacks active IPO markets as exit routes for VC investments (Leleux and Manigart, 1994). If trade sales

create less value than IPOs and Europe has more trade sales than the US this could be part of reason for the performance difference. But Kelly (2011) refers to the strong links existing between corporates and the VC community in the US which is held to account for the much greater amounts realised in trade sales. Lerner et al. (2011) showed that both US and UK funds had the lowest share of IPO exits when investing in UK companies, while they achieved the highest share of IPOs in their US investments.

Following the demise of EASDAQ and NASDAQ Europe there is no pan-European stock exchange for growth companies which has been put forward as a key reason for the underperformance of VC firms in Europe (Oehler et al., 2007). Hege et al. (2009) found no evidence that this caused any difference in performance between European and US VC backed companies. Kelly (2011) also finds no real evidence that portfolio companies have suffered directly due to fragmented exit markets other than indirectly as poorly developed exit markets may discourage investment.

There are other wider factors that could contribute to a difference in performance between US and European VC funds, in particular the many different cultures, laws, regulations and taxes in Europe vis a vis USA. Tyabji and Sathe (2011) comment that, whilst VC firms in Europe operate in a similar manner to those in the US, there are important differences related to the external environments in which those firms operate, such as differences in culture and customs. However, Hege et al. (2009) found no evidence that wider factors, such as tax and legal frameworks and stock market capitalisation, caused any difference in performance between European and US VC backed companies. Leleux (2007) comments on the different stages of development of the US and European VC industries in connection with the large differentials between the performance of European and US early-stage VC funds. “Unmeasured fund characteristics or the environment in which funds operated (for example, the number of opportunities available and the barriers to their development, the ambition and ability of entrepreneurs, the background of investors, other cultural issues)” are mentioned as possible factors for the historical variation in returns between UK and USA VC funds (Lerner et al. 2011, p.21).

A summary of the differences identified in variables that can impact on fund performance of European and US VC funds is provided in Table 2.8 below. The

differences are discussed in the following sections (Section 2.4 to 2.6) categorized into structural, operational and wider environmental areas. As can be seen from the table, previous research has shown some differences in the applicability of these variables to European and US VC funds. However, studies that have shown that these variables have an impact on the difference in European and US fund performance are rare as discussed in Section 2.7 below.

Table 2.8: Summary of differences identified in variables that can impact on fund performance of European and US VC funds

Variable impacting on performance (ref to section where discussed below)	Difference between Europe and US?	Impact on performance difference? (ref to paper discussed in 2.7 below)
Structural variables		
Fund size (2.4.1)	Yes	Not significant (Lerner et al., 2011; Marston et al., 2013)
Age of VC firms (2.4.2)	Yes (for established firms) No (for younger firms)	Not known
Background of partners (2.4.3)	Yes (in terms of experience, rather than functional areas)	Not known
Stage and sector focus (2.4.4)	Yes – stage No – sector	Not significant (Lerner et al., 2011; Marston et al., 2013) Sector focus (Megginson, 2004)
Specialisation (2.4.5)	Yes	Yes (Hege et al., 2009)
Operational variables		
Investment strategy (“1 in 10” approach) (2.5.1)	Yes	Not known
Theme approach (2.5.2)	Not known	Not known
Deal sourcing / branding / competition (2.5.3)	Not known	Not known
Use of tranches / milestones (2.5.4)	Yes	Contractual relationship impact (Hege et al., 2003)
Due diligence (2.5.5)	Not known	Not known
Investment approval (2.5.6)	Not known	Not known
Investment terms (2.5.7)	Yes	Use of convertible securities (Hege et al., 2003); Megginson, 2004;
Syndication (2.5.8)	Yes	Yes (Hege et al., 2009)
Monitoring (2.5.9)	Yes	Yes (Schweinbacher, 2008)
Adding value (2.5.10)	Yes	Yes (Schweinbacher, 2008)
Portfolio reviews (2.5.11)	Not known	Not known

Variable impacting on performance (ref to section where discussed below)	Difference between Europe and US?	Impact on performance difference? (ref to paper discussed in 2.7 below)
Persistence of returns (2.5.12)	Yes	Not known
Valuation of investments (2.5.13)	Not known	Not known
Exits (2.5.14)	Yes	Yes (Megginson, 2004; Dantas Machado and Raade, 2006; Axelson and Martinovic, 2013)
Wider environmental variables		
Culture (2.6.1)	Yes	Postulated but not tested - Lerner et al., 2011; Marston et al., 2013)
Fragmented markets (2.6.2)	Yes	Not known
Ecosystem (2.6.3)	Yes	Not known
Capital inflow (2.6.4)	Yes	Yes (Gottschalg et al., 2003)
Scaling (2.6.5)	Yes	Not known
Technology clusters (2.6.6)	Yes	No (Marston et al., 2013)
Lack of CEOs / entrepreneurs (2.6.7)	Yes	Yes (Axelson and Martinovic, 2013; Marston et al., 2013)
Regulation / legal framework (2.6.8)	Yes	Mixed (Marston et al., 2013 – Yes, re regulation; Hege et al., 2009 – No, re legal)
US involved in VC for longer (2.6.9)	Yes	Yes (Axelson and Martinovic, 2013)
Luck (2.6.10)	Not known	Not known

These studies indicate that there are many variables that are known to affect the performance of VC funds. The variables could have different levels of emphasis with Europe and US funds and, together with other as yet unmeasured factors (Lerner et al. 2011), might explain the difference in performance between Europe and US VC funds. The variables in the context of structural, operational and wider environmental areas in which VC firms operate are discussed in the following sections. As there is a large amount of literature on this only literature that is potentially applicable to the performance of VC funds in Europe and US is covered. The theoretical context of the variables in terms of structural, operational and wider environmental areas and how this links to performance is discussed in Section 2.8. Each of the variables are subject

to investigation through the interviews carried out in this research as detailed in Chapters 4, 5 and 6.

2.4 Structural factors

Specific structural differences of VC firms that have been noted to impact on fund performance are discussed in this section, including the size of their funds (which may of course vary in the same firm) and the background experience of the investment partners. Age of VC firm is also considered in this section.

2.4.1 Fund size

The size of a VC fund has been shown to impact on the performance of VC funds, though there are many differing views as to whether smaller, medium or larger size funds contribute to better performance. Phalippou and Gottschalg (2007) document a linear relationship between performance and fund size, consistent with Lerner et al. (2005) who interpret that LPs who invest in larger funds tend to have higher performance on average, although this view is counteracted by later research which shows more of a concave relationship between fund size and returns (Lerner et al., 2011). Indeed, Kaplan and Schoar (2005) found that when funds become very large performance declines. SVB Capital (2010), from a review of historical returns data from the data provider Preqin, found contrary evidence to support that funds at the smaller end of the size spectrum consistently outperform larger funds. SVB Capital found that a larger proportion of funds in the \$50m to \$250m range had outsize performance relative to funds that manage more than \$250m in capital. Aigner et al. (2008) find that fund size negatively influences returns but Gottschalg et al. (2003) and Phalippou and Zollo (2005) suggest a positive influence of fund size on returns. Kaplan and Schoar (2005) calculated an ideal fund size of \$90 million to maximise returns.

US VC funds are, on average, larger than European funds. Lerner et al. (2011) comment that the average fund size in the US was double that of continental Europe for the period 1990 to 2005 and 90% higher subsequently. US funds can therefore make more investments than European funds, both in terms of amount invested and number of investments. Lerner et al. (2011) estimate that US funds made follow-on

investments in 40% of their portfolio companies compared with just 20% in the UK and continental Europe, better facilitating the scale-up process in US (Durufle, 2017).

It could be expected that the larger the size of a VC fund the better the overall performance of the fund as larger fund sizes give rise to larger fund management fees which permit the engagement of more human capital in a VC firm to select, monitor and add value to investments (Brigl and Liechtenstein, 2015). Larger fund sizes also enable a plentiful supply of finance for investments as they move through the various stages of growth. On the other hand, if a fund is too large it may not be able to find enough good investment opportunities and may invest in projects with poor potential (Gottshalg et al., 2003). Lerner et al. (2011) found that fund size does not explain the magnitude of the difference in performance between UK and US funds.

A consensus view from the above research could be that there is an optimal, medium size of fund for better fund performance. Kaplan and Schoar (2005) found that there are decreasing returns as funds scale up with a concave relationship between fund size and returns. This is borne out by Lerner et al. (2011) who find that medium size funds (which they define as \$84m to \$365m) have the superior performance. The average IRRs for funds having assets under management of less than \$84 million were about 7 percentage points lower than for larger funds, and that funds larger than \$365 million did not perform better than the small funds of less than \$84 million. So it is the medium size funds (\$84m to \$365m) that have the superior performance.

2.4.2 Age of VC firms

It could be expected that the older a VC firm the greater the experience in making and managing investments which should lead to improved performance. However younger firms make take a higher risk approach to investing which could lead to outlier returns. Indeed, Schwienbacher (2008) found that younger VC firms in Europe and US invested more in seed and start-up stages than in buyout companies which is a higher risk approach. Younger VCs were defined as those established between 1997 and 2001 and older VCs were those established before 1997. Schwienbacher also found that when compared to the older VC firms, the younger VC firms managed fewer portfolio companies, invested more regionally, used convertible securities less often and invested their funds for a shorter period prior to exit. They also replaced former entrepreneurs less often, which Schwienbacher states might be

due to their relative lack of experience in recruiting top executives, and had fewer syndication partners and syndicated less often (possibly because of a lack of experience and contacts among their peers). The differences between European and US VC firms were greater for well-established than for younger VC firms. Bottazzi et al. (2004a) similarly found that VC firms that entered the industry at the end of the 1990s (the dot-com era) focused much more than the older, established firms on investing in early-stage companies, especially at the seed-stage, with an investment style that was more risk-tolerant and hands-on more closely resembling US VC firms.

The vintage year of a fund may also impact on performance. The vintage year is the year of a fund's formation and the first drawdown of capital (Gilligan and Wright, 2014). UK VC funds were significantly affected by the dot-com bubble with pooled average since inception returns of -1.8% during the bubble period (1998 to 2001), compared to 11.9% pre-bubble (1980 to 1997) and 7.7% post-bubble (2002 to 2010) (BVCA, 2015). The BVCA comments that funds with a vintage year in the dot-com bubble suffered from the high valuations that were prevalent at the time the large amounts of capital that flooded into the industry depressed the real returns to investors. The US also suffered negative returns as a result of the dot-com bubble (Hellmann, 2002).

2.4.3 Backgrounds and experience of VC firm partners

The experience of VC firm executives is clearly a requisite for potential success with deals and hence with fund performance. Gottschalg et al. (2003) find several characteristics of the GP investor to be highly related to performance; GPs who lead deals tend to be experienced executives, they manage larger funds and they sell investments rapidly and consequently their funds significantly outperform other funds.

The backgrounds of the VC firm executives doing deals has historically been different in Europe compared to the US. Hege et al. (2009) observe that US VCs are often more specialised and more sophisticated than their European counterparts. Kelly (2011) states that anecdotally it is claimed that European VCs more commonly have a background in finance, while US VCs tend to be scientists and ex-entrepreneurs. He mentions that the difference in backgrounds of European and US VCs has never been tested as a reason for difference in performance. This is specifically investigated in this research. Kelly contends that the lack of scientific expertise among European VCs

means they are less able to identify investments with high potential. Axelson and Martinovic (2013) comment that partner experience and specialisation are positively related to success for both European and US VCs. They comment that European VCs lag US VCs in experience and that this impacts on the performance differential between European and US VC funds. Cornelli et al. (2016) find that private equity teams with a higher proportion of investment professionals with operational backgrounds perform better than those that comprise mainly finance professionals. Cornelli et al did not specifically investigate venture capital firms.

US VC firms tend to be highly populated with experienced engineers, scientists and industry people. Some European firms are heavily populated by corporate financiers and investment bankers. Bottazzi et al. (2004a) note that nearly half of all the partners at the VC firms they surveyed in Europe had backgrounds in the financial sector with 40% having backgrounds in industry and consulting. They also note that partners in their sample of 150 European funds with specific experience of practicing VC in the US was only about 7%.

Aigner et al. (2008) find that the experience of a GP is positively correlated with private equity fund performance which corroborates conclusions drawn by Kaplan and Schoar (2005), Phalippou and Zollo (2005) and Gottschalg and Kreuter (2006). They measure experience in terms of the time span between the vintage year of the GP's first fund and the vintage year of subsequent funds and also measured by how many funds the GP has already managed. They find that GPs with higher experience in terms of years tend to conduct riskier investments than their inexperienced counterparts which can lead to outlier returns.

Lerner et al. (2011) found that more experienced fund managers achieved higher returns; here the authors give examples of experience including screening potential deals, citing Gompers et al. (2005), adding value to deals post investment (Gompers et al., 2010) and having more extensive networks for sourcing deals, finding co-investors and exit opportunities (Hochberg et al., 2007). Lerner et al. (2011) also found a positive relationship between the number of partners and fund performance but they say that this has eroded over time.

2.4.4 Investment stage, sector classification and geographic focus

In determining their overall investment focus in setting up a fund VCs will choose their stage focus (broadly seed, start-up, early state and later stage), sector focus (the industry sectors in which they wish to invest) and geographic focus (local, regional, country wide, multi-country, global). These choices may all impact on the performance of a VC fund.

Early stage financing in a venture fund is riskier than later stage financing and is associated with a higher return (Cochrane, 2005). Diller and Kaserer (2009) also find that a riskier investment policy, characterised by fund stage, leads to higher returns. Cochrane (2005) finds that venture returns are very volatile with later stage deals having less volatility than early stage deals. Kelly (2011) and Bertoni et al. (2015) observe that US VCs have been more willing to invest in the early (particularly seed) stages than European VCs providing more scope for outperformance. Lerner et al. (2011) found that funds investing in earlier rounds performed better than those investing in later rounds. In contrast Kaplan and Schoar (2005) found that fund performance was not stage, or indeed sector, related.

Ljungqvist and Richardson (2003), Lossen (2007) and Aigner et al. (2008) found no significant impact of industry sectors and regions on performance for North America and Europe (and other countries), but find that diversification over financing stage yields a significantly positive influence on performance. An increase in diversification across financing stages decreases the percentage of portfolio companies that generate losses which is at odds with the specialisation hypothesis.

Lerner et al. (2011) found that the year of formation of the fund (vintage year), the size of the fund, its investment stage focus, industry sector focus, fund manager attributes such as prior experience in the market and strategic choices such as number of companies invested in, amount committed and number of co-investors do not explain the magnitude of the difference in performance between UK and USA funds.

2.4.5 Specialisation

There are mixed views as to whether specialisation by firms in terms of financing stage, industry and geographic focus leads to higher returns than are obtained

by more diversified firms. Gottshalg et al. (2003) argue that a private equity firm which has adopted a focussed investment strategy has smaller and more specialised teams that may learn faster from working on a large number of similar opportunities. Specialist VCs build tight links with their industry sector which Gottshalg et al. state may improve performance. The specific sector knowledge gained by VCs who specialise in a sector impacts positively on returns (Gupta and Sapienza, 1992; De Clerq and Dimov, 2006).

In contrast to the above studies Lossen (2007) found that firms that specialise in certain industries or countries do not perform any better than more diversified funds. He suggests that either specialised “know-how” is less important than assumed or it can be obtained from outside the private equity firm. Alternatively, it can be found from the expertise of individual partners who specialise in certain sectors rather than from the firm overall. Gompers et al. (2009) support the view that it is the specialisation of individual partners that leads to better performance. They investigated generalist firms (investing, for example, in life sciences and information technology sectors) comprised of generalist partners, generalist firms comprised of specialist partners (by sector) and specialist firms (investing, for example, only in life sciences). They find that generalist firms tend to underperform compared to specialist firms unless the partners are themselves specialists. Specialisation increases the likelihood of finding good industries in which to invest and consequently making good investments in those industries. However, Gompers et al. are unable to confirm whether the better performance of specialists is due to better investment selection abilities or better adding value abilities.

2.5 Operational factors

Having discussed structural areas impacting on performance, the following sections discuss the various stages of the operational investment process from sourcing deals to exiting deals. Tyebjee and Bruno (1984) explain the venture capital investment process in 5 stages: deal origination, deal screening, deal evaluation, deal structuring and post-investment.

Previous studies have shown significant differences in investment practice between US and European firms though these have not necessarily been linked to performance. Bottazzi et al. (2004a) noted that the European VC industry is

increasingly emulating US investment practices. Sapienza et al. (1996) found that amongst European markets VC practices in the UK were the most like those in the USA. This is not surprising given that the UK market developed sooner than other European markets.

2.5.1 Investment strategy

VCs tend to pursue either a home-run, “1 in 10” investment strategy when they select deals for investment on the high-risk basis that at least one out of every ten investments they make will return the fund as a whole or they pursue the less risky, and potentially lower return basis of achieving a 2x or 3x return on all their investments (growth strategy). This usually depends on whether they are investing at early stage or later stage. The “1 in 10” terminology derives from Zider (1998, p.136) where he mentions that “in an ideal world all of a firm’s investments would be winners” but that on average “good plans, people and businesses succeed only one in ten times”. He mentions that half of the companies in a VC’s portfolio will at best return the cost of the original investment and at worst be complete write-offs. Sapienza et al. (1994) suggested that VCs might follow home-run strategies, preferring to put greater effort and resources into investment opportunities with the largest potential returns. Aigner et al. (2008) comment that the degree of risk pursued by a GP plays a role in determining top quartile performance, an inference that a higher risk strategy such as the “1 in 10” approach could lead to higher returns.

There has not been any previous specific research into the adoption of a more “1 in 10” approach by US VCs as compared to European VCs but there are comments that suggest that European VCs adopt a lower risk approach to investing. Dantas Machado and Raade (2006) investigating the J-curve effect for European and US funds show that the J-curve is significantly deeper and narrower for US funds than that of European funds. The J-curve effect is where private equity and VC funds show negative returns in the early years of a fund’s life as money is drawn down into the fund from the investors in order to finance investment deals and then positive returns as investments are exited and distributions are made to limited partners. They suggest that this shows that US VCs invest in projects that are initially riskier than those of European VCs, but that the investee companies of the US VCs grow more quickly and more steeply. In an earlier study Bottazzi et al. (2004a) suggest that European VCs are

more interested in the long-term value creation potential of companies than in the possibility to make short-term financial returns.

Another aspect to propensity for risk is that VC fund managers who have performed well with their initial investments in a fund are more likely to take risks with the remaining capital in the fund because they are not so concerned about their ability to raise a new fund (Crain, 2013).

2.5.2 Theme approach

There is little prior research into how VC firms determine which particular, specific, new sectors to focus on going forward, i.e. the “hot” areas for investment. Identifying a new area, or theme, can lead to considerable competitive, first-mover advantage and lead to outlier returns. This theme approach is specifically considered in this research. SVB Capital (2010) comment that a VC firm’s talent in creatively and proactively capitalising on the changing landscape and executing a focused strategy ahead of the competition contributes to the fund’s potential success. Being leaders in a new field is distinct from following on from others in an existing sector, the “lemming-like” behaviour referred to by Sahlman and Stevenson (1985), an example of which is where VCs continued to finance the computer hard disk drive industry long after it should have been evident that the potential financial returns did not justify such investments.

The information that flows through VCs networks can provide early intelligence on the future direction of an industry and hence emergent investment themes (Bygrave, 1987). VC networks enable the sharing of information between stakeholders such as investors, entrepreneurs, corporate financiers, head-hunters, consultants and experts which can provide deep knowledge about likely technological trends to help VCs decide their investment focus (Mason, 2007).

2.5.3 Deal sourcing / branding / competition

Brand strength may impact directly on deal flow and the quality of companies that come to the attention of a VC (Aigner et al., (2008), backing the theory of Lossen (2007) that the more portfolio companies (deals) a fund has the better it performs. As a fund has a fixed amount of money to invest (committed capital) in a predetermined

stage of investment (VC or buyout) then a high number of deals must mean that the investment cost was lower than if there were fewer deals in the portfolio (assuming all the committed capital is used) and this would have a positive effect on a private equity fund's returns assuming that the investments are exited at multiples of their cost (Lossen, 2007). There is also an argument that the more deals that are made the more likely the VC might achieve a "lucky" home run.

The importance of the strength, or otherwise, of the branding of VC firms has not been subject to much investigation. However, reputation of VC firms, which has an impact on brand strength, has been subject to some studies. For example, Gompers and Lerner (1999) consider reputation as represented by firm age and size and find it is positively related to the ability of a firm to raise new funds. Hsu (2004) showed that VC firms with better reputations are able to negotiate deals with lower valuations. Nahata (2008) investigates reputation in terms of cumulative market capitalisation of IPOs backed by a VC and finds that the more reputable VCs are more likely to achieve successful exits. The brand strength of VC firms in US and Europe is discussed in this research.

Firms with higher status may also avoid escalation of commitment in not necessarily having to "save face" with syndicate members in continuing to support a disappointing investment through further rounds of finance. Guler (2007) shows that the likelihood of terminating an investment is higher for higher-status VC firms than for lower-status VC firms.

Competition to do deals amongst VCs can also impact on returns. Ljungqvist et al. (2007) showed that the fewer attractive investment propositions there are then the longer it takes to return a given multiple of committed capital to the LP investor. In other words, competitor VCs are chasing few favourable investment projects with the result that valuations are increased on investment which causes lower returns. If there is a greater pool of attractive companies in which to invest in an industry sector, valuations are lower and the higher the funds' returns will be. Competition may also cause "bandwagon effects" which can result in VCs rushing into investment commitments without properly considering areas such as due diligence (Gompers and Lerner, 2000).

2.5.4 Tranches of financing and milestone based financing

VCs commonly use stage financing, whereby finance is provided in successive rounds rather than being provided fully at the start of the investment (Bergmann and Hege, 1998; Cornelli and Yosha, 2003; Gompers, 1995; Witt and Brachtendorf, 2006). Within each stage financing might be dependent on certain milestones being achieved before successive tranches of financing are released (Kaplan and Stromberg, 2000). Stage financing is a useful control mechanism to reduce information asymmetries and hence risk in an investee company (Gompers and Lerner, 2001). Real options theory is applicable to the staging of VC finance in terms of the decision to invest or not to invest in a finance round and whether to invest later when new information has come to light (Li, 2008), again reducing uncertainty and potentially achieving a better performance outcome.

Schwienbacher (2005) comments that stage financing increases the value of the venture because less financial resources are “wasted” than if all the financing were provided at the initial stage of investment. He also comments that stage financing might provide an incentive for an entrepreneur to work harder in order to secure subsequent stages of finance. This argument could also apply to milestone based financing. However, stage financing is more onerous on entrepreneurs’ time which could take them away from the focus of growing the business. Nesheim (2000) reports that around 25% of a CEO’s time is spent on raising secondary rounds of VC finance. Jones and Rhodes-Kropf (2003) used the number of investment drawdown stages as a proxy for idiosyncratic risk and found a negative relationship with returns. Kelly (2011) hypothesises that available funding is spread too thinly in Europe citing Clarysse and Heirman (2007) who show that VC backed firms which receive too little money perform much worse than innovative companies that try to develop their business model without VC involvement.

Clarysse et al. (2009, p.12) state that “the amounts invested per early stage company are significantly larger in the US than in the UK”. A UK VC firm investment partner mentions that US VC funds invest throughout the life of an investee company (Anton, 2009); due to the smaller size of European funds this is often not possible. Schwienbacher (2008) found that the average number of financing rounds until exit was very similar in Europe (2.3) and the USA (2.4), lower than the result for USA

(3.2) found by Lerner (1995) although Lerner's results related only to the biotech industry and to companies that went public. The amount of finance provided per round is therefore lower in Europe than in the US.

The ability to raise successive rounds of finance does provide a measure of the successful progress of a venture and the related fund's success. Gompers (1995) argues that ventures that have successfully received a greater number of rounds are the successful ones and are more likely to go public.

2.5.5 Due diligence

Whilst there is a large amount of research on how VCs select the ventures in which to invest there has been very little research on the due diligence process itself (Zacharakis and Shepherd, 2007; Drover et al., 2017) and how it impacts on performance. The due diligence process in European and US VC firms is specifically investigated as part of the current research. Some VCs may carry out extensive due diligence involving outside experts such as technology experts, commercial specialists, accountants, lawyers, management psychometric testing and other specialists. Other VCs may carry out due diligence on a largely internal basis and typically involve outside parties only in connection with IP and legal advice and possibly also for specialist advice on technical matters where the firms' partners do not have the in-depth knowledge of the specific technology. Clearly poor due diligence can result in bad investment decisions being made, ultimately impacting on fund performance.

In one of the few studies on due diligence Smart (1999) finds that in 42% of the deals VCs fail in their judgement about a portfolio company's management. Hege et al. (2003) do not comment specifically on due diligence but they do argue that the outperformance of US VC funds relative to European counterparts is due (at least in part) to the superior "screening" abilities of US based GPs in taking on portfolio companies. With US VCs better capacity to screen projects Hege et al. (2003) state that US VCs are able to invest a larger fraction of the total investment into the initial financing round. They comment that this helps to ensure the success of the ventures in the early stages.

2.5.6 Investment approval process

There is a considerable amount of research into the criteria and processes that VCs use to make their investment decisions (see reviews by Zacharakis and Shepherd, 2007; Levie and Gimmon, 2008 and Simic, 2015) but little research as to how investments are formally approved, certainly in the context of any differences in the European and US approval processes which may impact on fund performance.

In terms of the decision process, as opposed to the approval process, it is generally agreed that the VC's decision making occurs over five stages of the investment process, as discussed by Tyebjee and Bruno (1984): deal origination, screening, evaluation (including due diligence), deal structuring and post investment activities (monitoring and adding value). Hudson and Evans (2005) refer to a sixth stage (cashing out or exiting) that has been added by other researchers including Wells (1974), Silver (1985) and Hall (1989). At the screening stage, for example, decision criteria tend to centre on the viability of the business model and product or service, the competence of the management team, the existence of a fast growing market for the product or service and the realism and achievability of the business plans and financial projections. Bottazzi et al. (2004b) asked respondents which were the most important investment criteria that guide their investment decisions and found that a good management team, market size, technology and valuation were cited as key investment criteria. However, Simic (2015) in reviewing research on VC's investment criteria concludes that there is not a distinctly defined VC decision-making process and no unique agreement on the most important criteria.

Hudson and Evans (2005) do not mention any differences in approach between European and US VCs in their review of the screening and evaluation criteria used by VCs. They do comment that VCs are not a homogeneous group and not subject to generalisations, specifically in terms of perceptions of risk and differing views on how they evaluate investment proposals (MacMillan et al., 1985). VC decision making varies between VC firms within the same jurisdiction and regions with no consistent model applied. It would therefore be difficult to establish any consistent difference between Europe and US.

The area that appears to have received little academic research to date, either in connection with European or US VCs, is the process by which VCs formally

approve their investment deals, that is the process by which the partnership decision making team approves an investment. The investment approval process is specifically considered in this research. At the commencement of the approval process a “deal champion” will usually sponsor and justify an investment proposition to a VC firm’s partners, often through the means of an investment committee (Pearce and Barnes, 2006). The investment committee will usually be comprised of the firm’s senior partners, or all of the partners and sometimes other senior investment staff may be involved. This initial process is designed to gain consensus as to whether to proceed in investigating the deal or not to take it any further. VC firms largely reach decisions either on a unanimous basis, that is all members of the committee have to agree to an investment and the investment would not proceed if even one member was dissenting, or by consensus, that is the issue is debated and possibly further investigations made until individual concerns are satisfied. When satisfactory initial due diligence has been completed the approval of the investment committee will be required to issue an offer letter to the potential investee company setting out the terms of the VC firm’s proposed investment.

The seniority and experience of the members of an investment committee is relevant to the approval process. The maximisation of success and minimisation of failure on an investment are linked to partners’ backgrounds and experience (Dimov, 2004; Dimov and Shepherd, 2005). Shepherd et al. (2003) considered the impact of VCs’ experience in the decision process and find that both inexperienced and highly experienced VCs make decisions less reliably than do moderately experienced VCs. Inexperienced VCs may “struggle” with the amount of information surrounding a decision. Highly experienced VCs use more of an intuitive, hands-on approach which can be subject to bias and error. Shepherd et al. note that less experienced partners may find it difficult to challenge more experienced senior partners. Guler (2007) refers to investment decisions being vulnerable to political influence, for example with partners avoiding vetoing other’s deals in order to gain advocates for their own deals. It is therefore possible that a more junior partner would not veto a senior partner in order not to lose the support of the senior partner in future deals. One of Guler’s interviewees commented that “if one partner is very excited about the company and the others are lukewarm, that one partner can get the financing done anyway” (p.22).

2.5.7 Investment terms

The term sheet or offer letter includes the various terms and conditions of a VC investment. The term sheet outlines the framework for the deal and is subject to negotiation. Once the terms have been agreed between the VC and the entrepreneur the formal due diligence process can proceed (Arundale, 2007). The terms in the term sheet will be incorporated into the shareholders' agreement at the end of the investment process. Investment terms include the following areas (Pearce and Barnes, 2006):

1. amount to be invested, instruments (e.g. ordinary shares or convertible preferred shares), valuation, capital structure;
2. liquidation preferences, dividend rights, conversion rights, anti-dilution protection, redemption rights, lock-ups, pre-emption rights, ratchets;
3. board composition, consent (veto) rights, information rights;
4. warranties, vesting, option pool, milestones;
5. confidentiality, exclusivity, fees, conditions precedent.

The first, third and fifth areas are almost universally included in an offer letter or shareholders' agreement. However, VC firms differ in their approach to the inclusion or exclusion and the extent of inclusion of many of the terms included in 2 and 4 above, notably the use of liquidation preferences, the right to receive a dividend on their shares and whether financing is to be provided based on the company reaching certain milestones. The inclusion of such terms may depend on the stage of investment, the industry sector and whether the VC firm is leading an investment or following on behind others. This largely tracks the VC firm's propensity for risk and also the state of the market and competition to do deals. Because of the competitive environment in the US, particularly in Silicon Valley, VCs may take higher risks investing earlier to beat the competition and due to their impressive brand strength tend to see the better deals which should improve fund performance if the investments are successful.

The area of convertible securities has been subject to the bulk of the research into the terms included in VC contracts. Several studies provide empirical evidence on the use of convertible securities by VCs (Gompers, 1996; Basha and Walz, 2002; Kaplan and Stromberg, 2003; Cumming, 2006). The use of such convertible securities provides the VC with protection against the downside risk of an investment by the VC having seniority rights over "straight" equity. Schwienbacher (2008) found that

convertible securities were used three times less often in Europe than in the USA confirming similar results for specific European countries reported by Kaplan (2007), Cumming (2008) and Bascha and Walz (2002). Schwienbacher (2008) suggests that there is less “contract sophistication” in Europe due to the industry being much younger than the USA, as supported by Kaplan et al. (2007). Hege et al. (2009) also observed that US VCs make more efficient use of instruments of control and contingent funding than do European VCs.

Dessi (2011) investigates the geographical variation in VC contracts (in the US only) and found that those in California contain significantly fewer contingencies linking entrepreneurs’ rewards to their firm’s performance (Kaplan and Stromberg, 2003; Bengtsson and David, 2009). Such contingencies could include the achievement of financial forecasts, reaching a threshold number of customers, acquiring a new technology or developing a facility. Dessi comments on the advantage that these relatively incomplete contracts in California confer on the start-up investee company and the VC. The use of more “entrepreneurially friendly” contracts by US West Coast VCs compared to East Coast and European VCs is investigated in the current research.

2.5.8 Syndication

VCs generally syndicate with other VCs in their investments as opposed to investing in ventures on their own (Hochberg et al., 2007; Nanda and Rhodes-Kropf, 2017). Syndication in a VC deal can occur for a number of reasons: to diversify the risk of a single VC investor, so that risk is shared across one or more investors, to increase value-adding activity through the different skill sets and networks of the individual VC firms, and to improve screening and initial assessment of deals (Sapienza et al., 1996; Wright and Lockett, 2003; Bruining et al., 2005). In addition to syndicating with other VCs, VCs might co-invest with a corporate investor for strategic benefit (Hellmann, 2002; Riyanto and Schwienbacher, 2006). Syndication in these ways can help to improve investment performance through the additional human capital engaged on deals in terms of the sector knowledge, expertise and contacts of syndicate members.

Schwienbacher (2005) found that syndication is used more often in the US than in Europe and also that the average size of syndicates is larger. In an earlier study, Bottazzi et al. (2004a) did note that in their sample of some 150 European funds almost

half of the deals were syndicated with more than 75% of firms taking part in a syndicated deal, so syndication is nevertheless quite common in Europe. Schwienbacher (2005) found that the time for European VCs to find a trade sale buyer was a mean of 7.2 months compared to 5.1 months in USA, which they state is consistent with the view that the greater degree of syndication in the US provides a larger pool of contacts when looking for a potential buyer and therefore quicker exits.

Leleux (2007) comments that syndication assists two key areas that impact on performance: sourcing high quality deals and nurturing investments. Checkley et al. (2014) found that performance of VC firms in UK is positively related to connectedness with other VCs and greater connectedness is a precedent to improved performance (measured by number of IPOs). The performance advantage is due to the network connectedness with access to skills, information, social ties as opposed to the financial resources of the syndicate members. They also found that VCs prefer to syndicate with well-connected VCs and with VCs having offices in the same region of the UK.

Bygrave (1987) showed that sharing of information and knowledge is more important than spreading of financial risk as a reason for networking (syndicating). Syndication can be used to reduce the impact of information asymmetries (Engel, 2004). It may also help to reduce firm specific risks by enabling firms to invest in more deals and can provide a second or third opinion on potential deals which should also reduce risk as more information is shared about deals from the various syndicate players, hence helping to avoid bad investments and improve fund returns (Gompers and Lerner, 2001).

Finance considerations were found by Manigart et al. (2002) to be more of a driver for syndication in Europe than the sharing of resources, or indeed improving deal flow, which appear to be more a motive for syndication in the US. Less availability of capital due to smaller fund sizes and the desire to share the risk on deals are strong drivers for syndication in Europe; amounts invested in early stage companies are significantly larger in US than UK (Clarysse et al. 2009).

2.5.9 Monitoring

The monitoring processes adopted by VC firms post-investment are an attempt to overcome issues related to potential differences in goals between VC and entrepreneur and the information asymmetry that is present in the VC/entrepreneur principal - agent relationship (De Clercq and Manigart, 2007). Monitoring includes such areas as reporting by investee companies both formally by written reports and management accounts and representation on the board of directors and also through regular informal visits to the company's premises and ad hoc meetings. Monitoring may reveal issues that can lead to the VC replacing the founder with more experienced management or subsequently replacing members of the management team. Schwienbacher (2005) comments that when VCs retain the option to replace the founder entrepreneur, they provide greater effort in finding professional managers that increase the value of the company. Lerner (1995) provides evidence of the active involvement of VCs during this replacement process. The extent of monitoring may be reduced the more that entrepreneurs share information with VCs in frequent and open communication, in accordance with procedural justice theory (Sapienza and Korsgaard, 1996).

Monitoring activities, in nature and frequency, tend to increase if a portfolio company performs worse than expected (Higashide and Birley, 2002) and in distress situations when the investee business is struggling, in order to identify the causes of poor performance so as to help the portfolio company to recover. The greater the in-depth knowledge of a portfolio company's industry the better the VC firm's ability to recognise "danger signs" at an early stage (Sorenson and Stuart, 2001). The extent of sector focus and experience by US VCs as compared to European VCs can put them at an advantage in the specialist monitoring process. Schwienbacher (2005) shows that overall European VCs monitor less than US VCs. If issues do occur with portfolio companies, taking action to correct them is shown to be more likely to be made by US VCs than by European VCs (Hege et al., 2003; Schwienbacher, 2005).

2.5.10 Adding value

In addition to monitoring their investee companies, VC's also aim to add value. VCs can add value in a variety of ways: coaching (financial, administrative, marketing, strategy and management support), managerial professionalism (Hellmann and Puri,

2002; Bottazzi et al., 2008), facilitating access to specialised professional services and establishing strategic alliances with third parties (Lindsey, 2002; Hsu, 2004) and providing practical help to companies through their networks. Davis and Stetson (1985) mention that the most important value-added contribution of a VC is in helping to develop the right professional support group for the venture. VCs may be involved in making strategic decisions and not just monitoring the decisions of CEOs (Gorman and Sahlman, 1989; Lerner, 1995; Rosenstein, 1988), for example they may be able to reduce critical uncertainties for a venture (Bygrave and Timmons, 1992).

VCs involvement, in both their monitoring and value adding roles, can vary from almost a passive approach to deep involvement (Gorman and Sahlman, 1989; MacMillan et al., 1989). There has been debate as to whether VC involvement does add value to new ventures (Rosenstein et al., 1993; Sapienza, 1992). MacMillan et al. observed both positive and negative associations between involvement and venture performance.

More experienced VCs can provide greater industry specific expertise in terms of market access, strategic and operational advice (Gorman and Sahlman, 1989). This value adding activity can help improve the performance of portfolio companies (Kaplan and Schoar, 2005). Sapienza et al. (1996) showed that VCs experience in a venture's industry is positively associated with value added both in US and in Europe. VCs may also add value indirectly as the very fact that a VC has invested in a company signals the quality of that company to third parties, for example to customers, alliance partners, workers and financial intermediaries (Stuart et al., 1999).

Venture performance is positively related to value added in both Europe and the US. Schwienbacher (2008) comments that European VCs are less active investors than US VCs which has implications in terms of how much value they add to an investee company which can in turn lead to lower returns for their portfolio companies. Schwienbacher comments that this relative lack of involvement by European VCs post investment will most likely result in fewer IPOs and more trade sales as IPOs are typically reserved for the most promising ventures. Rosenstein et al. (1993) found that the top US VC firms are perceived as adding more value than other firms.

2.5.11 Portfolio reviews

As part of the monitoring process VCs usually carry out periodic reviews on the performance of their individual portfolio companies. In accordance with the home run strategy identified by Sapienza et al. (1994) VCs focus attention on winners and therefore put greater effort and resources into ventures which promise the greatest return. Kelly (2011), commenting on the lack of diversification in the portfolios of European VCs, states that VCs need to have sufficient funds and be sufficiently diversified to be able to allocate further resources to successful investments and to exit bad investments in a timely fashion in order to avoid “throwing good money after bad” (p. 9).

Guler (2007) shows that VC firms are less likely to terminate investments as they continue with further rounds of financing even if the indications are that anticipated returns are declining. In addition, in-firm politics (such as “losing face” by partners who have championed investments) may result in poor investments being continued. Guler comments that, as only a relatively small number of investments account for a large proportion of a VC fund’s returns, it is essential for a VC firm to evaluate its investments and terminate investments in unsuccessful ventures in order to maximise fund performance.

2.5.12 Persistence of returns

There is statistically significant evidence for the persistence of fund returns whereby the returns of different funds run by the same GP fund manager are relatively consistent in performance (Kaplan and Schoar, 2005; Phalippou and Gottschalg, 2007; Diller and Kaserer, 2009). The persistence phenomenon is more pronounced for venture funds than for private equity funds (Kaplan and Schoar, 2005; Ljungqvist, Richardson and Wolfenzon, 2007; Phalippou and Gottschalg, 2007). Schmidt et al. (2006) found clear support for market timing abilities during the investment phase of a fund. Diller and Kaserer (2009), in contrast, state that the persistence seems not to be due to a GP’s ability with market timing. Kaplan and Schoar (2005) comment that persistence appears more to do with a GP’s skills than its investment stage and industry focus.

Lerner et al. (2011) found that a fund raised by a fund manager whose previous fund performed well is more likely to exhibit superior performance. They found a significant relationship between past and present returns for US funds but not for UK funds. The persistence of returns effect also varied across time periods, being greatest during the period 1990-93 and lowest during the dotcom bubble period of 1998-2001, increasing again in the period 2002-05.

More recently Harris et al. (2014a) investigated persistence for pre-2000 and post-2000 buyout and VC funds. They confirmed the persistence phenomenon for VC and buyout funds, except for post-2000 buyout funds with top-quartile venture funds staying above the median and with returns exceeding those of the public markets. However, the European Investment Fund notes no significant difference in their portfolio between VC returns from start-ups invested by first-time VC teams and VC firms with previous funds (European Investment Fund, 2017). They do find that investments carried out by first-time teams perform worse during market downturns which suggests that VC experience is “key” in these conditions. Recent data from Preqin shows that two-thirds of top quartile funds are followed by a top or second quartile fund and two-thirds of bottom quartile funds are followed by below average performance (Preqin, 2017).

Existing limited partner investors often have privileged information on the quality of private equity groups and their track records, reducing information asymmetry. Lerner et al. (2005) found that funds in which endowments choose to reinvest have much higher average IRR than those of other classes of LPs. They suggest that endowment funds are proactive in using the information they gain from being an inside investor. LPs tend to reinvest in a GP’s next fund if the current fund has a high IRR (average of 25%). The work of Lerner and Schoar (2004) implies that optimally LPs would use the inside information they gain to screen out poorly performing GPs.

2.5.13 Valuation of unrealised investments

VC funds differ in how they value unrealised investments in their portfolios. These valuations impact on interim measures of performance returns. International Private Equity and Venture Capital valuation guidelines were published in 2006 and last updated in 2015. The guidelines have been adopted by many countries. The NVCA

in the US endorsed them in 2013 having previously used their own guidelines. However, VC firms can still use many different methods, albeit in the context of fair value measurement, within the IPEV guidelines and these different measures may result in differences in reported returns between VC firms from the same country or from different countries. Gottshalg et al. (2003) commented that LPs may receive significantly different valuations from different GPs who are all investing in the same company. They note that accounting practices vary considerably across funds. Funds with many successfully realised investments are more conservative in reporting the value of ongoing investments. First-time funds may be more aggressive with their valuation techniques in order to raise subsequent funds; less well performing funds may be less conservative than “winner” funds.

Cumming and Walz (2010) compared realised IRRs of private equity funds with previously reported unrealised IRRs which had been estimated using valuation techniques and found systematic reporting biases (overvaluations) in the reporting of the unrealised IRRs. They state that this is explained by differences in accounting standards and legal systems across countries (39 countries from North America, Europe and Asia were included in their sample for the period 1971-2003). Countries with higher quality legal systems and accounting standards, as is the case with many European countries and the USA, showed less overvaluation. They comment on the information asymmetry between private equity funds and their LPs as the valuations are determined by the fund managers.

2.5.14 Exits

The type of exit, duration of exit and influence of VCs on the exit process could be key reasons for the difference in performance between European and US VC funds. The longer investments are held the poorer is the performance generally in IRR terms. Schwienbacher (2008) states that European VCs face less liquid exit markets than in the USA which forces European VCs to shop around for longer periods when trying to sell their shares. Sapienza et al. (1996) note that trade sales in Europe are the most important means of divestment, unlike the USA where IPOs are more dominant. Europe lacks active IPO markets as exit routes for VC investments (Leleux and Manigart, 1994). If trade sales create less value than IPOs and Europe has more trade sales than the US this could be part of reason for the performance difference. But Kelly

(2011) refers to the strong links existing between corporates and the VC community in the US which is held to account for the much greater amounts realised in trade sales.

Dantas Machado and Raade (2006) investigate European performance versus US performance of VC funds for the period 1983 to 2003. They comment that US funds return cash sooner, realising their investments quicker than European funds which they say could be due to the shorter start-up and development periods exhibited by US companies and the skill of US VCs in identifying potential buyers for their investee companies (most VC exits being via trade sales). Lerner et al. (2011) showed that both US and UK funds had the lowest share of IPO exits when investing in UK companies, while they achieved the highest share of IPOs in their US investments. Axelson and Martinovic (2013) conclude that VC backed exits in Europe and the US have the same determinants of success in Europe and US, with more experienced entrepreneurs and VCs being associated with higher probabilities of exit. IPO exits of deals from the same vintage year have equal success in Europe and US but Europe has a lower probability of exit via trade sales by 8 percentage points.

Following the demise of EASDAQ and NASDAQ Europe there is no pan-European stock exchange for growth companies along the lines of NASDAQ in the US which has been put forward as a key reason for the underperformance of VC firms in Europe (Oehler et al., 2007; Kelly, 2011). However, Hege et al. (2009) found no evidence that this caused any difference in performance between European and US VC backed companies. On analysing a sample of VC portfolio companies from VentureSource which were divested during the period 2005 to 2009, Kelly (2011) concludes that there is no real evidence that investee companies have suffered directly due to the fragmented exit markets in Europe, other than indirectly as poorly developed exit markets may discourage investment. Kelly also states that risk aversion leads Europeans to take money in a trade sale rather than taking risk on an IPO.

Another area where factors surrounding exits impacts on returns concerns the pricing of IPOs. Under-pricing occurs when the stock price rises following an IPO suggesting that the stock was below what the market was willing to pay on flotation. However, Belghitar and Dixon (2012) show that VC backed IPOs are less under-priced than non-VC backed IPOs. Backing by a VC effectively certifies an IPO for investors reducing the risk of the stock market issue.

Espenlaub et al. (1999) showed that the long term performance of VC backed IPOs in the UK was positively related to the reputation of the VCs who were backing the companies at flotation. Lange et al. (2001) show that companies that are backed by top VCs (as polled by industry sources such as Forbes Magazine) have higher market capitalisation at IPO and produce higher returns for their investors than companies backed by non-top VCs. This could be due to better value-adding by top VCs or it could simply be due to top VCs investing in the best companies due to their ability to attract the best deal opportunities as a result of their high reputations.

These studies show that the pricing and performance of VC backed IPOs is affected by both experience of the VC and reputation. The studies do not comment on any differences in IPO pricing or performance between US and European VCs but clearly the greater experience and reputation of US VCs may well contribute to the performance gap.

2.6 Wider environmental factors

As yet “unmeasured fund characteristics or the environment in which VC funds operated” are identified by Lerner et al. (2011, p.21) as possible factors for the historic variation in returns between UK and US VC funds. Tyabji and Sathe (2011) comment that whilst VC firms in Europe operate in a similar manner to those in the US, there are important differences related to the external environments in which those firms operate. This section considers the wider environmental factors impacting on fund returns.

2.6.1 Cultural differences / attitudes to risk

Cultural factors are known to significantly impact on the propensity for entrepreneurship and therefore on the supply of suitable investment opportunities for VCs (Hayton et al., 2002). Difference in cultures and propensity for risk in the US as compared to Europe are noted by the Global Entrepreneurship Monitor (GEM). For example, North America reports the highest regional rate in the world of opportunity perception (58%) compared to the lowest rate in Europe (36%) (Global Entrepreneurship Monitor, 2017). Zider (1998) comments on how the US is unique in its willingness to take risks and engage in entrepreneurship.

The fear of failure is higher in many European countries compared to the US being, for example, 33% in US compared to 35% in UK, 40% in France and 41% in Germany (Global Entrepreneurship Monitor, 2017). Fear of failure is often regarded as one of the reasons why venture in Europe has not yet produced substantial returns (Alt Assets, 2009). Kelly (2011) refers to the legal and psychological issues surrounding bankruptcy in most European countries whereby it can be difficult for “failed” entrepreneurs to start afresh with new businesses in contrast to the more lenient environment in the US where it can be something of a “badge of honour” to have “failed” (p. 16), learned lessons from the experience and not be tainted with failure or bankruptcy in starting up new businesses. However, Axelson and Martinovic (2013) find no evidence of a stigma of failure for European entrepreneurs.

Rohl (2016) identifies the absence of a “can-do” attitude in many European countries. A lack of growth ambition by UK SMEs has been put forward as a reason for UK SME’s “limited engagement” with internationalisation and innovation (Goldman Sachs, 2015). An “ambition gap” exists between the UK and US post-recession which suggests that UK firms have lower levels of growth expectation (Levie, 2014, p.1). UK SMEs are seen to be less “growth inclined” and ambitious than other G8 economies. Levie (2014), using data from GEM, identifies a persistent gap in high growth expectations between owner-managers in the UK and US. The GEM Global Annual Population Survey showed a 17% growth aspiration amongst UK entrepreneurs compared with 27% in the US (Global Entrepreneurship Monitor, 2014).

2.6.2 Fragmented markets

EVCA (2010, p.13) refers to the “highly fragmented” state of European VC with funds having to be structured around 27 national operating environments compounding the problems arising from the lack of a pan-European stock market for innovative companies. In 2013 European legislators adopted the European Venture Capital Fund Regulation which aims to allow venture capitalists to market their funds to investors across the EU through a voluntary EU-wide “passport”.

Kelly (2011) suggest that European VC has not reached a critical mass because of this fragmentation across many countries each with different legal and regulatory regimes. This complicates cross-border investing by VCs. The Association for Financial Markets in Europe (AFME) blames in part the shortage of risk capital in

Europe and the relative much fewer number of unicorns (high growth VC backed companies with valuations greater than \$1bn) on the EU's fragmented internal market (AFME, 2017). There were 16 unicorns in Europe compared with 91 in US as at 16 January 2017 (AFME, 2017).

2.6.3 Ecosystem

Macroeconomic conditions, including the relative state of the overall economy, the exit markets, government support (finance and procurement), tax and legal environments, support network environment and various other external factors, can impact on VC fund performance in a number of ways. For example, Gompers and Lerner (2000) found that the valuation of individual deals is affected by the overall macroeconomic conditions and also by the degree of competition in the industry. Aigner et al. (2008) found that the average GDP growth of a region that is targeted by a fund has a substantial positive influence on fund performance, agreeing with Phalippou and Zollo (2005) but refuting the findings of Diller and Kaserer (2004) who obtained contrary results. GDP growth during a fund's vintage year may induce a negative effect on its performance. Aigner et al. (2008) comment that when a fund is formed in a well-performing economy, in terms of GDP, private equity firms are "forced" to pay high prices for their investments, lowering the rate of return of their funds. They find that this is only significant for US firms.

There does not appear to be any particular consensus about which are the most important ecosystem parameters for VC (or indeed private equity) investment (Groh et al., 2010). However, Gottshalg et al. (2003) state that the key determinant of the performance of VC funds is GDP growth during the investment holding period. In contrast to Aigner et al. (2008) they find that VC funds that invest during periods when GDP growth rates are unexpectedly high outperform other periods. However, they comment that whilst the performance of VC funds is sensitive to business cycles, VC funds appear insensitive to stock market fluctuations. Groh et al. (2010) calculated indices that compared the attractiveness of 27 European countries with the UK leading their rankings due to its investor protection and corporate governance rules and the size and liquidity of its capital market. Europe as a whole, with an "attractivity index" of 67.5 was less attractive for VC investments than the US, with an index of 100 (2009 data).

Investment length is also related to macroeconomic conditions. Funds that are forced to hold onto investments longer during “bad times” subsequently underperform (Gottshalg et al., 2003). However, entering the market at a period of high GDP growth is generally bad, especially for VC funds, which suggests that venture deals are too costly in boom times potentially because of increased capital flows into the sector with a resultant surfeit of money chasing too few deals which increases valuations (Gompers and Lerner, 2000). Kaplan and Schoar (2005) comment that funds raised in boom times are less likely to raise follow-on funds suggesting that these funds perform poorly. It is the poor performance of new entrants coming in periods when many new funds enter that dilutes overall industry performance. However, if the market conditions are positive, say three years after the initial funds were raised, the likelihood of being able to raise a follow-on fund improves significantly (GPs tend to raise new funds about every 3 years).

Clarysse et al. (2009) suggest that UK VC has not yet reached critical mass. Kelly (2011) supports this view by commenting that European VC does not have critical mass because Europe lacks a VC ecosystem in terms of the geographic proximity of VC funds to other funds for syndication purposes, the presence of experienced, skilled legal and financial advisers, strong ties between corporates and the VC community such as exist in the US, which account for many more trade sales in the US, and the fragmentation of the merger & acquisition and stock markets in Europe. According to EVCA (2010) the goal of developing a fully-fledged VC ecosystem that is able to exploit the innovation and skill base in Europe remains elusive.

Marston et al. (2013) find that US VCs do worse when they invest in UK and UK VCs do better when they invest in US. Similarly, Lerner et al. (2011) found that the more capital that US VCs invested in UK based companies as opposed to US based companies the worse the performance of the US funds. However, this was only apparent for the funds raised before the dotcom bubble. Hege et al. (2009) show that US VC funds investing in Europe do not perform better than their European peers. They conclude that the greater expertise and more sophisticated approach to contracting of US VCs is not easily leveraged into other markets or successfully exported abroad. The macroeconomic conditions and wider ecosystem conditions

prevailing in Europe compared to the US could be contributors to these performance issues.

2.6.4 Capital inflow into the VC industry

There are many studies that investigate the impact of high capital inflows on private equity and VC fund performance. For example, Diller and Kaserer (2009) show that an increase in the allocation of money towards a particular fund type has a significant negative impact on the performance of that fund type as it takes longer to pay back capital to LPs with the result that returns are smaller. Similarly, Ljungqvist et al. (2007) show that the greater the inflow of money into private equity funds, the longer it takes to return a given multiple of committed capital to the LP. The more money that is poured into the industry in a given vintage year, the lower is the return of funds closed in that vintage year. Competition for deals increases when there is a plentiful supply of funds and this decreases the bargaining power of VC firms (Inderst and Muller, 2004) resulting in higher valuations and hence reduced returns.

Gompers and Lerner (2000) have shown that venture deal valuations are driven by overall fund inflows into the VC industry that result in the “money chasing deals” phenomenon. This is further corroborated by research by Gottschalg and Zipser (2006). With a limited number of deal opportunities and too much money in the system valuations will fall (Diller and Kaserer, 2005). However, other studies claim a positive influence on the amount of capital raised in a fund’s vintage year for its future performance (Lossen, 2006; Diller and Kaserer, 2004; Gottschalg et al., 2003).

These studies do not differentiate between European and US funds. As there is far less money flowing into the European VC sector compared to the US sector (Section 2.4.1) from the above studies one might expect European returns to benefit from the lower capital inflow, but this has not been the case historically (Section 2.2). Gottschalg et al’s (2003) view is that, despite the lower capital inflow in Europe compared to the US, there are too few deals which are suitable for VC investment in Europe. They found that investing 100% in EU deals compared with 100% in US deals resulted in a profitability index that was 0.6 lower, meaning that European deals returned only half as much as US deals. Kelly (2011) mentions the insufficient VC investment in Europe which is contrary to the too much money chasing too few deals

argument. Investment may be low because fundraising is low. Low investment means that European VC firms are less likely to be able to provide multiple rounds of funding.

2.6.5 Scaling issues

The difficulty in scaling up companies in Europe is well noted (Aernoudt, 2017). Coutu (2014) investigated the scale up issue in her report on UK economic growth and identified the difficulty in raising capital in the UK for fast-growth companies, a lack of capacity and experience in senior leadership teams and lack of skilled talent to fill customer orders and cross-border difficulties in selling products outside the domestic market as key issues to be solved in addressing the scale up challenge. As the ability to scale up and grow a company has a direct influence over the performance of investments it may well contribute to the performance gap between European and US VC funds.

2.6.6 Technology clusters

Many VC backed companies are located in technology cluster regions or start-up “hotspots”. The largest such cluster is the Silicon Valley region of the US. Some 53% of US VC investments were in Silicon Valley in the second quarter of 2016 (PwC, 2016). In Europe the start-up hotspots, defined as the 20 European cities with the highest number of VC-backed companies, received 69% of all VC investments by amount in the two decades from 1995 to 2014 with London accounting for the largest share at 14% (Nepelski et al., 2016).

Lerner et al. (2011) found that fund managers located in one of the four largest investor hubs (Silicon Valley, Massachusetts, New York and London) achieved 7.4 percentage points higher IRRs than those based elsewhere. They comment that funds based in Silicon Valley or Massachusetts have significantly outperformed all other US funds. London has lagged behind the US hubs but London based funds have performed better than UK funds based outside of London. The effect was most apparent in the 1994-97 period.

Dantas Machado and Raade (2006) refer to how US technology hubs, such as Silicon Valley, provide better access to investment opportunities and exits. The strong networks present in these technology hubs help foster better connections and

relationships to help VCs to find the better deals (Zook, 2005, cited in Mason, 2007; Hochberg et al., 2007). These networks are strongest and most effective in Silicon Valley (Duke and Simanis, 2017). Florida and Kenney (1988, p.43) comment on the “tightly integrated and indigenously focussed” characteristics of Silicon Valley. Saxenian (1994) comments that part of the reason why Silicon Valley has surpassed Greater Boston’s Route 128 as a technology hub is that the Californian entrepreneurs have interacted much more with one another and this has been critical to establishing trust and long-term relationships. Hochberg et al. (2010) comment that strong networks can also act as a barrier to entry by outside investors which can improve the incumbent VC’s bargaining power over entrepreneurs. They find that more densely networked environments have significantly lower deal valuations. This should lead to improved returns and would be a characteristic of the Silicon Valley environment.

VCs tend to favour investing in businesses close to where they themselves are located (Mason, 2007). Florida and Smith (1991) observed that VC firms based in technology clusters tend to restrict their investing to companies located in their specific cluster. Silicon Valley VC firms specifically have historically been regarded as “zip-code” investors, that is investing in the relatively small area of the Valley, although several of them now invest in a much wider area, including outside of the US. The close networks and sharing of information between stakeholders in technology clusters will help to reduce risk and potentially improve returns.

The success of Silicon Valley has led policy makers to attempt to “clone” the Valley in other geographies (Rosenberg, 2002). However, it is difficult to replicate the unique culture and ecosystem of Silicon Valley elsewhere (Isenberg, 2010), including in Europe. Rosenberg states that “No country can provide its technology sector with the same big, wealthy and unitary domestic market for technology as America. No society can perfectly mimic the interpersonal relations, the attitudes towards work, enterprise and innovation, or the exact mix or scale of talent that exists in California. Even the most enthusiastic technophile governments haven’t put into place laws, regulations or a tax regime that allows for a wholesale copying of Silicon Valley practice” (Rosenberg, 2002, p.7). The Silicon Valley environment is unique and affords the VCs located in the Valley with optimal conditions for investment contributing to the better overall performance of US VC funds.

2.6.7 Lack of experienced CEOs and serial entrepreneurs

The skills and experience of an entrepreneurial management team are essential components for the success of a venture (Sahlman, 1990). These components are probably more important to a growing company than to an established business. Diller and Kaserer (2009) comment that a management team's skills should have a more significant impact on returns with private equity funds than with the public markets.

Axelsson and Martinovic (2013) state that a contributor to the difference in performance between European and US VC funds is due to serial entrepreneurs being less common in Europe, although this is disputed by some observers (Sahut and Braune, 2015). Kraussi and Krause (2012, pp. 29-30) comment that the "substantially" higher level of entrepreneurship activity in the US leads to higher successful exits via IPOs and trade sales and that the performance gap may also be due partly to a potential lack of "valuable" projects in Europe. Kelly (2011) refers to a lower generation of quality entrepreneurial ideas in Europe. Coutu (2014) refers to the lack of capacity and experience of management teams in terms of the difficulty in scaling up companies in Europe. Dantas Machado and Raade (2006) comment that European early-stage companies have been unable to overcome the challenges that were faced in commercialising innovation and new technology. In addition to a lack of serial entrepreneurs and experienced management teams there are also challenges in finding employees with the right skillsets for digital businesses in the UK (Tech Nation, 2017).

2.6.8 Regulation and government support

There are many different cultures, laws, regulations, taxes and subsidies in Europe vis-a-vis the US. However, Hege et al. (2009) found no evidence that these areas caused any difference in performance between European and US VC backed companies. Leleux (2007, p.243) comments that entrepreneurs are faced with "numerous daunting regulatory restrictions" in many continental European countries, together with a shortage of venture capital and illiquid markets. Marston et al. (2013) also refer to regulatory issues as contributing to the performance difference, particularly in relation to immigration, exit markets, copyright, data protection and privacy, bankruptcy and labour and employment and taxation.

US small technology companies have historically benefited from government support prior to VC investment particularly in terms of R&D procurement through the Small Business Innovation Research programme. Public procurement for R&D is “largely inaccessible” for SMEs in Europe (EVCA, 2010)².

Gompers and Lerner (2001, p.164) show that government policy can have a “dramatic impact” on the viability of the VC sector. However, Rohl (2016) mentions that government initiatives and tax incentives are not sufficient on their own to improve conditions for entrepreneurship in Europe. He suggests that encouraging an entrepreneurial culture through the education system is required.

2.6.9 US involved in venture capital for longer than Europe

The US has been involved in venture capital for longer than Europe since George Doriot, a Harvard Business School professor, founded what is considered to be the first venture capital firm in the US in 1946, American Research & Development (ARD) (Blank, 2009). It was the 1970s before independent VC firms started to appear in Europe (other than ICFC, now 3i, formed by the Bank of England and the major UK banks just after the end of World War II).

The different stages of development of the European and US VC industries is suggested by Leleux (2007) as responsible for the large performance differentials. Leleux (2007, p.246) comments that the comparatively “youthful” European industry suffered its first severe setback when the internet bubble burst and that the lessons from the “natural selection process” that have led to a stronger performing US industry were either not adopted by, or were not transferable to, the European industry. Axelson and Martinovic (2013) similarly comment that the relative immaturity of the European VC sector, together with the larger pool of repeat entrepreneurs in the US, explains the difference in performance between US and Europe.

² Dorte Hoppner, Secretary-General of EVCA commented in 2011 that: “If European venture is to help SMEs achieve their potential, facilitating public procurement for R&D, in a similar way (to the US SBIR programme), would provide a boost”.

2.6.10 Luck

Luck is also part of the entrepreneurial experience. Aigner et al. (2008) comment that a first quartile ranking for a fund may be due to the skilful success of the GP or simply to the luck of conducting business at an economically prosperous time, including achieving higher IRRs during strong markets which distorts the likely overall positive influence of GP experience on the IRR. In their report on Kauffman Foundation VC investments, Mulcahy et al. (2012) comment on the attraction VC affords to LP investors such as Kauffman with “lucky” home run investments benefiting investors who happen to be in the right fund at the right time.

Korteweg and Sorensen (2014) investigate skill and luck in private equity performance and comment that top quartile VC fund performance is “mostly driven by luck” (p.4). This contrast with an earlier study by Gompers et al. (2006) which argues that, whilst luck plays a role in the investment process, a major component of success in both entrepreneurship and venture capital can be attributed to skill. However, there have been no studies which indicate that US VCs are any more “lucky” than European VCs and so luck is not expected to contribute to the performance gap.

2.7 Studies of the performance gap

There have been some attempts to explain the difference in performance between European and US VC funds to the differences in structural, operational and wider environmental attributes of VC funds as discussed above (Table 2.8). There are only a small number of empirical studies that have sought to explain the underperformance of European VC funds (Hege et al., 2003 and 2009; Gottshalg et al., 2003; Megginson, 2004; Dantas Machado and Raade, 2006; Schweinbacher, 2008, Lerner et al., 2011; Axelson and Martinovic, 2013; Marston et al., 2013). The studies that have specifically reviewed the difference in performance between European and US VC funds are summarised in Table 2.9 and reviewed chronologically below.

Table 2.9: Summary of studies specifically investigating reasons for the performance difference between European and US VC funds

Author	Methodology	Possible explanation for performance difference (in part):	Difference not due to:
Hege et al. (2003)	Questionnaires (171)	Contractual relationship with investee, use of convertible securities, screening abilities of US VCs	
Gottschalg et al. (2003)	Public dataset	Too few deals in Europe cf capital inflow	
Meggison (2004)	Publicly available data	Stock markets not as effective in Europe, use of convertible securities, sector focus of US VCs	
Dantas Machado and Raade (2006)	Public dataset	Quicker, more effective exits in US	
Schweinbacher (2008)	Questionnaires (171)	Europe less active in monitoring / value add	
Hege et al. (2009)	Public data set	US VCs more specialised and sophisticated, syndicate more effectively, better use of control	Legal frameworks, stock market capitalisation, tax environment
Lerner et al. (2011)	Public data set	Wider environmental areas (culture, ambition, deal opportunities)	Vintage year, fund size, stage and sector focus, prior experience

Author	Methodology	Possible explanation for performance difference (in part):	Difference not due to:
Axelsson and Martinovic (2013)	Public data set	Fewer trade sales in Europe, less serial entrepreneurs, immaturity of European industry	
Marston et al. (2013)	Public data set & interviews (27)	Wider environmental areas (culture, talent, regulatory issues)	Experience of fund manager, size of funds, stage / sector focus, location in tech hub

The first studies to investigate the performance gap were by Hege et al. (2003) and Gottschalg et al. (2003). Using a questionnaire based approach (104 questionnaires returned in Europe and 67 in the US), Hege et al. (2003) found that the performance gap between US and European VC may be attributable in part to differences in the contractual relationship between VCs and entrepreneurs. In particular, the use of convertible securities and the replacement of the entrepreneur was more prevalent in the US than in Europe. They also argue that the outperformance of US VC funds relative to European counterparts is due (at least in part) to the superior screening abilities of US based GPs in taking on portfolio companies due to their greater experience. They suggest that either US VCs are more “sophisticated” than European VCs or the networks in which the VCs operate have an important impact on better US performance. In their paper Hege et al. make the assumption that VC backed companies on both sides of the Atlantic are drawn from a comparable pool of companies. This may not necessarily be the case in view of such issues as the relative state of the exit markets, the economy, government support (finance and procurement), tax and legal environments, the support network environment and other external factors which may affect company performance between the two countries.

Gottschalg et al. (2003) used Thomson Venture Economics data and commented that there is too much money chasing too few deals suitable for VC

investment in Europe. As a result, they found that European deals were only half as profitable as US deals.

Meggison (2004) reviewed publicly available data and observed the higher performance of US VC funds on average than European VC funds. He comments on the failure of the IPO stock markets in Europe (and Asia) to emerge as serious alternatives to the USA's NASDAQ or NYSE. He also comments on the extensive use of convertible securities (particularly convertible preferred stock) in US investment contracts as noted by Hege et al. (2003). Both these areas could contribute to the performance differential. Meggison mentions that a reason why VC investments have been successful in the US has been the focus of US VCs on investing in industry sectors where they have competitive advantage and where they can add real value to their portfolio companies. There has been less focus historically on specific technology sectors by European VCs.

Dantas Machado and Raade (2006), in a report published by the European Commission, used the VentureXpert private equity and venture capital database to examine the profitability of VC investment in Europe and the US. They showed that US VC returns were considerably higher than European returns. They suggest that US VCs benefited more than did Europe from the high asset prices achieved during the technology investment boom. Specifically investigating European performance versus US performance of VC funds for the period 1983 to 2003 they found that US funds return cash sooner to their investors by realising investments quicker than European funds due to the skill of US VC's in identifying potential buyers for their investee companies.

Schweinbacher (2008) identified that European VCs are less active investors than US VCs which implies that European VCs add less value to their investee companies. This could yield lower returns for European portfolio companies than their US counterparts. In an earlier study, Schwienbacher (2005) had shown that European VCs monitor less than US VCs. Within monitoring he includes the replacement of the entrepreneur as CEO, reporting requirements and stage financing.

In a later paper, Hege et al. (2009), using multi-variate regression analysis on a data set of 274 companies constructed from the Venture Economics database, found that the US VC industry "strongly outperforms" Europe (p.38) with US VCs

generating significantly more value for their investments than their European counterparts. They find that US VCs invest almost twice as much as do European VCs in their portfolio companies, they make more efficient use of instruments of control and contingent funding and use syndication more effectively than do European VCs. However, they found no evidence to support the hypothesis that US VC funds investing in Europe perform better than their European peers and conclude that the larger expertise and more sophisticated approach to contracting of US VCs is not easily leveraged into other markets or successfully exported abroad. They found no evidence that the performance gap can be attributed to differences in legal frameworks, stock market capitalisation and the tax environments of the two regions. This study had three significant limitations. First their sample size was relatively small for a quantitative study (274 companies). Second they did not control for industry sectors, countries or stages of investment. Third the period of investigation was quite limited being from 1997 to 2003, a period when VC investments reached their peak and subsequently declined following the debacle of the internet bubble.

Subsequently, Lerner et al. (2011) in their work for NESTA comparing VC performance in the UK and US found that the magnitude of the difference in performance between UK and US funds was not explained by fund characteristics, including vintage year, size of fund, investment stage and sector focus, fund manager attributes such as prior experience in the market, the amount and number of companies invested in and the number of co-investors. They carried out regression analysis on the performance of 791 VC funds established between 1990 and 2005. They found that US based funds experienced worse performance if they committed more capital to UK based companies than to US based companies, but this was only apparent for the funds raised before the dotcom bubble. Subsequently US funds which invested a larger amount of capital in European markets have displayed higher returns. But the authors were unable to say that this negative performance prior to the dotcom era was specifically due to the investments in the UK. They did note that both US and UK funds had the lowest share of IPO exits when they invested in UK companies as opposed to the highest share of IPOs with their US investments. They also noted that UK funds performed well when investing in the US but US funds performed worse when they invested in Europe. They conclude that “unmeasured fund characteristics or the environment in which funds operated” (p.21) is a major contributor to the historical gap in performance between UK and US VC funds (for example, the number

of opportunities available for investment, barriers to growth, ambition and ability of entrepreneurs, background of investments and other cultural factors). Monitoring and control processes and value add, which could potentially lead to a performance difference, were not explicitly reviewed by Lerner et al. (2011) and they did not review continental Europe funds, focusing on UK funds in comparison with the US.

Lerner et al. (2011) also investigated the characteristics of better performing funds in the US and UK. They found that size of fund, fund manager experience, past performance (track record), location in investor hubs (such as Silicon Valley), investing in early rounds, having a larger number of investment partners all contributed to higher returns. However, these factors only accounted for around 30-40% of the variation in returns for the better performing funds leaving the remainder of this performance differential unexplained. They suggest that “unmeasured (or unmeasurable) factors and serendipity” might account for this difference (Lerner et al., 2011, p28).

Axelsson and Martinovic (2013), in a report for the BVCA “European Venture Capital: Myths and Facts”, investigate European VC exits and compare them to US VC exits using core data from Dow Jones Venture Source, excluding deals done prior to 1995. Using regression analysis, they found no difference between European and US VC funds in the success rates of deals where success is measured in terms of the number of deals that subsequently achieved exits via IPO. However, they did find a lower probability of exit via trade sale in Europe by 8 percentage points. They conclude that VC backed exits in Europe and the US have the same determinants of success, with more experienced entrepreneurs and VCs being associated with higher probabilities of exit and that IPO exits of deals from the same vintage year have equal success in Europe and US but that Europe has a lower probability of exit via trade sales. VC experience is considered both in terms of investing experience and sector experience. They find that a contributor to the difference in performance is due to serial entrepreneurs being less common in Europe and that European VCs have less experience than US VCs. However, they find no evidence of a stigma of failure for European entrepreneurs. Fear of failure is commonly regarded as one of the reasons why venture in Europe has not yet produced substantial returns (Alt Assets, 2009).

Research for NESTA by Marston et al. (2013) updates the regression analysis of VC performance in the earlier report for NESTA by Lerner et al. (2011). Data are mainly drawn from Thomson One and Preqin. Marston et al. also conducted 27 interviews with investors, start-up companies and accelerators to elicit their perceptions on US and UK differences that might impact on performance with a particular focus on regulation as it impacts on internet and digital start-ups. They conclude that structural and operational areas such as experience of the fund manager, size of fund, the fund being located in a technology hub, industry specialisation and stage of investment do not explain the performance gap, except for 1998 to 2002 vintage funds where such variables did account for much of the, albeit relatively small, gap in that period. The period 1998 to 2002 includes the dot.com era when both European and US VC funds experienced negative returns. Marston et al's findings are similar to those of Lerner et al. (2011) which also concluded that fund choices and fund characteristics do not explain the magnitude of the performance gap.

Marston et al. conclude that the performance gap is more likely due to the quality of the companies and the operating environments that the VC firms have invested in. The poorer quality of companies in the UK may be due to a lack of ambition by UK entrepreneurs and their propensity to be risk averse (Levie, 2014). Cultural differences, pool of company talent and regulatory issues are identified by Marston et al. as possible environmental influences which lead to a performance difference. This echoes the conclusion of Lerner et al (2011) who similarly suggest that the performance difference may be due in part to differences in wider economic and possibly cultural factors and the drive and ambition of entrepreneurs.

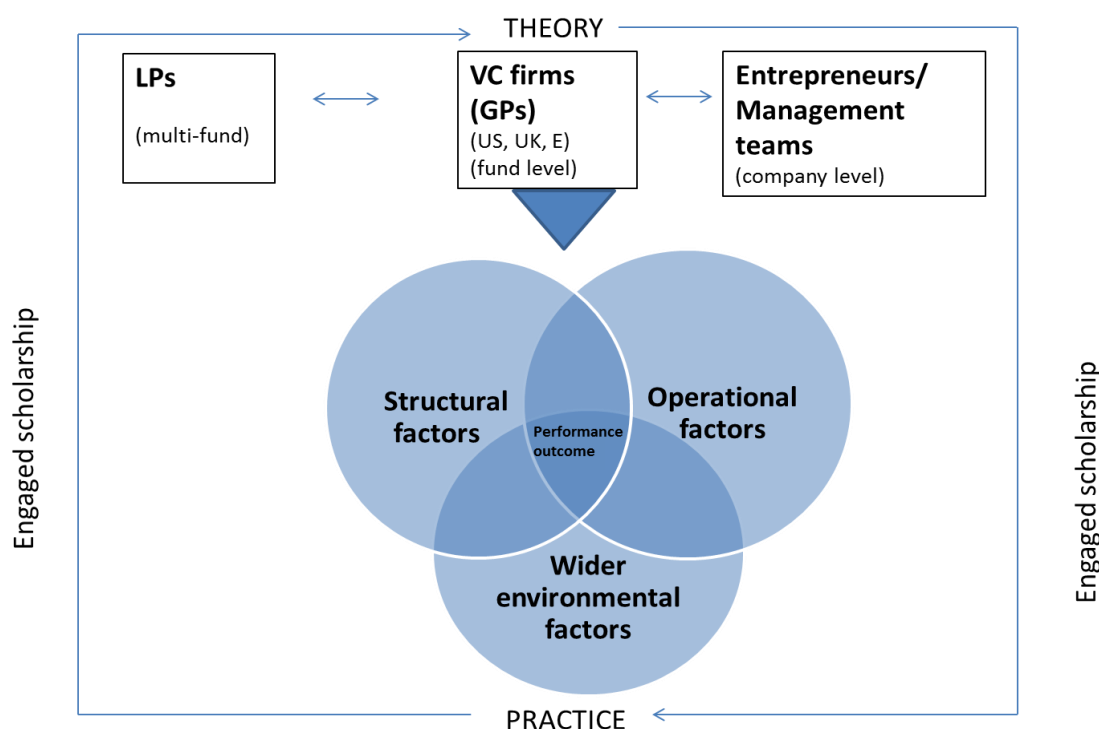
In summary, these empirical studies, which have specifically investigated the difference in performance between European / UK and US VC funds, suggest that factors such as the focus on the contractual relationship between fund manager and entrepreneur / management team (in terms of closer monitoring, replacement of CEO and stage financing), the use of convertible securities, better deal screening abilities, more effective syndication, more active involvement in terms of monitoring and value add, faster exits in US and fewer opportunities for trade sales in Europe, all contribute to the difference in performance of European / UK and US VC funds. Both Lerner et al. (2011) and Marston et al. (2013) suggest that wider environmental factors, such as differences in culture and ambition, entrepreneurial and management talent, the

number of deal opportunities and regulatory issues might also be “major” factors contributing to the performance difference. Size of funds, stage and sector focus of funds, experience of fund manager do not appear to explain the performance difference (Hege et al., 2009; Marston et al., 2013).

2.8 Theoretical framework

Studies of the performance of VC funds have generally lacked a theoretical framework and have relatively little theoretical justification for the variables affecting fund performance. Theoretical discussion on the performance difference between US and European VC funds appears to have largely been limited to commentary on the contractual relationship between the VC and entrepreneur, for example see Hege et al. (2009). Because there are so many different variables impacting on the performance gap and the complexity of the interrelationships between the various stakeholders involved in the process (individual VCs, syndicates of VCs, entrepreneurs and management teams, wider networks, limited partner investors) a multi-theoretical framework for the current research is proposed (Figures 2.1 and 2.2).

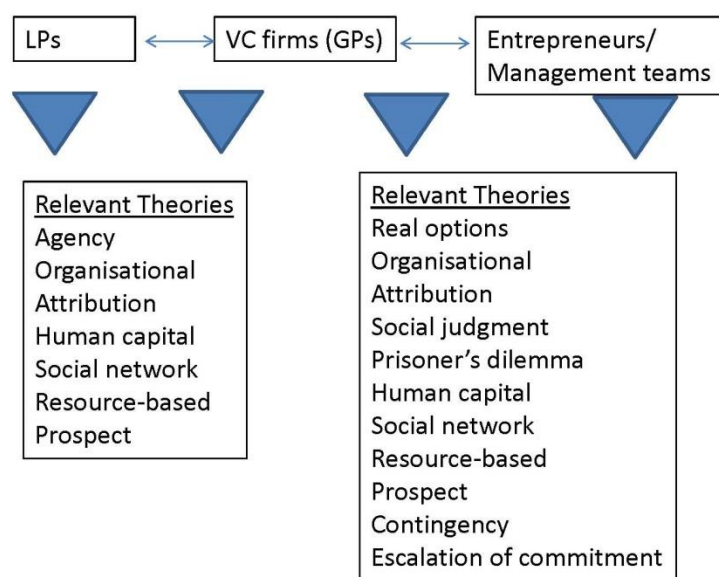
Figure 2.1 Conceptual framework: Engaged scholarship



The framework combines a theoretical and practical approach, embracing the concept of engaged scholarship (Van de Ven, 2007) as explained in Chapter 3.2. Engaged scholarship involves the participation of various stakeholders in order to understand complex social problems. The principal stakeholders in the current research are the VC firms and their investment executives, the entrepreneurs and management teams and the limited partner investors in VC funds (Figure 2.1); the various stakeholders being based in the US, UK and continental Europe. The framework is structured around the structural, operational and wider environmental factors in which VC funds operate.

Several individual theories can be applicable to the VC / entrepreneur and VC / LP relationship (Figure 2.2). These theories are referred to in research involving the VC / entrepreneur relationship, principally agency theory pertaining to the VC / entrepreneur contract and real options theory pertaining to VC decision making. There has been relatively little research where theoretical bases have been applied to the VC / LP relationship other than agency theory with regard to the contractual relationship between VC and LP. Whilst the focus of the current research is on the VC / entrepreneur relationship, theories that might be applicable to the VC / LP relationship are also indicated in Figure 2.2.

Figure 2.2 Conceptual framework: Theories relevant to LP-GP-Entrepreneur relationship



Eisenhardt (1989) comments very briefly on Wolfson's (1985) research into LPs (principal) and GPs (agents) in the oil and gas context where the principal was seen to have extensive information advantages. In the VC context the GP is more likely to have the better information than the LP. Sahlman (1990) discusses agency issues for both the VC/entrepreneur and the LP/VC relationship explaining, in the case of the latter, that the legal structure of limited partnerships prevents LPs from active management of the VC partnership and this exacerbates the agency issues. To help mitigate the agency problem a contract is drawn up between the LP and VC (limited partnership agreement) to avoid the VC acting against the LP's best interests.

Ewens et al. (2012) consider how the principal-agent issue between limited partner investors and VCs affects the interaction between VC and entrepreneur. LPs invest in VC funds before the VC funds invest in entrepreneurial portfolio companies. In order to preserve their limited partnership status, the LPs can have no control over the investment decisions made by the general partner VC, even if they had the time and skill to be involved in fund management. It is therefore unlikely that LPs could have direct influence over the performance of VC funds. However, whilst LPs have no direct influence on returns, an LP may have an indirect influence by requiring a VC fund to take a higher risk approach to its investing (Section 2.5.1), though this is not commented on by Ewens et al. LPs may also have an indirect influence as funds come under pressure to exit from their investments in order to show a return to LPs in a subsequent fund raising process (Guler, 2007).

Agency theory and real options theory, which concern the management of uncertainty in the VC decision making process, appear to be the most relevant theories applicable to the VC investment process between VC firm and entrepreneur though other theories may also be relevant. The current research investigates the multi-variables in a multi-theoretical conceptual framework as depicted in Figure 2.3. Theories that might be applicable to individual performance variables, as reviewed in Sections 2.4 to 2.6, in the context of the performance differential between European and US VC funds, are now discussed in each of the structural, operational and wider environmental areas affecting the VC / entrepreneur relationship.

Figure 2.3: Conceptual framework: Theories applicable to fund/firm characteristics

Fund/firm characteristics	Performance variables	Applicable theory								
Structural	Fund size	R								
	Partner background	HC								
	Stage, sector,	RO								
Operational	Investment strategy	RO								
	Deal	SN,RO								
	Due diligence	Ag								
	Terms	Ag, PD								
	Investment approval	SJ, P, RO, Ag								
	Milestones/tranches	RO								
	Syndication	PD, SN, R								
	Monitoring/Adding	Ag, PD, R, SJ,								
	Portfolio reviews	RO, E								
	Exits	RO, At								
Wider environmental	Culture/Risk attitude, Fragmentation,									
	Ecosystem	RO, I								
	Technology clusters	O, SN								
	Lack of CEOs	HC, R								

US/UK/E differences in variables

Impact on performance difference?

Key to theories

- Agency (Ag)
- Real Options (RO)
- Institutional (I)
- Organisational (O)
- Attribution (At)
- Social Judgment (SJ)
- Prisoner's Dilemma
- Human Capital (HC)
- Social Network (SN)
- Resource-based (R)
- Prospect (P)
- Contingency (C)
- Stewardship (St)
- Escalation of

Structural features of venture capital funds

Structural areas such as size of funds, stage focus and the experience of investment partners can all impact on VC fund performance. The theoretical context of these areas is now discussed in connection with fund performance. For ease of reference theories relevant to the variables are included in brackets after each variable (as also noted in Figure 2.3).

2.8.1 Fund size (Resource based theory)

US VC funds are on average larger than European funds. Larger management fees associated with larger fund sizes would permit US VCs to hire more investment and operational executives and potentially more experienced executives. Lerner et al. (2011) found a positive relationship between the number of partners and fund performance. Resource based theory proposes that the resources that a firm has at its disposal, including assets, capabilities, organisational processes, firm attributes and knowledge, provide the basis for competitive advantage (Barney, 1991). Resource based theory is particularly applicable to situations where the knowledge, experience, networks and contacts of the firms are used to help the growth and development of

investee companies (Wijbenga et al., 2003). The greater resource of US VC firms, particularly in term of experienced personnel, should lead to superior performance. Larger fund size also enables US firms to more readily provide the finance that is required to grow and scale companies, achieving greater exit valuations and improved fund performance.

2.8.2 Stage of investment (Real options theory)

US VCs are more willing to invest in earlier rounds than European VCs which can lead to better performance (Lerner et al., 2011). Whilst early stage financing by a VC fund is riskier than later stage financing it has been associated with higher returns (Cochrane, 2005; Diller and Kaserer, 2009; Lerner et al., 2011). US firms' willingness to exercise the option to invest early rather than wait until more information on a potential investment becomes available is a combination of competitive pressures and a higher cultural propensity for risk. Real options theory is used to study the VC industry because VC investments involve uncertainty and the fund manager decision making process seeks to manage the uncertainty (Li, 2008). A real option is a right, though not an obligation, to undertake various activities which in the investment context include contracting to make an investment, expanding an investment through subsequent rounds or stages or deferring or even abandoning an investment (McGrath, 1999). The drivers of real options theory are uncertainty and competitive pressure. If several investors are considering investment the competitive pressures may cause the investor to invest sooner than uncertainty would normally allow as may be the case with US VCs, particularly in the highly competitive environment of Silicon Valley. Investing sooner at a very early stage of an investment may lead to outlier returns or may lead to failure if due diligence processes are not properly carried out in the rush to invest.

2.8.3 Partner background (Human capital theory)

Human capital theory proposes that those individuals who have higher quality human capital are able to achieve a higher performance in the tasks that they carry out. Education and experience are the key ingredients of human capital (Becker, 1975). A key component of human capital is the possession of knowledge that is specific to a situation, not easily reproducible, and this can lead to competitive advantage (Barney, 1991). Partner experience and specialisation are positively related to success (Axelson

and Martinovic, 2013). Dimov and Shepherd (2005) investigated the relationship between the educational background and industry experience of the management teams of VC firms and the performance of the VC firms in terms of “home runs” (VC portfolio companies that go public) and “strike outs” (companies that go bankrupt). They found that investment teams who had greater proportions of people with education in science and humanities had a positive association with the proportion of home runs in a VC’s portfolio whereas teams having greater proportions of people with an MBA, law education and/or consulting experience had lower proportions of bankruptcies in their portfolios. US VCs are generally more specialised and more experienced than their European counterparts (Hege et al., 2009) and this impacts on the performance differential between European and US VC funds.

Operational areas

Operational areas of VC firms include the many types of activity in the investment process from sourcing deals and executing deals through to monitoring deals and finally exiting from investments. These areas can all impact on VC fund performance. The theoretical context of these operational areas is now discussed in connection with fund performance.

2.8.4 Investment strategy (Real options theory)

VCS can choose whether to invest in a high risk proposal or not. A higher risk strategy can lead to higher returns by the performance of outlier investments that can return the fund as a whole. This links in to real options theory whose drivers are uncertainty and competitive pressures. Investments could be delayed until additional information is available, such as waiting to invest until a later stage in a project’s lifecycle, as is the case with some European VCs who have moved to later stage investing, thereby reducing the risk of investment as is again the case with European VCs.

2.8.5 Deal sourcing (Social network theory, Real options theory)

The social ties that VCs develop through their networks provide VCs with access to private information about entrepreneurs which helps to remove information asymmetry. Social network theory is used to study relationships between individuals,

groups, organisations and societies. Hochberg et al. (2007) found that the better-networked VC firms achieved significantly better fund performance and their portfolio companies were more likely to proceed to subsequent financing rounds and on to exit. Shane and Cable (2002) separate social relationships between direct ties (a personal relationship between the VC and the entrepreneur) and indirect ties (a relationship between two people who are not directly connected but who can be connected through a social network of each person's direct ties). Such social ties can provide VCs with access to private information about entrepreneurs which helps to remove information asymmetry. Better connected VCs, operating in strong networks such as Silicon Valley (Section 2.6.6), are better able to source quality deals which have the potential to achieve optimal performance.

Real options theory is also relevant as VC firms seek to source deals in which to invest. A VC has to decide whether to exercise the option to pursue or to follow-up a particular deal or not, depending on its investment attractiveness and positioning with the VC's strategic focus, or to delay progressing a deal until more information about the potential investment becomes available. The brand strength of VC firms, as is more evident with US VCs, and their track record with previous investments facilitates the sourcing of the better quality deals.

2.8.6 Due diligence (Agency theory)

VCS carry out due diligence on business opportunities prior to investing in order to avoid making bad investments (Tyebjee and Bruno, 1984). Arthurs and Busenitz (2003, p.150) state that at this stage the investor does not necessarily understand the entrepreneur's motivation and "must assume the worst" in order to protect their investment. The due diligence process should address any agency problems prior to the VC finalising the investment. If it does not the investment will likely not perform as expected and returns will suffer. Agency theory has been the dominant theory used to explain the VC / entrepreneur relationship (Sahlman, 1990; Sapienza and Gupta, 1994; Sapienza, 1989; Landstrom, 1992). It was developed to describe the relationship between principal (in this case the VC firm) and agent (in this case the entrepreneur) in terms of a "contract" (Jensen and Meckling, 1976) to deal with the issue of the aims or goals of the principal and agent conflicting with each

other and the difficulty of the principal being able to check on the agent's actions to ensure that the agent is acting in the best interests of the principal (Eisenhardt, 1989).

Amit et al. (1998) see the "raison d'être" of VCs as the ability that they have to reduce the risk of information asymmetries. Adverse selection occurs when the entrepreneur misrepresents his or her ability perhaps by overselling the viability of a venture to the VC or the entrepreneur's business management skills in order to encourage a VC to invest or to obtain more favourable investment terms (Arthurs and Busenitz, 2003). Fried and Hisrich (1994) comment that successful VCs are those that both produce and process information efficiently during the due diligence process to reduce the risks of adverse selection and moral hazard.

The more successful VCs will be those who are skilled at dealing with hidden information and select the best projects in which to invest, minimising adverse selection (Amit et al., 1998) and maximising the potential for performance. Information asymmetry is more acute in the case of younger, start-up and early stage companies where market potential and capabilities of the management team are relative unknowns, than later and expansion stage companies where the risks of investing are lower. Hence a focus by some VCs on later stage investing (Amit et al., 1998) as is evident amongst European VCs.

2.8.7 Investment terms (Agency theory, Prisoner's dilemma theory)

If the goals between the entrepreneur and investor are the same then there should be no agency issue. If the interests of the VC and entrepreneur are not aligned, then performance will likely suffer. Investors may therefore impose onerous investment terms on the entrepreneur in the attempt to control and minimise information asymmetries that occur in the relationship between investor and entrepreneur. This appears to be more common in the case of European VCs than US VCs, at least in terms of the contingencies included in the contract between VC and entrepreneur (Bottazzi et al., 2004a; Dessi, 2011). However, it is not possible to deal fully with all information asymmetries through the contracting process (Van Osnabrugge, 2000) as not all eventualities can be envisaged and contracted for.

Arthurs and Busenitz (2003) comment on a limitation of agency theory in the VC context as it focuses on protection against the downside risks. However,

entrepreneurship is more about the pursuit of upside potential where both entrepreneur and VC want to see the venture succeed and are therefore on the same “side” and agency issues should not arise. Landstrom (1992) concludes that agency theory does not satisfactorily explain the interaction between the VC investor and the entrepreneur because: (1) the assumption in agency theory is that principals and agents are “rational economic-maximising individuals” (p. 201) and Landstrom argues that entrepreneurs are not necessarily driven only by monetary reward motive, (2) controls put in place to prevent agent’s opportunistic behaviour assume a “negative” relationship between principal and agent whereas in practice the relationship is often more positive depending on the degree of trust between VC and entrepreneur, and (3) agency theory assumes information asymmetry between principal and agent when in fact as a result of the enquiries and relationships developed during the screening and negotiations processes the extent of information asymmetry is reduced. De Clercq and Manigart (2007) comment that agency theory, with its focus on the presumed self-serving behaviour of the agent (Eisenhardt, 1989), does not allow for the concept of trust in the relationship between VC investor and entrepreneur,

Prisoner’s dilemma theory has been proposed as an alternative to agency theory. Prisoner’s dilemma theory focuses on the cooperation between two individuals or the lack of cooperation between them even if it is the best interests of the parties to cooperate (Rapoport and Chammah, 1965; Axelrod and Dion, 1988). Each individual may have the incentive to act in their own best interest even though they will be better off if they cooperate together. VC firms are therefore concerned to ensure the fullest cooperation between entrepreneur and VC through the optimal alignment of the terms of investment between the entrepreneur and the VC. Agency issues should be minimised, and performance maximised, if the interests of VC and entrepreneur are properly aligned.

2.8.8 Milestones / Investing in tranches (Real options theory)

Making investments sequentially when favourable conditions permit is an application of real options theory (McGrath, 1997). In the case of VC investments this means investing in subsequent rounds of finance if prospects are favourable or investing in tranches or “milestones” within each round (Section 2.5.4).

Uncertainty is a central aspect of real options theory (Dixit and Pindyck, 1994). Uncertainty is present in many stages of the VC investment process including project specific uncertainty in evaluating the costs and benefits of a project at the start of the investment process and the uncertainty surrounding the behaviour of the entrepreneur which necessitates the close monitoring of investments (Li, 2008). Li applies real options theory to the staging of venture capital investments in terms of having the option to invest when an opportunity becomes available or postponing the investment decision to a subsequent round or stage of investment when more information about the investment becomes available (Sahlman, 1990). Uncertainty about the market is a key contributor to overall VC uncertainty (Amit et al., 1998) and impacts on VC investment strategies. The option to invest later can be more valuable than investing now where, in times of market uncertainty, waiting can permit more useful information to become available about the market and other conditions which may impact on a potential investment (Dixit and Pindyck, 1994).

2.8.9 Investment approval (Real options theory, Agency theory, Social judgement theory, Prospect theory)

The investment decision making process (Section 2.5.6) utilises real options theory as partners decide whether to invest in a project or not, at this time or at a later time when more information becomes available, thereby reducing information asymmetries (Tyebjee and Bruno, 1984; Fried and Hisrich, 1994). Social judgment theory can also be used to investigate how well VCs introspect on their decision processes (Zacharakis and Meyer, 1998). Social judgement theory is the perception and evaluation of an idea by comparing it with current social attitudes. The underlying assumption is that decision makers, such as VCs, do not always have access to real information on which to base their decisions and therefore often make judgements based on perceived information from the nearest available cues (Zacharakis and Meyer, 1998). VCs have access to considerable amounts of information on a business proposition through the business plan and the due diligence process. However, there are often gaps in the information required. Consequently, VCs may rely on more subjective information in their decision making (MacMillan et al. 1987), sometimes relying on intuition and basing decisions on “gut-feel” or the “chemistry” between the VC and the entrepreneur.

Prospect theory could also be applicable to the manner in which VCs make their investment decisions whose outcome cannot be certain and in the context of continuing to support an investment through subsequent rounds of finance. Prospect theory is concerned with how people choose between alternatives that involve risk. It states that decision making is based on the assessment of the potential value of gains and losses (Kahneman and Tversky, 1979). Before VCs make an investment they consider the potential exit opportunities for the investment and carry out financial projections on the likely gain on investment. They then consider whether the gain is sufficient to compensate them for the risk they are taking in making the investment. A consensus approach to decision making (Section 2.5.6) is likely to result in less risky investments being made and reduces the potential for outlier returns.

2.8.10 Syndication (Resource based theory, Social network theory, Prisoner's dilemma theory)

Bygrave (1987) used a resource exchange model (Pfeffer and Salancik, 1978) to study syndicating by VC firms. Bygrave comments that resource exchange theory has three structural variables which determine how organisations interact with each other: concentration, munificence and interconnectedness. Concentration of VC firms can be in terms of regional segmentation and industry sector segmentation. Munificence are the resources that VC firms work with in terms of money, deal flow and people to manage their investments. Interconnectedness are the linkages which VC firms use to reduce uncertainty. For example, a VC is more likely to invest in a proposal that is referred to them by another VC and potential syndicate member than in one that comes to them without such an introduction (Baty, 1981). The level of uncertainty experienced by VC firms determines the frequency of networking among VC firms in syndicates (Bygrave, 1987). There are overlaps between resource based theory and social network theory in the context of VC networks. There is also some overlap with organisation theory (see 2.8.16 below) and the personal networks that are established between VCs, based on mutual trust, which aid information sharing (Florida and Kenney, 1988).

Prisoner's dilemma theory is also relevant to the members of syndicates in VC investments. Cooperation between parties is easier if the parties are similar to each other and have the same goals (Cable and Shane, 1997). If the balance of power

between the parties is equal the more likely they are to cooperate (Pruitt and Kimmel, 1977).

2.8.11 Monitoring (Agency theory, Real options theory, Prisoner's dilemma theory, Social judgement theory)

Moral hazard occurs after the investment is made either when the agent (entrepreneur) puts insufficient effort into the venture (Fama and Jensen, 1983) so that growth in value of the investment is not achieved, or when the entrepreneur wastes the investor's finance on frivolous items or takes greater risks in the venture to the detriment of the investors. Post-investment monitoring is therefore important to ensure that the agent is acting in the manner agreed upon (Van Osnabrugge, 2000). Jensen and Meckling (1976) define monitoring as measuring, observing and actually controlling the behaviour of the agent. In the VC context this includes both informal and more formal monitoring procedures such as control or veto rights included in shareholders and/or investment agreements. Van Osnabrugge (2000) proposes that the optimum method of exercising post-investment control is through an active involvement in the investment. This is the case with the frequent monitoring process used by many VC firms. Staged investment, or milestone based finance (as discussed above), can be used to reduce agency costs (Sahlman, 1990). Real options theory is also relevant here as through staged investment, as discussed above, there is the option to abandon the investment.

Cable and Shane (1997) show that cooperation between entrepreneurs and VCs is essential for the success of VC-backed start-up companies, and therefore ultimate fund performance, as proposed by prisoner's dilemma theory. The post-investment period is when VCs are actively monitoring their investment and working with the entrepreneurs on business strategy, management issues and generally aiming to add value to their investment (Steier and Greenwood, 1995). Cooperation between entrepreneur and VC is necessary for a good working relationship during this period. If they are non-cooperative reputational issues could quickly be generated in the closed, networked environment in which VCs and entrepreneurs tend to operate (Sapienza and Korsgaard, 1996).

Agency theory suggests that the goals of the entrepreneur and of the VC depend on monitoring, control and ownership incentives (Sahlman, 1990), whereas the

prisoner's dilemma model presented by Cable and Shane (1997) models the social relationships between entrepreneur and VC which aids cooperation and hence mutual success and gain. The concept of trust between entrepreneur and VC is important here. Shepherd and Zacharakis (2001) review agency theory and prisoner's dilemma theory in the context of the VC-entrepreneur relationship and propose that trust, as encapsulated in social judgement theory, is built through personal chemistry between VC and entrepreneur, through the VC being perceived to be "fair and just" and with frequent and open communication between the parties. They state that the theoretical framework built on trust is counter to most previous studies that emphasise control mechanisms to build cooperation between VC and entrepreneur, as in agency theory. Bowden (1994) proposed that VCs who take a smaller proportion of the equity in a company are more likely to have a cooperative working relationship with the entrepreneurs. The better the personal contact and cooperation between the entrepreneur and VC the better the amount and quality of information transferred between the parties leading to the ultimate success of the relationship and therefore the venture and ultimately investment and fund performance (Cable and Shane, 1997). Sapienza (1992) found that VCs who have frequent and open communication with entrepreneurs are more successful than VCs who have poor communication.

2.8.12 Portfolio reviews (Real options theory, Escalation of commitment theory)

VCs may choose to defect from an investment if it is not performing well and they see their limited resources being better engaged in a new investment opportunity (Section 2.5.11). They may also spend less time monitoring and adding value to a specific investment in order to spend more time on the other investments in their portfolio. Real options considerations are applicable to the VC's decision whether to continue to support an underperforming investment with further finance and other support. Escalation of commitment theory is relevant here as it concerns the behaviour of a VC who continues to follow and attempts to justify their original investment decision despite being faced with increasingly negative outcomes (Brockner, 1992). Guler (2007) comments on the in-firm political and external institutional influences that lead VC firms to escalate their commitments to investments, "regardless of the expected returns" (p.2).

2.8.13 Value add (Resource based theory, Contingency theory)

Resource based theory is applicable to the value added activities of VC firms where the knowledge, experience, networks and contacts of the firms are used to help the growth and development of investee companies (Section 2.5.10).

Wijbenga et al. (2003) propose a contingency model for the value-adding contribution that a VC makes to a venture's strategy and performance. Contingency theory is concerned with the structure of reporting relationships and decision making responsibilities in organisations (Galbraith, 1973). This contrasts with agency theory which is concerned with the structuring of control relationships, including the use of contracts. Contingency theory claims that there is no optimal way in which to organise or lead a company or to make decisions. Instead, the optimal course of action depends (is contingent upon) the internal and external situations. VCs therefore need to monitor their portfolio companies effectively and provide value added advice and support as appropriate to the circumstances in order to improve performance.

2.8.14 Exits (Real options theory, Attribution theory)

By exercising the option to exit at the most appropriate time a VC can achieve optimal returns on an investment. Previous studies have shown that the duration of the exit stage is longer in Europe than in the USA (Schwienbacher, 2008; Dantas Machado and Raade, 2006) which would result in lower internal rate of returns (IRRs).

Attribution theory may be relevant to post hoc explanations for the poor performance once investments have been exited. Attribution theory is concerned with how people explain events in terms of perceptions and judgements (Fiske and Taylor, 1991). These explanations may be biased or erroneous. Zacharakis et al. (1999) used attribution theory to investigate the failure of new ventures from the viewpoints of VCs and entrepreneurs. The theory predicts that people are more likely to attribute their own issues or failures to situational or external events whereas they attribute other people's failures to internal causes. VCs may attribute their failures with specific investee companies to external events such as market conditions. This might be due to the VCs' unwillingness to recognise their own failings in order to "save face". They may attribute others' success to "luck" and downplay luck in their own successful investments (Section 2.6.10).

Wider environmental influences

2.8.15 Culture, fragmentation, ecosystem, regulation (Institutional theory, Real options theory)

Institutional theory has applicability to VC in the context of culture, wider economic factors and regulation. Institutions are social structures which are composed of cultural /cognitive, normative and regulatory elements (Scott, 1987, 1995) which provide stability to the social systems which nevertheless can be subject to change process. They can operate at the global level or at a local level. The actions of firms and individuals can be shaped by institutions in various ways which can differ across geographies. Institutional theory has been used to help explain some of these, often cultural, country differences as exist between Europe and US (Fried and Hisrich, 1994 and 1995; Li and Zahra, 2012; Colombo and Shafi, 2016). There are many different influences that institutions can have on VC actions (Bruton and Ahlstrom, 2003; Bruton, Fried and Manigart, 2005). These influences can be regulatory (economic and legal), cognitive (social rules and culture) and normative (conformity for example with accounting standards and corporate governance) and can influence how VCs select companies to fund, governance and monitoring processes, value-added activity and exit routes.

Cultural aspects are also influenced by real options theory. In the culture of the US where business failure is forgiven (Petzinger, 1997) the potential downside loss to an entrepreneur is not as great as would be in a less permissive country, such as the UK, whereas the upside potential of accumulating vast wealth through a successful venture is almost unlimited. The value of the option is thereby maximised in the US where the downside risk can be contained whilst the upside potential maximised. This is more conducive to creating an environment which is entrepreneurially favourable and can better lead to investment success.

2.8.16 Networks, technology clusters (Organisational theory, Social network theory)

An organisation is a social unit that is structured and managed to enable people in the unit to pursue their collective goals. Organisational theorists propose that VCs rely on their social relationships in selecting which particular ventures that they fund.

The social ties between connected parties, such as entrepreneurs and VCs, can aid information transfer between the parties (Venkataraman, 1997), thereby reducing information asymmetry as is present in agency theory in VC decision making.

Florida and Kenney (1988) comment on the importance of VC social networks that are evident in the major centres of VC activity, such as Silicon Valley in California, for sourcing deals, assisting in setting up business start-ups and sharing resources to help develop the investee businesses over the various growth stages. Florida and Kenney state that such information sharing within these networks is based on mutual trust which is earned through long term personal contact. Zook (2005) and Hochberg et al. (2007) also comment on the strong networks present in the technology centres which help foster better connections and relationships to help VCs to find the better deals. Sharing of information between VCs, entrepreneurs and other stakeholders can lead to more informed decisions being made by VC firms with regards to investee companies and hence improved fund performance.

Hochberg et al. (2007) investigated VC networks in the context of the relationships established in syndicated investments. They found that the better-networked VC firms achieved significantly better fund performance and their portfolio companies were more likely to proceed to subsequent financing rounds and on to exit.

2.8.17 Lack of serial entrepreneurs / CEOs (Human capital theory, Resource based theory)

The availability of human capital in terms of serial entrepreneurs to found potential high-growth companies and CEOs to manage and scale the companies as they move through the various stages of growth is critical for VC investors. These resources are more prevalent in US than in Europe (Axelson and Martinovic, 2013; Coutu, 2014). The resource afforded by the skills and experience of serial entrepreneurs and serial CEOs which they have gained from forming and managing high-growth businesses is crucial to investment success.

Summary

A number of theoretical perspectives have been applied to VC investing in prior research. Some theories dominate, notably agency theory, real options theory and

prisoner's dilemma theory. The current study is investigating many different variables that affect the VC investment process, and consequently fund performance. The performance variables have been linked to appropriate theories and are summarised in Figure 2.3 above.

2.9 Research gap and research question

This chapter has identified a number of gaps in the literature on the fund performance differential between European and US VC funds as follows:

(1) Incomplete explanations provided by previous studies

Previous studies offer incomplete explanations on the reasons for the difference in performance. The literature on the variables that influence VC fund performance, as summarised in Sections 2.3 and discussed in Sections 2.4 to 2.6, shows that there are differences in these variables between European and US funds. Differences in structural characteristics, operational procedures and the wider environment have been identified as summarised in Table 2.8 (Section 2.3). Some of these differences have been proposed as contributing to the gap in performance between European and US VC funds, as discussed in Section 2.7 and summarised in Table 2.9. These include the difference in the contractual relationships between VCs and entrepreneurs, the superior screening abilities of US VCs, the greater sophistication and better use of networks by US VCs, the more effective use of syndication used by US VCs (Hege et al., 2003, 2009) and the less active nature of European VCs (Schweinbacher, 2008). Other differences between US and European VC funds, which can have an impact on performance, include the different fund characteristics such as size, stage and sector focus. However, these differences do not explain the magnitude of the European / US performance gap (Lerner et al., 2011; Marston et al., 2013).

Whilst it has been suggested that differences in these specific variables between European and US VC funds contribute to the difference in performance between European and US VC funds they do not fully explain the performance difference. There are other variables, listed in Table 2.8, where it has specifically been shown that they do not contribute to the performance gap, for example legal frameworks, stock market capitalisation and the tax environment (Hege et al., 2009). There are many other variables that differ between European and US VC funds but where it is not

known whether they contribute to the performance gap between European and US VC funds (Table 2.8). These variables, or other as yet unidentified variables, may explain the balance of the performance gap. The performance difference between US and European VC funds is therefore in need of further investigation in order to confirm whether there are additional structural, operational and wider environment factors, other than those already identified by the previous studies that are contributing to the performance gap.

(2) Wider environmental areas not investigated

Wider environmental areas such as cultural differences (Marston et al., 2013) and “unmeasured or unmeasurable” factors have been mentioned as possible factors for the variation in returns between UK and US VC funds (Lerner et al. 2011, p.21), but these have not been specifically investigated in previous studies in the context of the performance difference. The only exceptions are the impact of legal and tax frameworks and stock market capitalisation discussed earlier.

(3) Europe as a whole not considered

Recent studies have focused on the UK in comparison to the US (Lerner et al., 2011; Marston et al., 2013) and have not included continental European funds. As the performance of European VC funds as a whole has fallen behind the performance of US VCs funds both UK and continental European VC investment practices need to be reviewed to ascertain whether there are differences in approach with those in the US.

(4) Investment process not reviewed in its entirety

Previous studies have investigated certain specific structural, operational and wider environmental factors affecting US and European VC funds. However, there are no studies that have reviewed the entire investment process from sourcing deals to exiting deals (Tyebjee and Bruno, 1984), specifically contrasting Europe and the US in the context of the variables pertaining to the investment process and the impact of these on the fund performance gap. This research takes a holistic approach to the entire VC investment process which the earlier quantitative studies do not.

Additionally, this study examines aspects of VC investment activity that have not been addressed in previous research on European / US VC fund performance differences. This includes the adoption of a high risk “1 in 10”, home run investment strategy by many US firms, the manner in which partners approve investment decisions, the use of “entrepreneurially friendly” deal terms by US West Coast based VC firms compared to the more “investor friendly” terms of European and East Coast based VCs, the benefit that “brand name” VCs, particularly in Silicon Valley, obtain for deal sourcing and the use of the extensive networks of US VCs for the development of investment themes and in undertaking due diligence, adding value and exiting from investments.

(5) Previous studies largely quantitative

Previous studies have been largely quantitative in approach and influences and process issues that cannot easily be quantified are lost. With the exception of Marston et al. (2013), who interviewed 27 VCs and other stakeholders, previous studies investigating the performance difference have used quantitative methods on existing data sets or data derived from questionnaires. Sapienza and Villanueva (2007) recommend that VC research should study “big problems grounded in reality” (p. 75) and employ more engaged scholarship (Van de Ven and Johnson, 2006) involving other stakeholders, such as entrepreneurs and investors, in addition to VCs.

This study uses an extensive series of interviews with VCs (70 VCs from 64 separate VC firms) and VC related, non-practitioner, stakeholders (40) to establish a unique data set to analyse the entire investment process. Embracing the engaged scholarship concept (Van de Ven, 2007) with the author’s practical experience in the VC industry, the research focuses on structural areas (to confirm previous studies), operational areas (to investigate investment practices in the entire investment process) and wider environmental factors (to ascertain the importance of culture, networks, regulatory and other aspects). With the exception of Marston et al’s relatively small sample size, there are no other studies that have ascertained the views of non-practitioner experts in the context of VC fund performance in Europe and US. Engaging a wide range of stakeholders in a qualitative approach may reveal additional factors impacting on the performance differential between European and US VC funds which have not been apparent from the quantitative data.

Research question

In view of the inconclusive nature of previous studies in explaining the totality of the performance difference between European and US VC funds, the aim of this research is to investigate the historic difference in performance between UK, continental Europe and US VC funds in order to ascertain if there are any differences in the structural, operational and wider environments in which the firms and funds operate, additional to those previously proposed, which might conceivably contribute to the performance difference.

The overall research question is:

Why do UK/European venture capital funds have a poorer performance than US funds?

More explicitly:

What are the differences in the structures of the VC firms managing venture capital funds in UK, continental Europe and US, in the operations of those firms and in the environments in which they operate that contribute to the contrasting performance of UK, continental Europe and US VC funds?

As performance is skewed amongst VC funds in US, UK and continental Europe, with funds which perform better than other funds in those countries, a secondary question is as follows:

What are the characteristics of the better performing firms and funds in the UK, continental Europe and US and is there anything distinctive about those UK/European funds that perform to US levels, if any?

As explained in Chapter 1.6, this secondary question is additional to the main study. It should provide further insights into the characteristics of top performing firms and highlight any differences in approach between the top performing firms in UK / Europe and US. This should help to further clarify the key areas that contribute to the performance differential between European and US VC funds.

2.10 Conclusion

This chapter has reviewed the literature on the factors that could lead to a difference in performance between UK and continental European VC funds and US VC funds. An overview of each of the different investment practices and other variables that could impact on fund performance has been included in the structural, operational and wider environmental contexts in which funds operate. Academic literature that has specifically investigated the difference in performance has been reviewed in detail. A review of the various theoretical frameworks that may impact on the variables affecting fund performance, principally in the context of the VC / entrepreneur relationship is also included.

Several research gaps emerge from this review of the literature. Whilst there has been considerable research into fund performance variables, with some studies indicating a difference in these variables between Europe and the US, there has been relatively little research into the impact that this might have on the performance difference between European and US VC funds. The explanations for the performance gap are incomplete in that they do not account for the totality of the difference in performance. In addition, the methodologies that have been used to examine the performance differential have been largely quantitative, employing data set and questionnaire analysis on specific attributes, and do not capture the entire investment process. The performance difference between US and European VC funds is therefore in need of further, and more in-depth, investigation of the entire investment process from sourcing deals to exiting deals, specifically contrasting Europe and the US in the context of the variables pertaining to the investment process and the impact on the fund performance gap. The methodology and data used in the research is now discussed in the following chapter.

CHAPTER 3: METHODOLOGY

3.1 Philosophical stance

Scientists, or indeed researchers with a practising accounting background, may not generally approach research questions in philosophical terms (Khun, 1962)³. However, even the “unphilosophical” person has an unconscious philosophy which they apply in practice (Collier, 1994). Trauth (2001) notes that the underlying belief system of the researcher largely defines the choice of method. Does one choose the research methods most appropriate to the subject being researched and then fit these within a philosophical “box” or start from a philosophical approach and then choose the methods therein? Trauth (2001) says that what one wants to learn suggests how one should go about it. Crotty (1998) explains that one outlines a research proposal by first of all describing the methodology and methods that will be used in the research, then justifies this choice in terms of the philosophical stance that lies behind the chosen methodology and describes the epistemology inherent in the theoretical perspective.

The scientist, or indeed practising accountant with standards, rules and laws, might naturally be drawn to the functionalist paradigm with its focus on order, pattern and with the regulated nature of human affairs. The positivist, functionalist paradigm is geared to providing an explanation of “what is” through objective enquiry, capable of providing a true explanation of an external reality (Burrell and Morgan, 1979). This logical positivist, objectivist viewpoint extends to the social world with an ontology external to the individual rather than the product of individual consciousness (Burrell and Morgan, 1979). The more the observations, experiments and samples in research the closer one should get to understanding reality and so the closer one should get to the truth, with truth being the “end of inquiry” (Peirce, 1901).

The critical realist philosophical viewpoint appears most appropriate for this current research rather than a logical positivist approach. There is a “truth” out there but even with extensive sampling and testing techniques it will never be precisely determined and can only be approximated. Clearly for the research to have practical

³ The researcher enjoyed a 28-year career with PwC as a chartered accountant, auditor and business developer, including working on assignments with VC firms and VC professional associations, prior to embarking on university teaching in private equity and venture capital and commencing doctoral research in VC. The researcher’s personal professional experience is utilised in understanding how VCs respond, act and relate to the world around them.

purpose it should produce results that can be adopted by the venture capital community, providing “model problems and solutions to a community of practitioners” (Kuhn, 1962 and 1970, p.viii). The aim is to identify what it is that makes US VCs more successful than European VCs so that the attributes of success can be applied to European venture capital firms in order to enhance the overall returns on their funds. This is the “engaged scholarship” approach (Van de Ven, 2007) in which VC research enriches practice and vice versa as discussed below. However, it is not possible to generalise the empirical outcomes of the research because a reality is never totally achieved with a critical realist perspective. Critical realism has an “objective ontology that presupposes the existence of a mind-independent reality and the ability of a theory to capture partial aspects of reality” (Van de Ven, 2007, p.63). Critical realism adopts some form of subjective epistemology where there are “no predefined or predetermined methodologies or criteria that provide privileged views of reality” (Van de Ven, 2007, p.63). Truth is a process of successive approximations of reality.

As Sayer (1992) argues, the choice of method or approach (methodology) must be appropriate to the nature of the object under study and the purpose and expectation of the study. The methodology must also fit within the theoretical perspective of the researcher and indeed fit with how research is carried out in the author’s research community of venture capital academics (Landstrom, 2007). Sapienza and Villanueva (2007) state that rigorous research (in venture capital) with a solid theoretical and methodological base is essential to advance the field.

In the world of venture capital, with a huge number of variables and complex issues to be investigated, a single lens perspective as engaged by an interpretivist approach, where the world is seen as cohesive, ordered and integrated and viewed through a “conceptual lens” formed by a researcher’s beliefs, previous experience, existing knowledge and assumptions about the world (Carroll and Swatman, 2000) would not be appropriate. The multi-methodology approach of critical realism is more appropriate for VC research, as Mingers (2006) states the “real world” is complex and multidimensional; particular research or intervention methodologies focus only on specific aspects. In the complex multi-variable world of venture capital, a kaleidoscopic metaphorical approach, where maybe seemingly arbitrary variables can show up as a symmetric pattern, is preferable to the single methodological view.

Critical realism adopts the position that knowledge entails both social construction and the transactions of human “knowers” with an independent reality (Bhaskar, 2011). In critical realism knowledge is always socially constructed and there are no grounds for preferring one knowledge claim to another. An external reality exists independently of our cognitive processes.

Critical realism engages an objective ontology (the study of the nature of being) with a subjective epistemology (the theory of knowledge). Central to critical realist analysis is “the location of micro-level ethnographic descriptions of members’ activities within the explanatory context of the complex interplay of macro-level structures which constrain and enable members’ activities” (Johnson and Duberley, 2000, p.166). Micro level activities in the current research include the various areas of VC investment practice operating within macro-level environments.

Under the methodological pluralism of critical realism, the various methods available to the researcher are redirected and/or reassessed through the lens of practical adequacy. Critical realist researchers employ mixed methods, though primarily, qualitative techniques. This research employs mainly qualitative, with some quantitative, methods, including a review of secondary data on VC fund performance, as discussed in Chapter 2.2, and practice-based, qualitative interviews as described in Section 3.7. In view of the relatively large number of interviews held frequency analysis is employed on the interview data. A questionnaire on factors seen as key to investment success is also completed by VC interviewees.

3.2 Engaged scholarship

Van de Ven (2007, p.9) defines engaged scholarship as “a participative form of research for obtaining the different perspectives of key stakeholders (researchers, users, clients, sponsors and practitioners) in studying complex problems. By involving others and leveraging their different kinds of knowledge, engaged scholarship can produce knowledge that is more penetrating and insightful than when scholars or practitioners work on the problems alone”.

Engaged scholarship integrates different philosophies, with a focus on critical realism, but ontologically is empirically based with a self-correcting approach to the truth. Whilst there is a real world out there our abilities to understand it are limited

(Van de Ven, 2007). Engaging people from various backgrounds helps to triangulate a complex problem through the use of multiple sources of information. Sapienza and Villanueva (2007) endorse Van de Ven's engaged scholarship approach and imply that future research in venture capital should study "big problems grounded in reality" (p. 75), involve a range of stakeholders in the research (including VCs and entrepreneurs), take time to build relationships and trust in order to foster collaboration and cooperation, use multiple models and methods and even the use of properly justified multiple theoretical perspectives, and an appropriate degree of researcher intervention in order to gain "understanding, depth and intimacy" (p. 78). Cannice et al. (2016), in assessing the relevance and value of venture capital research to practicing venture capitalists, endorse Van de Ven and propose a "community of practice" (p. 2) between practitioners and academics.

The practice of engaged scholarship has four distinct phases: problem formulation, theory building, research design and problem solving (Van de Ven, 2007). Embracing the concept of engaged scholarship this research has involved various stakeholders, including VCs and academics, in each of these four stages. The "problem" is the difference in performance between European and US VC funds. This was discussed with representatives of the BVCA VC committee and with academics at the preliminary stages of the research. This culminated with a meeting at the BVCA in March 2010, involving VC practitioners and academics, at which ideas or theories as to why the performance difference might be occurring and the proposed methodology for the research were discussed. Performance data access was discussed with a number of VCs and data providers. Data analysis was discussed with academics and with a firm of professional analysts and writers; this formed the basis for the thematic coding process described in Section 3.8. The empirical findings have been discussed at two meetings with representatives of the BVCA VC committee in June and October 2016. The research has been featured in the journal of the professional VC association in the UK (BVCA, 2017) with a link to a report on the key findings and has been discussed at a number of joint academic and practitioner conferences, including those of the Institute for Small Business and Entrepreneurship (ISBE) (Arundale, 2015, 2016 and 2017a). The research should have impact on the VC profession in Europe with practical recommendations for potentially improving the performance of VC firms. The principal findings of the research have been shared with HM Treasury in connection with the UK Government's consultation on the Patient

Capital Review (HM Treasury, 2017). Discussion of the findings and recommendations, and areas for possible further investigation, are being encouraged by the BVCA.

3.3 Methodologies used in previous research

The majority of the existing studies on VC fund performance and VC investment practices use quantitative techniques on large data sets applying regression analysis of variables and/or survey techniques involving questionnaires sent to a large number of participants for completion (Parhankangas, 2007). Few studies employ a qualitative approach.

For example, as discussed in Chapter 2.7 on studies specifically investigating the performance gap between European and US VC funds, quantitative techniques were largely employed. Hege et al. (2003) collected their data via questionnaires sent to VCs in Europe and the US. Schweinbacher (2008) used the same questionnaire dataset as used by Hege et al. to review US and European VCs investment practices. Some questionnaires were only partially completed. The face to face interview process used in the current study permits all relevant areas to be appropriately investigated. Hege et al. (2009) conducted their later research by means of a review of data at the portfolio company level published by an external provider of venture capital performance data, namely Thomson Venture Economics. Lerner et al. (2011) used regression analysis on datasets from four different independent data providers, Reuters Thomson One, Dow Jones Venture Source, Preqin and EurekaHedge. Axelson and Martinovic (2013) use core data from Dow Jones Venture Source and employ regression analysis on the data. Marston et al. (2013) draw their data mainly drawn from Thomson One and Preqin but also conduct 27 interviews with various stakeholders.

VC's tend to have a negative attitude towards surveys as they can be inundated with a plethora of these from numerous sources and tend to be reluctant to incur the time to complete them (Muzyka et al., 1996). Response rates may therefore be low. Also if surveys are completed this may be carried out by relatively junior personnel and therefore their accuracy may be questionable. Higashide and Birley (2002) achieved a high (60%) response rate on their questionnaire survey to UK VCs after sending two follow-up letters but only 58 of the 80 responses were analysed due to

missing values. But Parhankangas and Landstrom (2006) achieved only a 27% response rate from VCs in Finland and Sweden even after three mailings. Bottazzi et al. (2004a) obtained a 15% response rate to their questionnaire survey of 780 firms in 15 EU countries; questionnaires were returned in various states of completeness and Bottazzi et al. spent significant time augmenting the returns data with information from other sources and also contacting the respondents for missing information. Bottazzi et al. specifically did not ask about fund performance data, which firms consider most proprietary, in the hopes of securing a reasonable response level. Bruton and Ahlstrom (2003) comment that VCs prefer face to face interviews over questionnaires; interviews are less structured than surveys allowing for spontaneous discussion of problems and solutions as they arise and the opportunity to provide in-depth and nuanced answers.

Whilst the emphasis has been on quantitative techniques in exploring the specific area of the difference in performance between European and US VC funds, qualitative techniques have been engaged in the wider context of VC and entrepreneurial research. Studies involving interviews with VCs are listed in Table 3.1, commencing with Wells (1974) who carried out just 8 interviews on VC decision making.

Table 3.1 Studies involving interviews with VCs

Author	No of interviews
Wells (1974)	8 (US) VCs
Sapienza et al. (1996)	Not specified (US VCs only)
Zacharakis et al. (1999)	8 entrepreneurs + 5 VCs from 2 firms
Van Osnabrugge (2000)	40 business angels and VCs
Haemmig (2003)	100 VCs (Europe, US, Asia, Israel)
Guler (2007)	30 VCs from 21 firms
Levie and Gimmon (2008)	One VC and one business angel each for UK, US and Israel
Garbade (2011)	24 US and Euro VCs
Tyabji and Sathe (2011)	12 US VCs + unspecified Euro VCs
Marston et al. (2013)	14 VCs + 13 other stakeholders

Interviews were often held as a precursor, and encouragement, to subsequent completion of a survey rather than as an end in themselves and these were therefore lacking in depth. Sapienza et al. (1996) interviewed an unspecified number of US VCs and CEOs as a precursor to completion of survey questionnaires sent to both US and European VCs, largely in connection with the VCs' monitoring and adding value roles but did not interview European VCs. Garbade (2011) carried out 24 short interviews

with European and US VCs to elaborate his subsequent on-line questionnaire covering various aspects of the investment process. Levie and Gimmon (2008) interviewed three VCs and three business angels in order to reflect back on unexpected findings from a previous quantitative study. With the exception of Haemmig (2003) previous studies have interviewed only a relatively small sample of VCs. Haemmig interviewed 100 VCs in Europe, US, Asia and Israel using a detailed structured questionnaire looking mainly at internationalisation aspects but also covering areas such as investment decision making and syndication.

Interviews specifically in connection with the VC fund performance differential between Europe and US are extremely limited. They include Tyabji and Sathe (2011) who interviewed 12 players in the industry in Silicon Valley (including VCs, serial entrepreneurs and fund of fund managers) and an undisclosed number of VC firms in Europe in connection with the underperformance issue. In their research into the European / US VC fund performance gap, Marston et al. (2013) interviewed 27 VC and VC related individuals, including 14 VCs, 1 LP, 6 entrepreneurs, 3 representatives of professional bodies and 3 others including accelerators (Chapter 2.7). The current research is considerably more extensive than these previous studies, involving some 110 interviews from the VC industry (70 VCs) or related to the industry (40 other stakeholders) with a wide cross-section of VCs from UK, continental Europe and US and a variety of different types of other stakeholder as discussed in Section 3.5.2.

3.4 Methodology

Whilst not specific to venture capital, Meyer (2011) has criticised research in the area of entrepreneurship as becoming too method centred and focused on the manipulation of databases. This results in researchers being distanced from the actual entrepreneurs, or VC executives in the case of the current research, and so is not able to adequately investigate the behaviours that catalyse their actions. This research engages with the real world of actual VCs by means of interviews, and not merely databases of their activities, in the attempt to understand the rationale for their various practices and activities. Operating within the context of the critical realist philosophical framework (Bhaskar, 1975) the research employs a mixed methods approach (Creswell, 2014) with quantitative review of secondary data (the

performance data on which the premise for the study is founded as discussed in Chapter 2.2) and qualitative, semi-structured interviews using thematic analysis to identify emergent themes (Boyatzis, 1998).

Sapienza and Villanueva (2007) suggest that venture capital researchers should utilise as many methods of inquiry as possible, including the exercising of innovation by the use of such methods as event studies, experiments, direct observation, case studies and several other methods. They do however warn that multiple methods can present dilemmas of interpretation. They even advocate the use of multiple theoretical perspectives, although acknowledging the academic bias against such approaches. Saunders et al. (2009) quoting Tashakkori and Teddlie (2003) state that different methods can be used for different purposes in a research study, for example, interviews at an exploratory stage in order to get a feel for the key issues before using a questionnaire to collect descriptive or exploratory data.

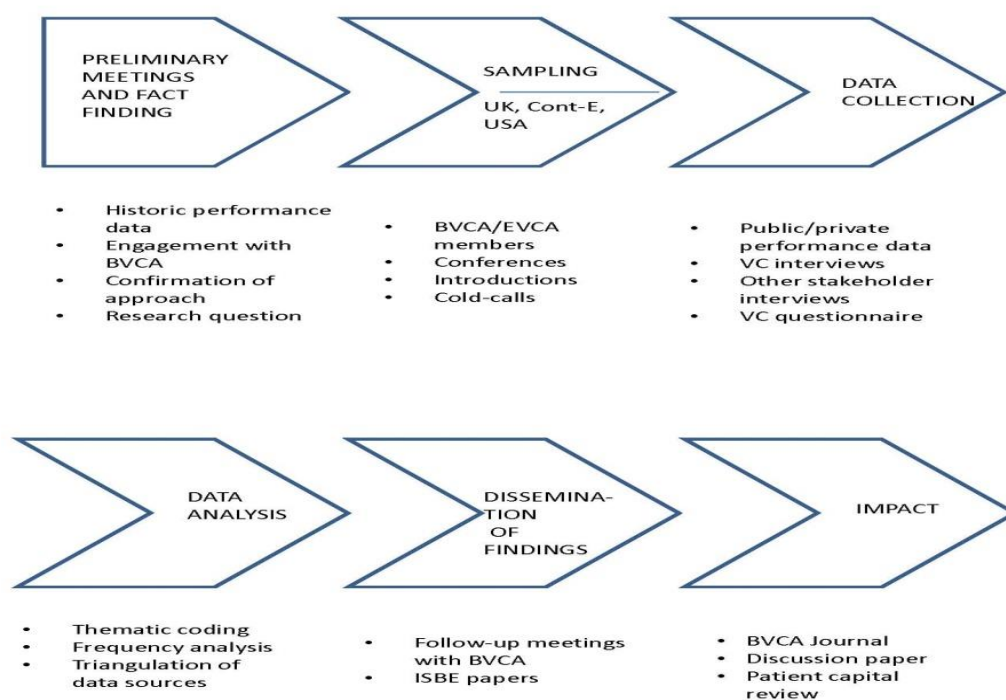
With a critical realist, exploratory viewpoint and being mindful of the VC industry's dislike of questionnaires, and embracing engaged scholarship (Van de Ven, 2007), the principal approach taken in the research has been to carry out interviews of around one hour's duration with senior VC practitioners in both Europe and the US using a semi-structured aide-memoire approach. Saunders, Lewis and Thornhill (2009) quoting Easterby-Smith et al. (2008) and Jankowicz (2005) state that an interview will be the most advantageous approach to obtaining data when (1) there are a large number of questions to be answered, (2) where the questions are either complex or open-ended, (3) where the order and logic of questioning may need to be varied. Where (2) and (3) are present a semi-structured interview will be the most appropriate. These three factors are all present in the current study and a semi-structured interview process was therefore adopted. The entire investment process, from origination through execution and monitoring to exiting (Tyebjee and Bruno, 1984), is explored in the interviews.

In addition to interviewing VC executives in this research, other stakeholders (including limited partners, entrepreneurs, advisors and corporate VCs) were also interviewed. This provided an added dimension to the research into the fund performance differential as, particularly, limited partners and entrepreneurs are in the position to provide first-hand, independent and impartial viewpoints on how VCs operate. The VC interviewees were also asked to complete a short questionnaire at the

conclusion of the interviews in which they were asked to rate various factors impacting on investment success and thereby fund performance (Chapter 3.9). Data on possible factors impacting on fund performance were therefore derived from three separate sources, which permitted triangulation and nuancing of the findings.

The research process is summarised in the following diagram (Figure 3.1), commencing with the preliminary meetings that were held with representatives of the BVCA and other stakeholders (Chapter 1.3, Appendix 1), through sampling, data collection and analysis, as discussed below, and dissemination of findings and consideration of the impact of the research on the VC industry (Chapter 8.5).

Figure 3.1: Schematic of research process



3.5 Sampling strategy

3.5.1 Interviews with VCs

The VCs interviewed in this research form a purposive, non-probability sample based on subjective judgement (Sanders et al., 2009) drawn from membership of professional VC associations and from the contacts in the industry. The sample size of

VC firms (64 separate firms) utilizes the concept of saturation and also allows for the assessment of variation between the distinct VC groups in terms of geographical location and sector and stage focus. Guest et al. (2006) state that guidelines for determining nonprobabilistic sample sizes are virtually non-existent. They comment that the size of purposive samples typically relies on the concept of saturation which is the point at which no new information or themes are observed in the data. They found that for most research where the aim is to understand commonalities within a fairly homogeneous group (such as early-stage VCs from a particular region with a particular sectorial focus) then twelve in-depth interviews should suffice. Larger sample sizes will be required where the aim is to assess variation between distinct groups or correlation among variables as is the case with the broader VC categories in the current research with different stages, sectors and geographies. Sanders et al. (2009) suggest that where the focus of a research question is wide ranging, as in the current study, between 25 and 30 interviews should be undertaken. A more extensive sample was used in the current study to assure adequate diversity and spread between geographic, stage and sector foci of the VC firms.

Purposive sampling was used to source VC firms so that a wide range of well-performing firms operating in UK, continental Europe and US, from a cross-section of stage and sector specialisms, was selected ((Neergaard, 2007). Half the VC firms were focused on early-stage ventures, the others invested across the venture stages with two firms focused on growth deals. Firms invested across the broad spectrum of IT and life sciences, sometimes specializing in one or both of these sectors and sometimes having a narrow focus on specific areas, such as digital media.

Some 70 interviews were carried out with senior VC executives from 64 separate VC firms from 24 UK, 15 continental European and 25 US VC firms as follows:

Europe: UK 24, France 3, Germany 3, Ireland 3, Scandinavia 2, Spain 1, Switzerland 2, Netherlands 1

US: California 13, Boston 4, Pittsburgh 4, Baltimore 1, Cincinnati 1, New Jersey 1, New York 1.

In the case of 6 firms, two executives from the same firm were interviewed, for example as was the case with a UK VC firm where one executive was based in the UK and another executive from the same firm was based in the US.

VC firms selected for interview were judged to be well-performing firms, either on the basis of their relative high profile and status, including membership of the BVCA VC committee, mentions in the professional press and / or recommendations of industry stakeholders. Private confirmatory data on the performance of the funds of the VC firms included in the sample were not separately available at the commencement of the research. Performance data were subsequently provided specifically on request, and on a strictly confidential basis, by an independent data provider, Preqin, which covered 26 firms of the 64 firms interviewed. Harris et al. (2010, 2014b) have confirmed Preqin as a reliable data provider as discussed in Chapter 2.2.1 above. Data from public independent performance data providers provided data for one additional firm and, for firms where no independent data were available, VC firms' own views on their performance was obtained where possible which covered 23 additional firms. This data, for 50 of the firms, confirmed that these VC firms included in the sample were well-performing funds; 88% of the UK firms, 82% of the continental European firms and 100% of the US firms had at least one fund with top quartile performance. No data were available for 14 of the firms interviewed, either from independent sources or internally (this was because VC firms were unable or unwilling to predict the quartile performance of their funds, for example in view of the relative early stage of a fund's life in some cases). However, the firms were all well-known and well regarded firms. Performance data for the sample is discussed in Chapter 7.6 where the characteristics of firms with better performing funds (defined as those firms where their most recent fund had top quartile performance) is compared with firms whose most recent fund did not have top quartile performance. This is a separate addition to the main study and is undertaken to provide further insights into the Europe and US performance gap.

36 of the 70 interviews with VCs were carried out face-to-face at the VC firms' offices or other suitable venues (the face to face interviews were held in London, Silicon Valley and Pittsburgh). The remaining interviews (continental Europe and elsewhere in US) were conducted over the phone. The VC interviews were conducted between September 2012 and September 2014 with the majority of the interviews

being held in calendar year 2013. The interviews were generally of at least an hour's duration. It is a significant achievement to capture such non-interrupted time from busy, senior VC executives.

A special visit was arranged to the Silicon Valley area of California where, by staying in the area for a two- to three-week period in the summer of 2013, it was possible to meet face to face with VCs and also other stakeholders in the industry, including entrepreneurs, advisors, a university professor and corporate VCs. Visits were undertaken to the major technology companies, Facebook and Google, a "hacker" space for budding entrepreneurs and a facility for introducing overseas entrepreneurs to the Valley environment and introducing them to local VCs and lawyers (the Blackbox Mansion). This all helped acclimatization to the Silicon Valley environment and culture, albeit for a relatively short period of time.

3.5.2 Interviews with other stakeholders

Previous studies on European and US VC fund performance have largely focused on the VC firms themselves. Interviewing other stakeholders (including limited partners, entrepreneurs, advisors and corporate VCs) provides an added dimension to the research into the fund performance differential and enables the comments of VC practitioners to be contrasted with those of the other stakeholders. The views of VCs, for example on their reasons for the performance differential, can be compared to those of the other stakeholders and findings triangulated or otherwise. From the critical realist perspective interviewing other stakeholders provides a different perspective on possible reasons for the performance difference and by interviewing more and varied stakeholders allows the study to get closer to the reality of the situation.

The other stakeholders interviewed in this research form a purposive sample drawn from existing contacts in the VC industry, introductions and referrals from VCs, VC professional associations, UK Trade & Investment (UKTI) and contacts made through attendance at VC and corporate venturing conferences. Some 40 semi-structured interviews were carried out with other stakeholders, comprising 19 from Europe (15 UK, 4 continental Europe) and 21 from the US. A more extensive sample than that suggested by Sanders et al. (2009) was used for the other stakeholders in order to obtain a level of diversity with the different categories of other stakeholder.

The interviews were held with 7 limited partner investors, 6 entrepreneurs, 7 VC-related individuals (including a senior industry figure and VC firm founder, executives of VC professional associations in Europe and USA, executives of a bank involved in lending to VC backed companies), 7 advisors to the sector, 6 corporate venture capital firms and 7 other individuals involved in the industry (including professors from a US technology university and executives from a European stock exchange and a major US Silicon Valley technology company).

25 of the 40 interviews with other stakeholders were carried out face-to-face at their offices or other suitable venues (the face to face interviews were held in London, Silicon Valley and Pittsburgh). The remaining interviews (continental Europe and elsewhere in US) were conducted over the phone. The interviews were carried out between September 2012 and May 2014. Interviews were generally of at least one hour's duration.

3.6 Gaining access to VC firms and other stakeholders

Sapienza and Villanueva (2007, p.76) refer to the “extraordinary challenges” in gaining access to VC investors and limited partners, who are “besieged” by researchers and of convincing them to engage and participate in the research and that the researcher will be trustworthy and properly treat proprietary information as confidential. Mason et al. (2016) refers to the difficulty of securing interviews and the time taken to set the interviews up. The approach taken in this research was to utilise existing contacts, to form new contacts at networking events, to seek introductions from existing and new contacts and to cold-call board members of professional VC associations and participants in previous research such as that carried out for Nesta. Whilst convenience sampling was avoided, in some cases “informal social networks constituted the only means for identifying and selecting informants” (Neergaard, 2007: p.267).

Interview opportunities were obtained as follows:

(1) Members of the BVCA Venture Capital committee. Representatives of the VC committee had been involved at the exploratory stage of the research as noted above and in Chapter 1.3. Personal contacts through involvement in the industry and with the BVCA over a number of years solicited interviews in the UK. Members of the VC

Committee were further encouraged to participate in the research by one of their members and by a member of the BVCA research department. Contacts at Nesta provided introductions to other UK VCs.

(2) Contacts through the EVCA (now Invest Europe). Personal contacts through involvement in the industry and with EVCA over a number of years solicited interviews in continental Europe. Other contacts, with Irish VCs and a Boston based VC, were made through attendance at the EVCA annual Venture Capital Symposium in 2012. Some of the continental European VC interviewees were members of the EVCA VC Board and were cold-called and encouraged to participate. An East Coast VC interviewee provided an introduction to a French VC. Others had previously provided case studies for the researcher's book on venture capital (Arundale, 2007).

(3) Referrals and cold calling. Gaining access to VCs in US was much more difficult and the "snowballing" technique referred to by Biernacki and Waldorf (1981) was engaged. A UK VC contact kindly provided introductions to two Silicon Valley based VCs. A contact of another UK VC introduced other Silicon Valley VCs. A former colleague, now with a Pittsburgh based VC, was interviewed and provided introductions to three other Pittsburgh based VCs and to two other mid-Atlantic VCs. Some of the other stakeholder interviewees, see below, provided introductions to US VCs, in particular a Boston based lawyer provided introductions to a further 4 US VCs.

Contacts were also made through attendance at a number of professional conferences, including the Global Corporate Venturing Symposium in 2012 which resulted in a number of interviews with corporate VCs, including two in Silicon Valley, and with representatives from Silicon Valley Bank (SVB) in Menlo Park, US. SVB provided introductions to two VCs in Silicon Valley. NVCA board members were cold called and, after considerable persistence, this resulted in additional interviews. UKTI provided introductions to its representatives in Silicon Valley and Boston. A number of interviews were contacts of contacts; again the "snowballing" technique referred to by Biernacki and Waldorf (1981).

Interviewees were assured of confidentiality with non-disclosure of individual and firm names. Participants were asked to sign a consent form to confirm that they had read the information sheet on the project and any queries had been answered to their satisfaction, that they understood that their participation was voluntary and that

they were free to withdraw from the project at any time (without having to give a reason and without any consequences), that they could withdraw their data from the study at any time, that they understood that any information recorded in the investigation will remain confidential and that no information that identifies them will be made publicly available. They also were asked to consent, or otherwise, to being audio recorded as part of the project.

There were some refusals to participate in the research, notably from two prominent VC firms in Silicon Valley, Kleiner Perkins Caufield Byers who, despite introductions and calls to four separate partners, said that they did not have time to participate and Sequoia Capital who commented that they “don’t disclose this stuff, sorry”. Continued persistence was required to secure some of the interviews that were held.

3.7 Interview process

An aide-memoire (Appendix 2) was developed based on firm backgrounds and investment process areas elicited from the literature review and the researcher’s own practical knowledge of the industry. The aide-memoire was used to conduct the first few interviews with the VCs in order to become comfortable with the process. Thereafter the interview process became entirely semi-structured with no set order of discussion though the interviews usually commenced with some observation about the specific firm’s activities or some relevant topical area affecting the industry. Emerging themes were explored as the interviews proceeded, whilst ensuring that the broad areas of the questioning were covered.

The broad areas questioned were the pre-determined areas which were developed from the review of the literature. They included the following areas as discussed in Chapter 2:

- Deal generation
- Approach to due diligence
- Investment approval process
- Terms of investment / use of syndicates
- Monitoring and portfolio review
- Adding value

- Exit process
- Europe / US differences from the perception of the interviewee.

The following areas were ascertained from reviews of firms' websites prior to the interviews taking place:

- Size and vintage year of funds
- Geographic focus of VC funds
- Professional backgrounds of investment executives.

In addition, the performance of the firms' various funds was ascertained from independent data sources, where available (Section 3.5.1).

In the material sent to interviewees to encourage them to participate in the study and in the preliminary introductions at the commencement of each interview the purpose of the study was explained. Interviewees were told that VC practitioners and academics generally agree that there are many variables that can affect the performance of private equity and VC funds. Studies have shown that these can include such areas as: size of fund, vintage year, age and track record of VC firm, investment stage, industry and geographic focus of fund, amount of investment, number of co-investors, number of tranches of finance, monitoring and control processes, value add, skills and academic and professional backgrounds of investment executives, management team skills, time from investment to exit, type of exit, general economic environment and even luck. The purpose of the current study is to ascertain if there are any common factors that give rise to stellar investment (and therefore fund) performance amongst VC funds and whether there are differences in the investment and monitoring approaches between top performing VC firms in Europe and US. Participants were asked about their own approach to the entire investment process from sourcing deals to exiting from their investments.

Zacharakis and Shepherd (2007) have stated that early research on the VC decision making process utilising surveys and interviews is prone to recall and post hoc rationalisation biases by the VCs being interviewed. A partial solution for the current research to minimise post hoc rationalisation was to avoid asking generalized questions where possible and to focus on the actual investments made by the particular VC firm executives, preferably one of their most recent investments. Fried and Hisrich

(1994) asked VCs to describe the investment process based on their most recent investment as lead investor. They made the important point that focusing on an actual investment eliminates problems associated with hypothetical or non-contingent responses and the use of most recent investment helps to ensure that the recollection is more accurate. Sapienza et al. (1996) encouraged VCs to fill out surveys on two portfolio companies, preferably one doing well and one doing not so well. Interviewees were also asked about poorer performing investments in the current research and their views on the reasons for success or failure with investments.

Interviews were recorded with the interviewees' permission. Notes were made by the researcher during the interviews of any especially interesting or unusual points made by the interviewees and of any potential emerging themes. Certain lines of questioning were pursued in later interviews as themes developed, for example the use of entrepreneurially friendly as opposed to investor friendly terms by VCs or the focus on the development of investment themes by some VCs. Such developing themes became sub-codes within the broader categories or codes in their own right. At the conclusion of the interviews with VCs participants were asked about their personal views on the reasons for the difference in performance between European and US VC funds.

Interviews with the other stakeholders were conducted in a similar manner to the VC interviews with the exception that the opening discussion was generally in the context of the performance differential between European and US VC funds. The interviews were more unstructured than the VC interviews as clearly discussion could not proceed around the context of specific investments. Also there was more discussion around wider environmental factors that might impact on fund performance than with the VC interviews.

The areas discussed with the other stakeholders included structural and operational areas, as discussed with the VCs above, and also wider environmental factors including the following areas:

- Competition
- Ecosystem
- Fragmented markets
- Networks, including technology hubs

- Ability to scale
- Stock markets
- Government support
- Overall culture.

In addition to investigating the areas referred to above, for both the VC and the other stakeholder interviews, any previously unmeasured factors or unquantifiable factors that might impact on the performance difference between European and US VC funds (Lerner et al., 2011) were noted, such as the theme approach to investing.

3.8 Thematic coding procedure

Mason et al. (2016) comment that a key challenge of qualitative methods, such as interviews, is how to analyse the collected information. Some of the information is based on facts, for example the investment terms used by VC firms and firms' investment approval processes, and some based on opinions and perceptions, such as VC executives personal views on differences between European and US investment practices and wider environmental considerations. Thematic analysis was used for "identifying, analysing and reporting patterns within data" (Braun and Clarke (2006, p.79), a process of encoding qualitative information using the data-driven inductive approach of Boyatzis (1998). Thematic analysis is a search for themes that emerge as being important to the subject under investigation (Daly, Kellehear, & Gliksman, 1997) which involves the identification of themes through "careful reading and re-reading of the data" (Rice & Ezzy, 1999, p.258). It is basically a "form of pattern recognition within the data, where emerging themes become the categories for analysis" (Fereday and Muir-Cochrane, 2006, p.82)).

The framework for data analysis described by Miles and Huberman (1984) was used to analyse the VC interviews. This encompassed three stages: data reduction, data display and conclusion drawing and verification. The method of thematic analysis chosen for the study incorporated both the data-driven inductive approach of Boyatzis (1998) and the deductive "a priori" approach using a template of codes, effectively a codebook, as outlined by Crabtree and Miller (1999).

The data reduction process proceeded as follows. The accuracy of the interview transcript was verified by replaying the audio tape (only 3 interviews were not

recorded at the request of the interviewee). With the list of pre-determined categories used in the aide-memoire to conduct the interviews (the codebook) the transcripts, averaging around 20 pages each, were coded manually, for example “syndication”, “monitoring”, and also wider categories such as “US/Europe differences” where interviewees made specific reference to these. Relevant phrases or passages of text were coded using these pre-determined categories and edited into outline notes to include areas relevant to the category and also including interesting verbatim quotes. Categories were then subcoded, for example if interviewees had commented on “investment decision” (broad category) in terms of whether the decision was unanimous, by consensus or by vote this was noted and sub-coded. In addition, the coding process involved recognising other interesting, non-pre-determined attributes, such as investment theme and non-consensus investment approval, and encoding these attributes. The form of coding used is helpful when it is necessary to retrieve certain data, gathering together all the text about one topic, including verbatim comments, with text coded in the same way. With larger chunks of text, the retrieved text is less likely to be decontextualized.

The data reduction process resulted in 64 sets of outline notes, of around 5 pages each, for the 64 VC firms interviewed, each note divided into the pre-determined categories. This permitted cross-comparison of each category across the 64 interviews. Where there were two interviews for the same firm (6 instances) these were summarised onto the one outline note.

The coding described above was carried out manually. The approach was corroborated with other researchers, including professional analysts who engaged a similar manual coding technique on their datasets. Software packages, such as NVivo were considered but not used. Whilst such packages are helpful in manipulating segments of text more quickly and efficiently than can be achieved through manual coding and can add rigour to the analysis process by permitting a researcher to carry out quick and accurate searches of a particular occurrence, according to Welsh (2002) such searching needs to be followed up with manual scrutiny techniques so that the data are thoroughly interrogated. Nor is the software able to determine the various categories for coding, nor to develop or interpret underlying themes; that is the required skill of the coder. In addition, nuanced differences, as might be prevalent with regard to European and US VC practices, might not be picked up by the software.

Smith and Hesse-Biber (1996) found that data analysis software used by qualitative researchers was largely used for organisational purposes. Welsh (2002, p.4) comments that “the extent to which the software is exploited beyond this basic use is related to the expertise of the analyst”.

For the data display stage of the thematic analysis, and in order to facilitate cross-comparison between regions and categories, the outline notes were summarised onto an Excel spread-sheet with columns corresponding to the pre-determined categories with a row for each VC firm. Certain categories were subcoded into characteristics. For example, investment partners were categorised into financial/investment, operating, entrepreneurial and consulting according to their backgrounds in these areas, resulting in additional columns. Further subcoding also occurred within the cells of the spreadsheet, for example if an interviewee had commented on value adding activities this would have been noted on the Excel spreadsheet together with a brief note of the type of value adding activity. Some of these codes were not predetermined but emerged from the interview discussions and became new, additional codes. However, it was not necessary to go back and re-code interviews as all the coding and analysis was carried out after all the interviews had been conducted. Notes were kept of any new factors emerging from subsequent interviews so these could be coded for all interview transcripts.

The overall spreadsheet comprised 53 columns, for the various categories and sub-categories, and 523 rows, with multiple rows of information for each of the 64 firms, including a separate row for each fund of a firm. Each category was then separately extracted from the Excel spreadsheet and a frequency analysis carried out on the US, UK and continental European firms included therein. Whilst this was essentially a qualitative study the use of descriptive statistics in terms of a frequency analysis of emerging themes enabled comparison of the occurrence of themes between UK, continental European and US VC firms. For example, for the category “monitoring” the total number of US, UK and continental European firms commenting on monitoring was noted and the types of monitoring were noted, for example taking a board seat or periodic contact with investee companies. The percentage of US firms taking a board seat could then be compared with the percentage of UK and of continental European firms taking a board seat. The relatively large numbers of interviewees in the sample from a diverse range of VC firms enabled such a frequency

analysis to be carried out. Conclusions could of course only be drawn on the sample itself and were not representative of the wider population of VC firms.

All 40 of the interviews with other stakeholders were similarly transcribed and themes developed using the same approach as for the VC interviews. Outline notes were prepared using categories pre-determined from the research into VC practitioners as regards the structural and operational investment practice areas included above but also now including wider environmental areas of ecosystem, supply of VC finance, regulatory, fragmented markets, networks, ability to scale, stock markets, government support, technology hubs, overall culture and propensity for risk.

The outlines of the transcribed interviews were further summarised onto an Excel spreadsheet. Categories were sub-coded for further themes. The spreadsheet categories were analysed for numbers of recurring themes. The Excel spreadsheet contained 46 columns, for the various categories and subcategories, and 74 rows of information for the various stakeholders.

The preparation of the outline notes from the interview transcripts was a laborious and time consuming process, carried out solely by the researcher in a meticulous fashion and requiring considerable attention to detail. This aspect of the analysis was carried out during 2014 and 2015.

The final stage of the analysis process involved conclusion drawing and verification. This entailed stepping back from the detail in order to consider what the analysed data means and the implications for the research question. The findings and conclusions are discussed in the following three chapters, separated into structural, operational and wider environmental factors. Data were revisited to verify and cross check the findings. Triangulation of the findings from the VC interviews with the interviews with other stakeholders and the follow-up meetings with the BVCA to discuss the findings (Chapter 8.4.1) provided further verification.

3.9 Questionnaire

At the conclusion of the interviews, using a predesigned questionnaire (Appendix 3), VC investment executives were asked to rate various factors in terms of their importance to investment success going forward on a Likert scale, from 5

(critically important) to 1 (not important at all). The questionnaires were used in order to provide a structured, standard comparison of factors, such as size of fund and strategic focus of fund, between European and US VCs, as a complement to the semi-structured nature of the interviews and to provide additional triangulation of findings.

The factors were derived beforehand from the review of the literature and from preliminary discussions with VCs as believed to affect investment success. The executives were asked to rate the factors from the viewpoint of the GP of the VC fund. A copy of the questionnaire, which lists the factors, is included in Appendix 3. Questionnaires were completed in the presence of interviewer at the end of main interview (or in the case of telephone interviews were returned promptly by email as soon as possible following the interview). In total some 52 questionnaires were completed by the VCs (18 US VCs, 24 UK VCs, 10 continental European VCs). The questionnaire responses are summarised in Appendix 3 and are referred to in the appropriate sections of the findings in Chapters 4 to 6.

3.10 Limitations

Whilst the samples of VCs and other stakeholders comprise some 110 interviews in total, which is certainly comprehensive for a qualitative study, the findings cannot be extrapolated to the full population of VCs or indeed other stakeholders. The samples used in this study may be unrepresentative of all VC firms because the sample is a self-selected group of relatively high profile firms who have indicated their willingness to participate in the research. Further work on the areas of potential difference highlighted in the research could be subject to more extensive sampling and quantitative studies, controlling for factors using regression analysis and this could narrow the range of characteristics that impact on the performance difference.

Data were coded and themes identified solely by the researcher because of the nature of a doctoral study. However, the methodology and analysis, including the coding process, was discussed with, and agreed by, the researcher's supervisor. In addition, the process was corroborated with professional analysts who engaged the same manual coding technique on their datasets. Themes generated from the research were discussed with experienced practitioners in the field including representative members of the BVCA VC committee. Whilst future studies could involve other

people to act as independent checks on the coding and development of themes, Yardley (2000) observes that, whilst it is possible for two people to code text in the same way, “this does not exclude an element of subjectivity in the interpretation of the data” (p. 218). She goes on to comment, citing Manning and Cullum-Swan (1994), that “moreover, using pre-defined rules for coding limits the possibilities for subtle, imaginative, context-sensitive and elaborate interpretation” (p. 218).

3.11 Conclusion

The aim of this chapter was to describe the research methodology adopted to explore the difference in performance between European and US VC funds and to explain the rationale that justifies the choice of methodology.

Given the exploratory nature of the research question and the diversity of venture capital firms in Europe and US, with different stage and sector foci, an extensive qualitative methodology was adopted. Data were collected from independent providers of fund performance data and in-depth interviews with VCs in Europe and US. Additional interviews with other stakeholders helped to triangulate the findings. A total of 110 interviews were conducted with VCs and other stakeholders. The interviews were semi-structured, allowing for unexpected but relevant topics to emerge. The interviews were recorded with the interviewees’ consent and transcribed verbatim. Thematic analysis using manual coding identified emerging themes.

The findings of the research are now discussed in terms of structural areas (Chapter 4), operational areas (Chapter 5) and wider environmental areas (Chapter 6). The characteristics of the better performing funds in Europe and US are discussed in Chapter 7.

CHAPTER 4: STRUCTURAL DIFFERENCES

4.1 Introduction

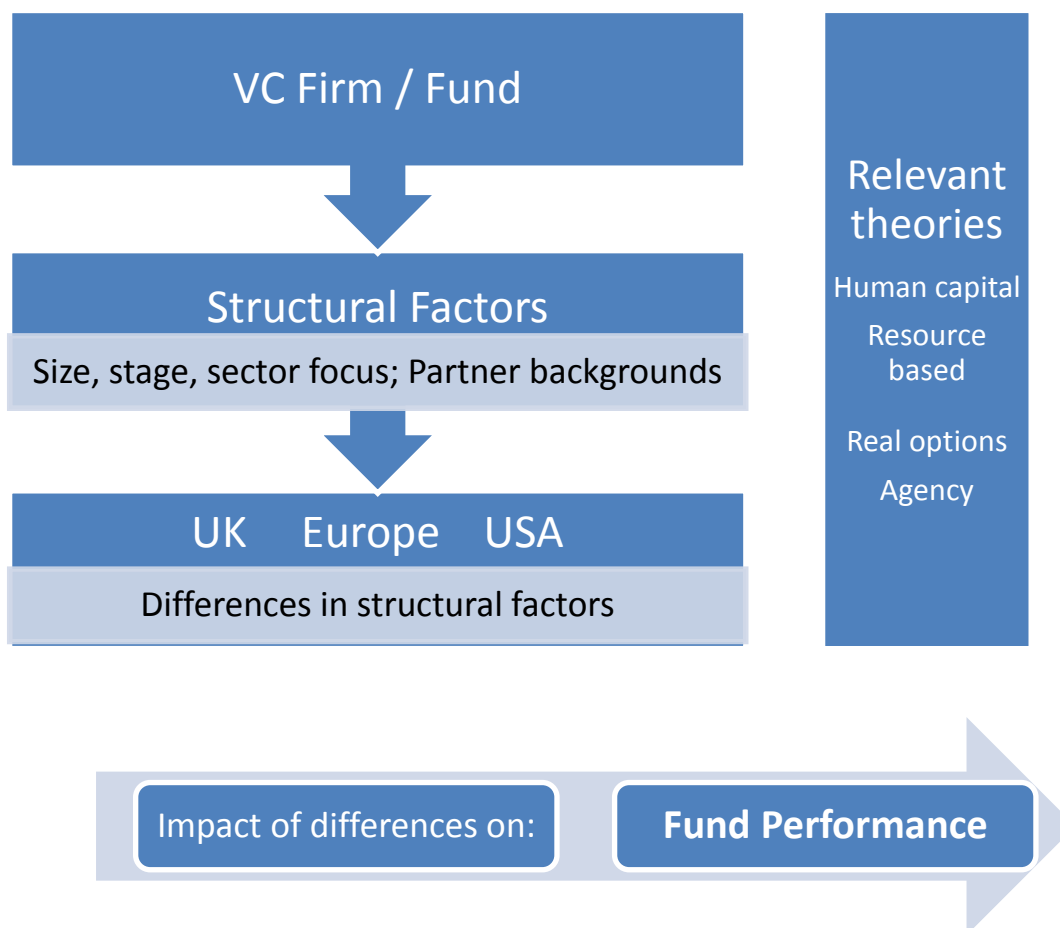
The previous chapter described the research methodology adopted for this thesis. A total of 64 separate VC firms and 40 other stakeholders were interviewed. Other stakeholders include limited partner investors, entrepreneurs, advisors, corporate VCs and other interested parties. This chapter documents the findings of the interviews with VC firms and with the other stakeholders into the structural aspects of VC firms, namely the size, stage and sector focus of VC funds, the backgrounds of the investment partners, the responsibility of partners for deals and the use by VC firms of venture partners and advisory boards. Responses to the questionnaire (Appendix 3) are also included where relevant.

Prior research (discussed in Chapter 2.4) based largely on quantitative methods concluded that structural characteristics of VC funds, whilst impacting on performance, do not explain the magnitude of the performance difference between US and UK funds (Lerner et al., 2011; Marston et al., 2013). However, these studies did not investigate continental European funds, which are included in the current study, nor did they investigate the backgrounds of the investment partners which has not been subject to previous empirical investigation in the context of VC fund performance and which is investigated here in Section 4.6.2 below. Other structural areas which have not been addressed before, and which are covered in the current research include partners sharing responsibility for deals and the use of venture partners and advisory boards by VC firms.

The multi-theoretical conceptual framework introduced in Chapter 2.8 is summarised in Figure 4.1, highlighting the principal structural factors impacting on VC fund performance. Human capital and resource based theories are most pertinent in the specific context of VC structural differences. Human capital theory proposes that those individuals who have higher quality human capital are able to achieve a higher performance in the tasks that they carry out, such as VC investment activity. A key component of human capital is the possession of knowledge that is specific to a situation (Barney, 1991). Human capital in terms of the backgrounds of the investment partners in European and US VC firms is discussed below. Resource based theory is

applicable particularly to the value added activities of VC firms where the knowledge, experience, networks and contacts of the firms are used to help the growth and development of investee companies (Wijbenga et al., 2003). The resource is provided by the partners and other staff employed by the firms.

Figure 4.1 Conceptual framework: Structural factors



Real options theory and agency theory are also applicable in connection with the trialling of small investments in very early stage portfolio companies, particularly by US VCs, and a move to later stage investing, particularly by UK VCs, as discussed below.

4.2 Size of funds

It could be expected that the larger the size of a VC fund the better the overall performance of the fund. Larger fund sizes give rise to larger fund management fees which permit the engagement of more human capital in a VC firm to select, monitor

and add value to investments. They also enable a plentiful supply of finance for investments as they move through the various stages of growth.

For the 54 VC firms in the sample for which details on fund size were available and comparable, US VC funds with an average size of \$282m were considerably larger than UK and continental European funds, which had average sizes of \$168m and \$128m, respectively. As can be seen from Table 4.1 the largest US fund (\$1,515m) was ~3 times the size of the largest UK (\$557m) and continental European funds (\$557m). The larger size of US funds is consistent with previous studies (Lerner et al. 2011) and better permit US VCs to fund entrepreneurial businesses through to exit and provide the human capital for optimal investment practices. This should result in improved performance. However, previous researchers have shown that larger size funds do not necessarily perform better than smaller funds (Gottshalg et al., 2003). In fact, according to Lerner et al. (2011), there is an optimum performance level around medium size funds (\$84m to \$365m). The very largest funds may not be as selective as more optimally sized funds in their selection processes. As can be seen from Table 4.2 the average size of funds in US, UK and continental Europe fell within this medium size fund category, though with a considerably larger average size for US funds⁴.

Table 4.1: Size of VC funds in sample

	US	UK	Cont Europe
# of firms with fund info in sample	22	18	14
Av size of funds (\$m)	282	168	128
Smallest fund size (\$m)	12	15	11
Largest fund size (\$m)	1,515	557	557

⁴ US firms in the sample had been in the VC business for longer, the earliest fund in the sample having been formed in 1981 compared to 1987 for the UK and 1994 for continental Europe. 14 of the US funds had been formed before 2000 compared to 4 in the UK and 5 in continental Europe. The greater age of US VC funds in the sample is not surprising in view of the relative ages of the industry in the US compared to Europe.

Table 4.2: Size of fund, sector and stage stratification of VC firms in sample

No. of firms	US	UK	Cont Europe
Size of fund⁵			
Small (<\$84m)	3 (12%)	9 (38%)	8 (53%)
Medium (\$84m - \$365m)	12 (48%)	13 (54%)	6 (40%)
Large (>\$365m)	10 (40%)	2 (8%)	1 (7%)
Sector			
IT	10 (40%)	8 (33½ %)	2 (13%)
Lifesciences	3 (12%)	2 (8%)	1 (7%)
Mixed	11 (44%)	8 (33½ %)	10 (67%)
Focused	1 (4%)	6 (25%)	2 (13%)
Stage			
Seed / early	11 (44%)	11 (46%)	9 (60%)
Venture (incl early)	12 (48%)	13 (54%)	6 (40%)
Growth	2 (8%)	-	-

When asked about their perceptions of the differences between the European and US VC environments, 59% of UK VCs and 57% of continental European VCs, compared to just 32% of US VCs, commented that the US has larger funds and/or that there is a lack of VC finance in Europe due to the smaller fund sizes: *“There’s not enough top tier, early stage, series A-focused funds around (in Europe).”* (US East Coast VC 57). There is a plentiful supply of VC finance in the US, particularly in Silicon Valley, unlike in Europe: *“I met a GP yesterday who is in a West Coast firm and, like, “I’m at Sand Hill Road. There’s more money, literally, on our road than there is anywhere else in the world for what we do.” And that kind of made me just stop for a second and, “Hang on a second here, I mean, we’re not even playing in the same division, we’re playing a different game.” It is a different world.”* (Irish VC 50). The need for an adequate size of fund in order to make initial and follow-on investments was seen as highly important to investment success by VCs completing the questionnaire from all geographies (Appendix 3).

VCs have difficulty in raising new funds in Europe and so spend too much time on fund raising activities (UK VC 3, 45): *“The allocation of time between fund-raising and actually focusing on the investment business, is disproportionately the wrong way round.”* (UK VC 3); *“Everyone is worried here in Europe about just raising the next fund.”* (UK VC 45). VCs also need to have funds of a certain size in order to reserve monies for follow-on investments in subsequent funding rounds (Chapter 5.2.3).

⁵ Size ranges as per Lerner et al. (2011).

European VCs often do not have the finance available in the proportionately smaller funds in Europe compared to US to be able to follow-on with the initial investments: *“In the US, if you start a company, you have an odds on chance of raising more money. In Europe, the single biggest risk of starting a new company is only one in five get further money, no matter how good you are.”* (UK VC 19). This can mean that they have to rely on syndication with other VCs to a greater extent than in the US (Chapter 5.6) where US funds have the ability to keep investing through all the rounds to exit.

Other stakeholders also commented on the larger size of funds in the US. This is consistent with the findings with the VCs above and with previous studies, for example Lerner et al., 2011. There is more finance available to fund innovative ventures in the US with Europe consistently suffering from a shortfall of venture finance (Aeronoudt, 1999 and 2017). The interviewees commented that Europe “suffers” due to its smaller funds as this results in difficulties in supporting follow-on rounds and in scaling (Coutu, 2014). Lack of funding was seen to be more of an issue at the later stage investment rounds than at seed and early stages by the other stakeholders: *“There’s a massive inefficiency in the UK because you haven’t got scale of funds; you’re forever having to look to raise another round of funds and then another round of funds and at each break point for the next fundraising, there are valuation disputes, there are allocation disputes, it’s just hugely inefficient, a huge drain on management time.”* (UK LP 2). A European VC related interviewee (VCR 3) commented that: *“In Europe you just don’t find large enough VCs that could really bring you all the way up”*, that is to scale.

The smaller size of funds in UK, the general shortage of funds and the lack of funds willing to follow up on investments, was specifically referred to by two of the entrepreneurs interviewed (UK E1 and E4): *“You have many choices there (US) and very few choices here (UK) in terms of big funds that you want to follow up.”* (UK E 1). However, two LPs and one VC related interviewee did mention that smaller funds can generate better returns than large funds. There was general agreement about an optimal, mid-size fund level. A VC related interviewee in the US commented on the bifurcation of the US VC industry into 12 to 15 household name mega funds and an emerging group of micro VCs with fund sizes of less than \$100m: *“The small focused funds have the potential ability to return the entire fund on a single investment.”* (US VCR 4). On the other hand, as commented on by a West-coast US university professor:

“Large VC firms are able to diversify their portfolio and can invest in several companies in the same area. Smaller firms get washed out as not able to follow through with bigger rounds.” (US O 3).

Summary

It may be concluded that the larger size of US funds and the more plentiful supply of money in the VC sector in the US contributes to the overall better performance of US VC funds, confirming previous studies on fund size and performance such as Kaplan and Schoar (2005) and Lerner et al. (2011). There is generally more finance available to fund young, high-growth businesses in the US and to permit them to continue to grow and scale.

4.3 Sector focus

By focusing on certain sectors VC firms could build human capital expertise and firm-wide resource that would provide a basis for competitive advantage under resource based theory (Barney, 1991) potentially giving rise to improved fund performance. However, Aigner et al. (2008), found no significant impact of industry sectors on the performance of North America and European funds and, as noted above, Lerner et al. (2011) and Marston et al. (2013) found that fund characteristics, including the sector focus of funds, do not explain the magnitude of the difference between US and UK fund performance.

As can be seen from Table 4.2 twenty VC firms in the sample invested in the broad technology sector (including such areas as internet, software, mobile communications, communications hardware, B2B and B2C e-commerce, consumer internet, mobile gaming, enterprise SaaS, enterprise IT, digital media, semi-conductors, internet web applications, multimedia, robotics and clean tech). 6 VCs invested in life sciences (including such areas as pharmaceutical and biotech products, med tech devices and diagnostics digital healthcare, therapeutic implant, pharmaceuticals, biopharma and drug delivery) (Table 4.2). 29 VCs invested in both tech and life sciences and 9 VCs had a more focused approach to investing, concentrating on a particular segment within tech (such as SaaS, cloud, mobile, digital media, open source or internet) (Table 4.2). There was no particular difference between UK and US VC firms in their overall sectoral approach to investing. This is

in contrast to Stolpe (2003) who comments that US VCs usually have a narrower technology focus than European VCs. Continental European VCs had more of a mixed approach with 60% of the firms in the sample having investments in both tech and life sciences. UK and continental European funds had more specialist focused funds proportionately than with the US VC firms, likely reflecting their smaller size and the focused approach adopted particularly by some of the newer, smaller UK VC firms established in the last ten years. Bottazzi et al. (2004a) and Schwienbacher et al. (2008) show that newer VC firms exhibited more a higher risk approach to investing compared to older VC firms which is discussed later in this thesis (Chapter 5.2.1, Chapter 7.7).

A sectorial approach to investing, combined with sectorial expertise of the investment partners (Chapter 4.3) assists VCs in making and adding value to their investments: *“It’s very difficult to be a good investor at the early stages if you don’t have a fundamental understanding of the tech. You need to be deep enough that you can be a great board member, and you need to dumb yourself enough down that you don’t invest in things that the market’s just not ready for.”* (US VC 57). Gottshalg et al. (2003) found that funds that invest in a single industry strongly outperform more broadly focused funds. Lossen (2007) had previously stated that because of the information asymmetries in the principal / agent relationship private equity firms that specialise in particular financing stages, industries or countries should be able to make superior selection decisions because of the better access to information through their specialisation. A continental European with a niche focus in the software sector commented: *“I believe that this niche focus is the key, especially for a small player who does not yet have the brand to attract all the best deals in the world.”* (E VC 60). This may explain why there was only one US firm in the sample that employed a niche focus as the US firms tend to be larger and more well-known.

VC firms that invest in both tech and life sciences sectors tend to operate through separate funds and may have separate teams working independently of each other in each fund. One continental European VC (VC 58) has a life sciences and a tech fund which are run separately through one overall management company. A UK headquartered VC (VC 68) with separate tech funds in US, India, China and Japan has a separate global biotech team based in Boston and London as: *“Biotech is completely,*

fundamentally different. VCs always do it with separate teams, even the ones that do it together have separate teams.”

Specialisation of funds by way of sector focus was commented on and preferred by two of the LPs (LP 6 and LP 2) with one US LP not wishing to see diversification within a fund (US LP 6) and a UK LP expressing concern about teams managing parallel mandates (different sectors) in Europe: *“I don’t like that because you can never be certain where they’re allocating their best intellectual and technical resources.”* (UK LP 2). As can be seen from Table 4.2 above it is the US and UK firms which tend to be split more between tech and life sciences whereas continental European firms in the sample have a proportionately greater share of mixed funds. A mid-Atlantic based US university professor agreed with sector focus: *“I am a big fan of sector focus as well. I think specialising is important. Not only from an understanding of a market point of view but getting back to the network perspective, that is important as well as you have access to those networks.”* (US O 2).

Summary

There was no particular difference between US, UK and continental European firms in terms of their focus on the IT and life sciences sectors in the sample studied and therefore no evidence that sectoral focus is contributing to the performance differential between European and US VC funds. This is consistent with previous studies such as Aigner et al. (2008), Lerner et al. (2011) and Marston et al. (2013) which found that fund characteristics, including the sector focus of funds, do not explain the magnitude of the difference between US and UK fund performance.

There was evidence that the newer, smaller UK VCs (discussed in Chapter 7.7) were adopting more of a more specific, niche focus though it is perhaps too soon in their fund cycles to identify whether these funds are exhibiting better performance over the less specialised funds.

4.4 Stage focus

Early stage financing by a VC fund is riskier than later stage financing. Nevertheless, it has been associated with higher returns (Cochrane, 2005; Diller and Kaserer, 2009; Lerner et al., 2011). However, Kaplan and Schoar (2005) found that

fund performance was not stage or sector related. In view of the apparent contradictory results of these previous studies, the stage focus of the VC funds was investigated in order to assess its possible impact on fund performance. Areas that have not been subject to much empirical investigation in the past, such as evidence on the clubbing together of US VCs in seed stage investments and the move to later stage investing by UK VCs, were also reviewed. Exercising options to invest at a very early stage or to wait until more information is available and invest later are where VCs are applying both real options theory and agency theory. The higher risk approach of US VCs can lead to outlier returns.

As can be seen from Table 4.2, there was a fairly broad distribution of VC firms in the sample across the different stages of investing and across UK, continental Europe and US. 31 VCs (48% of the sample) focused on seed and early stage investing; 31 VCs (48%) on venture (early to later stage). Only two VC firms, both US VCs, focused exclusively on investments at the growth stage (VCs 51 and 54). 60% of the continental European firms had a focus on seed and early stage investing, a greater proportion than with the UK and US firms. Some of the more established UK VCs have been moving their focus more towards later stage investing. Lerner et al. (2011) and Marston et al. (2013) have concluded that the stage focus of funds, along with other fund characteristics, does not explain the magnitude of the difference in performance between UK and US funds.

4.4.1 Seed focus

As can be seen from Table 4.2 48% of the VCs were investing at the seed and / or early stages (44% of US VCs, UK 46%, E 60%). Some of the firms, particularly those based in Silicon Valley, invest at the seed stage in order to test the market. For example, one Silicon Valley based US VC makes seed investments from \$50k to \$1m to “test the water” particularly in the consumer sector: *“Let’s take a little of it and see if something pops. We’re not going to spend any time on it, we’re not going to go on the board, etc.”* (US VC 39). Another Silicon Valley VC (US VC 41) has a \$20m seed fund which it uses to make “experimental investments with far out things” which are not yet ready for full VC investment. This VC slims down the investment decision making process so that just one partner can decide on an investment of up to \$250k in just one meeting with a company. Another VC in Silicon Valley, which operates out

of both the Valley and South-East UK, has a sole focus on seed investments (US VC 35), sometimes investing when there is no business plan.

A US LP (LP5) commented on this “betting” on small seed investments: *“If you have a \$200 million fund it’s very easy to make a series of small bets of seed stage, \$250,000. That doesn’t hurt you very much and you get a lot of options on putting a lot of money to work behind the actual ones that work.”* Whilst this “testing of the market” was more common to the US Silicon Valley VCs there was one continental European VC who commented that they also invest at the seed stage in order to get a “foot in door” (E VC 49): *“If you don’t invest in a company, then you lose total contact with them. If you have a small investment, it forces you to do reporting to check regularly and time flies very fast. So it is a very good discipline.”* In the competitive environment of Silicon Valley (Chapter 5.3.2, Chapter 6.5) US VCs do not wish to miss out on potential outlier investments, hence they often club together at the seed level, as commented on by 4 US VCs, 2 UK VCs and a continental European VC. *“It’s driven by everybody wanting to be in. Nobody wants to miss the deal that becomes successful. At the super competitive level you have to be in all the right deals.”* (UK VC 19 commenting on US VCs investing together on seed deals). This clubbing together of US VCs in seed stage investments has not been addressed in previous research, such as Lerner et al. (2011) and Marston et al. (2013).

A greater propensity to exercise the option to invest at the very early seed stage in order to “test the water” by some US VCs, particularly those based in Silicon Valley, reflects the greater propensity for risk exhibited by these firms. If such investments succeed they might give rise to outlier performance, a contributor towards the overall better fund performance of US VCs. In deciding whether to invest at this very early stage the VCs are engaging real options theory whose drivers are uncertainty and competitive pressures. If several investors are considering investment the competitive pressures may cause the investor to invest sooner than uncertainty would normally allow as is the case with these Silicon Valley VCs.

4.4.2 Change of strategy re stage

There has been a general shift by UK VCs away from early stage investing to less risky later and expansion stage deals (BVCA, 2017a). This was the case with three of the UK VCs in the sample which had changed their stage focus away from early

stage investing to later stage investing (UK VCs 6, 20 and 22). For example, UK VC 6 had changed its strategy from very early stage to growth equity as the returns were not commensurate with the risks involved with early stage deals: *“We had a very strong focus on sectors like biotech and semi-conductors where the level of capital required to take these companies through from start-up to commercial maturity was typically very substantial, tens of millions. At the end of it, quite often the exits were relatively disappointing. When you factor in risk and time and effort and everything else you think, well what’s all that been about? It’s not fantastic.”* (UK VC 6).

A UK LP (LP 8) commented that Europe was “guilty” of moving more to later stage and growth investing than the US as this leaves the financing of early stage deals dependent on business angels and crowdfunding. There were no US VCs and no continental European VCs in the sample that had changed their stage focus from early stage to later stage. A UK VC-related interviewee who had founded an early-stage VC firm that subsequently transformed into a later stage private equity firm commented that: *“By the time I left the firm it was so much easier to invest large sums of money through buy outs, people were saying “why the hell do we continue with early stage?””* (UK VCR 1). A change to later stage, as exhibited by some of the more mature UK funds in the sample but not by US or continental European funds, is potentially lowering the risk profile of those funds as information asymmetry on investments is reduced. However, lower risk also results in potentially lower overall fund performance, as exhibited by the UK VC funds in the sample.

Summary

Previous studies have shown that riskier, early stage financing is associated with higher returns (Cochrane, 2005; Diller and Kaserer, 2009; Lerner et al., 2011). There was evidence of US VCs clubbing together in seed stage investments and a move to later stage investing by UK VCs, areas that had not been subject to much empirical investigation in the past. This higher risk approach of US VCs in investing at the early stages can lead to outlier returns.

4.5 Geographic focus

A local approach to investing, exhibited historically particularly by Silicon Valley based VCs and those based in other technology centres (Florida and Kenney,

1988), helps to reduce information asymmetry of investments as company information is more readily available and in a more timely fashion than with more distant investments. Network theory is also relevant here as the strong, integrated, information sharing local networks, as operate in Silicon Valley (Chapter 6.5), assist with initial due diligence on product technical details, management capabilities and views on market uptake. From the viewpoint of organisational theory, a VC's locally based personal networks for sharing resources can help develop an investee business over its various growth stages. Better information and strong networks should benefit investment performance and subsequent fund returns.

4.5.1 Local investing

Some VCs in the sample prefer to invest in the vicinity of where they are based which facilitates the hands-on monitoring of investments and adding-value activity: *“So we have feet on the ground where we invest. We’re not more than a two-hour car ride away from anything. We would never do a deal in St Louis where we didn’t have somebody there, or a trusted co-investor who was there, on the ground.”* (US Pittsburgh-based VC 10). This local approach certainly applies to early-stage VCs where their portfolio companies often need considerable help as they move through the growth stages from start-up. Silicon Valley VCs have historically been known as “zip-code” investors where they can make best use of the strong Valley-based networks (Chapter 6.5) as with US VC 37 which largely invests in the Silicon Valley area: *“The bar is very high to invest outside of Silicon Valley for us because we don’t have the networks that we have here and even just getting into New York, as clubby as that is, was very difficult for us to invest with a degree of confidence in that eco system.”* (US Silicon Valley based VC 37). This locally based investing of Silicon Valley VCs was confirmed by a UK entrepreneur (UK E 25) who had sought finance for his Berkshire, UK based company from a Silicon Valley VC: *“Their reaction was you’re, they’re in California, “you’re 8,000 miles away, we can’t manage what you’re doing, we can’t keep control, we can’t see what you’re up to.”*” Additionally, five of the other stakeholders interviewed commented on the preference for VCs to invest locally.

This local approach to investing is in contrast to Bottazzi et al. (2004b) who found that VCs are increasingly investing outside their own countries with the US

attracting the most inward investment from other countries. The relatively few globally focussed Silicon Valley VCs may invest through autonomous overseas offices to maintain the locally focussed approach whilst retaining central administrative functions in the Valley. For example, US VC 39 has operations in US, UK, India and China, with autonomous units in these countries for investing purposes, whilst the training function for all of its staff is run centrally in Palo Alto. A continental European LP (LP4) commented that regional funds are more successful than cross-border funds: *“The funds that tend to be more regional, working within a given region, tend to be more successful actually. We don’t know why but we can speculate why – you know they could be reputational factors of the team; it could be a better knowledge of that market in which they are.”* (E LP 4). A US corporate investor which invests directly from its base in Boston, though around half of its portfolio are based in Europe, agreed with the greater efficiency of investing locally: *“We understand why people don’t generally invest too far away from the office, especially with the early stage companies. It takes you out of the office a lot.”* (US CVC 5).

Summary

The local approach to investing, exhibited particularly by the Silicon Valley and other US VCs in the sample and in contrast to Bottazzi et al (2004b), may help these VCs achieve better overall fund performance because of their tight networks and in-depth knowledge of local opportunities.

4.6 Partners and their backgrounds

Details on partners and their backgrounds were gathered from a review of the information contained on the websites of the VC firms, supplemented by questioning during the VC interviews. Comments from the other stakeholders on partner backgrounds were also obtained. The impact of partner backgrounds on the difference in VC fund performance has not been subject to empirical investigation in the past, though, in connection with private equity funds as opposed to VC funds, Cornelli et al. (2016) found that private equity teams with a higher proportion of investment professionals with operational backgrounds perform better than those that comprise mainly finance professionals. Hege et al. (2009) observed that US VCs are often more specialised and more sophisticated than their European counterparts. Axelson and Martinovic (2013) commented that European VCs are behind US VCs in experience,

in terms of board seats held in industry sectors, and that this impacts on the performance differential between European and US VC funds. Lerner et al. (2011) found that investing experience was equally important for both US and UK funds but that the benefits of experience have become much less significant for fund vintages later than 1997. These researchers did not specifically investigate partner backgrounds.

4.6.1 Number of partners in firms

US VC firms had around one more partner in total than UK and continental European firms (US 6.4 partners per firm, UK 4.9 partners, E 5.3 partners) (see Table 4.3 below). Lerner et al. (2011) found a positive relationship between the number of partners and fund performance. More partners imply greater resources for sourcing, vetting, monitoring, adding value to and exiting from deals. As discussed below more partner numbers means a greater ability to work together and share resources and know-how on deals. It could therefore be that the proportionately more VC partners employed in US VC firms than UK and continental European firms are contributing to the difference in performance between US and European VC funds.

4.6.2 Operational / entrepreneurial versus financial / investment and consultant backgrounds

Human capital theory is pertinent to the study of partner backgrounds with firm resources, including human capital, contributing to competitive advantage (Barney, 1991) and ultimately high performance. Partners with investment and finance backgrounds are also more prone to seek to minimise risk whilst entrepreneurs seek to maximise success (Sarasvarthy et al, 1998). Resource based theory is also relevant to partner backgrounds in terms of the capabilities and knowledge that a firm has at its disposal which provide the basis for competitive advantage (Barney, 1991).

Anecdotally it has been claimed that UK and continental European investment executives at VC firms come from a finance or investment background in terms of their experience prior to joining a VC firm whereas investment executives at US VC firms have more of an operational or entrepreneurial background, although this has not been subject to particular empirical investigation in the past in connection with VC fund performance (Kelly, 2011).

“European VCs have different backgrounds on average than US VCs. I believed this anecdotally for a while and then an ex McKinsey guy actually doing an analysis of the energy sector funds and clean tech funds where he went to the websites and went through the CVs of all the people.” (US VC 25 referring to unpublished work by McKinsey & Company, the global management consulting firm).

Gompers et al. (2009) comments that it is the specialisation of individual partners that leads to better performance as specialisation increases the likelihood of finding good industries in which to invest and consequently making good investments in those industries.

The prior experience of investment executives at partner level for the VC firms interviewed was determined by reviewing their profiles as included on the websites of the relevant firms and the number of partners with backgrounds in four specific categories was assessed: financial / investment, consultant, operational and entrepreneur. Partners were allocated to one of these four categories depending on the extent of their experience in these areas. If a partner had prior financial, investment or consulting experience and subsequent entrepreneurial or operational experience then that partner was included in the entrepreneurial or operational category as appropriate. US VC firms in the sample had proportionately more partners with particularly operational (US 2.7 partners per firm, UK 1.5 partners, E 2.0 partners) and, to a lesser extent, entrepreneurial backgrounds (US 1.0 partners per firm, UK 0.7 partners, E 0.9 partners) (Table 4.3).

Table 4.3: Background of VC partners

	Whole firm	Financial/Investment	Consultant	Operational	Entrepreneur
By no. of partners in sample:					
US	160 ptrs	39%	3%	42%	16%
UK	117	48%	6%	32%	14%
E	79	32%	14%	38%	16%
By no. of firms:					
US (25)	6.4 ptrs/firm	2.5	0.2	2.7	1.0
UK (24)	4.9	2.4	0.3	1.5	0.7
E (15)	5.3	1.7	0.7	2.0	0.9

US VC firms had more partners with an operational and entrepreneurial background than with a financial / investment and consultant background (58 /42 split). UK firms had less partners with an operational and entrepreneurial background

than with a financial / investment and consultant background (46 / 54 split). Continental European firms had more partners with an operational and entrepreneurial background than with a financial / investment and consultant background, though not to the same extent proportionately as US firms (54 / 46 split). Excluding one continental European firm with a particular focus on entrepreneurial partners (8 out of 12 partners) the remaining continental European firms had an equal number of partners with operational and entrepreneurial backgrounds and financial / investment and consultant backgrounds (50 / 50 split).

Bottazzi et al. (2004b) show that VC firms where the partners have previous business experience provide more support and governance to a venture. The greater concentration of particularly operational partners in US VC funds may well contribute to improved performance, an area that has not been subject to investigation in the past (Kelly, 2011). When asked about their perceptions of the differences between the European and US VC environments 23% of UK firms cited the backgrounds of the investment partners as a key difference. Only one US VC (VC 25) and one continental European VC (VC 14) commented on this aspect of the difference. A UK VC with partners whose backgrounds are operational and entrepreneurial commented that: *“If you look at the US VCs who have been successful, that’s a feature of their CVs.”* (UK VC3). This UK VC would go so far as to state: *“VCs with financial, corporate finance, accounting backgrounds are completely unnecessary, frankly. I don’t work with them.”* Operational know-how was seen as essential to success by several of the VCs interviewed including those from the UK and continental Europe: *“It’s critically important to have that operational know-how.”* (E VC 14). Conversely not all US VCs in the sample agree that prior operational experience is necessary to be a successful fund: *“The so-called operational role of other firms’ partners can be “bull shit”. The most successful VC guys get into the business in their early 30s so can’t have much operational experience.”* (US VC 38). Others believe that entrepreneurial experience is more important than operational experience: *“We were one of the first entrepreneur led funds rather than just operational, because you can be operational from a big company and still be ineffective.”* (UK VC 3). Entrepreneur led firms enable the firms to source the “best” deals, both reactively and proactively: *“We all come from entrepreneurship backgrounds. We believe we have a good chance of picking the best companies and the best chance of being approached by the best companies because*

they prefer to work with people who understand their domain because they can add some value.” (UK VC 7).

Some UK and continental European firms (UK: 8 firms, E: 6 firms) choose to emulate the Silicon Valley model of having a high proportion (> 50%) of operational and entrepreneurial partners on their teams. A continental European firm has 64% of partners with entrepreneurial experience and 36% with analytical and operational backgrounds: *“We’re probably the most West Coast like firm in Germany at least of all venture firms here.”* (E VC 61). Several of the younger VC firms, established in the UK in the last 10 years, have a high proportion of partners with operating and / or entrepreneurial backgrounds, such as VCs 26, 27, 30 and 72. However, a UK VC that has moved from early stage to later stage investing commented that investment expertise is more important than entrepreneurial experience: *“People say, actually, what’s wrong with venture capitalists is there’s not enough entrepreneurial VCs. I’d probably argue there are too many. There are not enough professional investors in the asset class. The ones that are more like that tend be the better ones, actually, if I’m being brutally honest.”* (UK VC 6) The skills and experience of VC executives was rated highly important to investment success by VCs completing the questionnaire (Appendix 3).

Some VC firms engage separate teams of operational partners and / or personnel. These teams are supplementary to the deal-doing investment teams and usually provide expertise to portfolio companies in functional areas such as human resources and recruitment, public relations, marketing and sales, procurement, product development, acquisitions and other areas. Andreessen Horowitz, an innovative Silicon Valley based VC firm, is well-known for its extensive operational support teams of more than 40 staff, focused on executive recruiting, marketing/PR, technology and business development (Hansen, 2012). These operational teams are not common and there were just four VC firms interviewed who mentioned that they had such teams, two US East and West Coast based VCs (VC 15 and VC 54) and one UK lifesciences VC (VC 17) and a continental European VC (VC 74), though these were nowhere near as extensive as the Andreessen teams: *“We certainly hope we’re on the cutting edge (with this practice). I won’t say that we are unique, but we pride ourselves on the level of services that we can offer our portfolio of companies.”* (US VC 15). The separate operational teams are usually funded out of the management fees

that VC firms receive from their funds' limited partner investors (US VC 54). Smaller VC firms do not have the people or financial resources for such teams: *"With a small firm it doesn't make sense to try and operate an origination team and a portfolio team."* (UK VC 1). VCs may bring in partners with specific business skills as needed onto a deal (UK VC 26) and a blend of operational skill sets in the partner team can be seen as invaluable: *"The part we like about our team is that we have one guy who's a tech guru. We have one guy who is more of a product commercialisation and packaging guy. We have one guy who is more of a sales marketing guy and then we have one guy who is a true strategist. If we can utilise the whole team then the value should be maximised."* (E VC 60).

Other stakeholders, across all categories, agreed with the more operational and / or entrepreneurial experience of US VC investment executives compared to those in Europe, commenting that the operational / entrepreneurial background of investment executives is particularly evident in Silicon Valley:

"If you look at the genesis of the US West Coast industry they were people with genuine industry experience who knew what they were on about, knew the sectors they were working with and investing in and did very well out of that whereas, talking generalisations here, in the UK, our venture industries tended to be people who'd been at 3i and were trained as financial engineers. Too few were genuine scientists, technologists and business people getting involved in the early days. I think we had, in comparison to the US, a disproportionate number of people who were accountants and financial engineers who had been trained in the kind of development capital school of ICFE (3i)." (UK LP 2).

Entrepreneurs interviewed confirmed this LPs' comments on the difference in backgrounds between US and European VCs: *"US VCs are operational VCs, ex-entrepreneurs and have run companies whereas here in Europe they are more interested in all these financial details, financial alliances, maybe their background is as bankers or consultants. Which is not the case in the US; they are more hands on they understand, they are closer to the entrepreneur."* (UK E 1). However, Europe is catching up on this with several of the new VC firms established in the UK and continental Europe in recent years run by former entrepreneurs. Entrepreneurial experience tends to be favoured over operational experience by LPs. The above UK

LP went on to say that funds he is now backing in the UK are more like the early US West Coast firms: “*People who know and understand (cloud computing), probably better than anybody else. They have been there, seen it, done it, got the t-shirt in terms of running businesses.*” (UK LP 2).

Summary

US VCs generally have a more entrepreneurial / operational background than UK and continental European VCs which facilitates the investment process including deal sourcing and adding value to the portfolio companies post investment. This in turn helps VCs to see the best deals and to groom the investments to success thereby leading to potential high performance. The background of investment executives at VC firms had not been subject to empirical investigation in the past in connection with VC fund performance (Kelly, 2011). Viewed from a human capital theory perspective, the greater knowledge and expertise of entrepreneurial and operational processes, together with specific sector focus gained from their background experience, can enable the US VCs to better use and to share information with their fellow partners in connection with specific investment opportunities. In turn this sharing of information reduces asymmetries in the investment decision making process, thereby embracing agency theory. The higher degree of entrepreneurial / operational experience of US VCs is likely to be a contributor to the performance differential between US and European VC funds.

4.7 Partners’ responsibility for deals

Whilst most VC firms (95% of firms commenting on responsibility for deals) allocate the overall responsibility from sourcing a deal right through to exit to a specific lead partner, “*the cradle to grave model*” (UK VC 3) where partners effectively “own” their deals, many VCs actively encourage other partners to become involved with deals where they are not the lead partner. Collaboration between partners in this way has not been subject to empirical consideration in the past and is specifically investigated in this study. Working together on deals and sharing information and expertise could lead to better outcomes on deals and therefore ultimately better fund returns, as information and knowledge is shared with and between partners.

A number of theories may impact on the potentially improved performance resulting from partners working together on deals. Agency theory is relevant as sharing of expertise and skills on deals may help reduce information asymmetry as different knowledge about a sector or indeed a specific company, is brought to bear in the due diligence and decision making phases of a deal. The interconnectedness of the VC firms' investment personnel and the social ties between them in the context of organisational theory aids information transfer between partners and other investment executives. The personal networks that individual partners have in the environments in which they operate, for example with technology companies and other VCs, can also be useful in knowledge sharing between partners in connection with an investment (Florida and Kenney, 1988). Prisoner's dilemma theory may also be relevant where cooperation between parties is easier if the parties are similar to each other and have the same goals (Cable and Shane, 1997). This should be the case with partners in the same firm all working towards the same goal of maximising the eventual gain on an investment and ultimately the return of the fund as a whole. If the balance of power between the parties (partners) is equal the more likely the partners are to cooperate (Pruitt and Kimmel, 1977). Human capital theory and resource based theory are also relevant in connection with the different specific experience that individual partners each bring to an investment situation and the sharing of this experience between partners.

95% of VCs had a lead partner responsible for deals from source to exit (Table 4.4). Some VCs interpret this quite strictly where partners effectively "own" deals: "*I can't particularly help you. That's Frank's deal.*" (E VC 50). This is fairly unusual as most partners appear to be aware of each other's deals, gained at least through the weekly partners' meetings when potential deals are discussed and existing deals reviewed: "*We have a meeting once a week where the whole team reviews new deals, existing deals, exits, and we do that on a complete team integrated basis.*" (UK VC 17). The designated lead partner tends to be the partner who found or was introduced to the deal, or is the partner with the most appropriate sector experience for the deal and then that person assumes overall responsibility for the investment. Their performance is measured by the success of "their" investment: "*That's his track record and if you want to stay in the firm you have to be able to deliver over 2x return, otherwise you have to leave.*" (UK VC 45). The partner may not necessarily be the person who was first involved with the company, but the partner whom it is judged is

more appropriate, has expertise in the sector, is a better “fit”, who can add more value and can maximise the probability of success as with four UK VCs, two US VCs and one continental European VC.

Table 4.4: Partners “own” deals

Theme category	Themes
Partners “own” deals: responsibility and cross-involvement	<ul style="list-style-type: none"> • 95% of VCs had a lead partner responsible for deals from source to exit (three UK firms did not) • 85% of US VCs, 83% UK and 62% E VCs involved other partners at due diligence or post-investment or throughout the deal • 40% of US VCs had two partners working together on deals cf 22% UK and 23% E

85% of US VCs, 83% UK and 62% continental European VCs involved other partners on deals at the due diligence stage or post-investment or throughout the deal (Table 4.4). This collaboration between partners facilitates the sharing of expertise on deals contributing to the ultimate success of portfolio companies. Other partners may get involved post investment if the portfolio company needs something specific that another partner is an expert in, as with seven UK VCs (VCs 2, 16, 17, 19, 24, 27 and 29), two US VCs (VCs 8 and 56) and two continental European VCs (VCs 34, 49 and 70). Other partners may be involved at the due diligence stage as with three US VCs (VCs 47, 55 and 57): “*We will always double-team on looking at an investment, and so that way I think we are really looking at collective decision making as a good way of operating with very, very little by way of process.*” (US VC 57). Other firms may use different skill sets of partners to help on particular issues at any stage of the investment: “*A lot of the VC firms don’t do that, you’re married to one partner and whatever that partner’s skill set is that’s all you get. Even here in Silicon Valley.*” (US VC 34).

Some firms have two partners working together throughout a deal at the same time, often both sitting on the same board, with one having a primary position and the other an observer role (as with US VC 53). 40% of US VCs had two partners on deals compared with 22% UK and 23% continental European. This may function effectively as a “buddy” system as with two US VCs (VCs 35 and 53), one UK VC (VC 21) and two continental European VCs (VCs 61 and 74) or provide a “second pair of eyes”. Having two partners involved can also provide additional value add and help to make

connections. In other cases, the second person may simply deputise for the lead partner as necessary. They may act as “devil’s advocate” (US VC 12) akin to a “good cop, bad copy” strategy (Fili, 2014) or be someone who is an expert in the sectoral area or who is local geographically to the company (US VC 25). Two partners may work on the bigger deals and just one partner where it is a smaller investment or where the VC does not control the company (US VC 54). Instead of a “buddy” role some US VC firms have a shadow partner on deals who checks that issues and questions raised by the partner group, as the deal selection phase proceeds, are fully addressed (US VC 36). At one continental European VC (E VC 59) this checking role of a second partner extends to reviewing all term sheets and sometimes negotiating them with entrepreneurs. This has the advantage that the partner who has been dealing with the entrepreneur and who will sit on the board does not have to do the “bad guy” negotiation role. Also the partner who promotes a deal to the partner cohort can usually be quite bullish about an investment and so it is helpful to have another partner involved with a more detached approach. This working together on deals by two partners may be regarded as somewhat unusual by some observers: *“In venture versus buy out more specifically it is more prevalent to see the model where one partner owns a deal from the beginning to the end and that’s his baby.”* (US LP5). A US entrepreneur (US E 5) commented that on a day to day basis it is *“almost entirely the partner that you choose and that chooses you that you work with”*.

Summary

US VC funds tend to be larger than European funds and have larger teams. US VCs therefore may have more of the capacity to work on deals together, particularly with the ability to double up partners on deals as with the “buddy” system referred to above, which was more prevalent with the US VCs interviewed. The greater propensity to “double up” on deals exhibited by the US VCs facilitates the sharing of information and expertise. This could lead to better outcomes on deals, and therefore ultimately better fund returns, as information and knowledge is shared with and between partners. This could be a further contributor to the difference in performance between US and European VC funds. Collaboration between partners in this way has not been subject to empirical consideration in the past.

4.8 Use of venture partners

VC firms may also engage venture partners who are people who a VC firm may engage to help execute and manage their investments but who are not full and permanent members of the partnership. Use of venture partners by VC firms has not been previously investigated in the literature. Agency theory, human capital theory and resource based theory are all involved with venture partners' roles in adding expertise and knowledge to deals at the due diligence, monitoring and adding value phases of an investment. This can help to improve investment performance and overall fund performance as venture partners bring additional resource to deals with specialist skills and knowledge to supplement those of the mainstream investment partners and reduce information asymmetries in the investment process.

Whilst venture partners were used proportionately more by the US VC firms they were also often used in UK and continental European VC firms. In the sample ten UK VCs engaged venture partners (42% of the sample of UK VCs), seven continental European VCs (47%) and thirteen US VCs (52%). The backgrounds and roles of venture partners vary enormously from firm to firm, and the help they provide is quite individualised. For example, with healthcare focused US VC 46 where this firm's venture partners include a former portfolio company CEO, a drug discovery expert, a person who had previously run the firm's incubator and an expert in clinical development. This firm's venture partners help to evaluate new deals, they sit on portfolio company boards and they use their individual expertise to advise companies on specific issues. Venture partners typically work in a supporting role to the investment team.

Frequently venture partners are used to source deals. Nine of the VC firms used venture partners in this manner, particularly the US VC firms (5 US VCs compared to 3 UK VCs and one continental Europe VC). They may even evaluate deals as with US VC 46. They may provide operational help to a portfolio company as with three UK VCs, one continental European VC and two US VCs. They may work on the less successful deals where the time required is not commensurate with a return of only 2-3x as with UK VC 21. Some venture partners may take specific roles in portfolio companies. For example, they may be engaged as Chief Sales Officer as with European VC 14; they may work on due diligence as with US VC 39, sit on boards as with

European VC 49 and US VCs 15 and 39, or act as Chairman and mentor the CEO as with US VC 55.

Venture partners may be very experienced industry leaders, former CEOs or experts in specific sectorial areas such as drug discovery (US VC 46) and have the same level of experience, knowledge and know-how as their investment partner colleagues. They may take board seats (US VC 15, US VC 39). However, they generally do not have decision making power over a potential new investment (UK VC 7, UK VC 13). They may have an operational background, be serial entrepreneurs (UK VC 13) or they may be learning the industry and deciding if they want to move into the VC sector (UK VC 20).

Some venture partners may have responsibility for deals, for example when they are on their way into or way out of the partnership as with US VC 12. They may be regarded as a part-time investment partner and be fully involved in discussions in the partnership (US VC 35) and if the firm does a deal that they have sourced then they would lead the investment (US VC 36) and may share in the carried interest (US VC 65). At other VCs they don't lead deals although they may still sit on boards (US VC 39). If they are responsible for an investment in the case of a continental European VC there would always be a managing partner or senior investment manager working with them (E VC 49). Venture partners may be part of an operational team. One US VC (US VC 54) has an Operational Excellence Group which comprises venture partners and other staff who work exclusively with portfolio companies, helping them with tasks and tactical items like budgeting, compensation and strategic planning. They may provide geographic or sectoral assistance, for example at a continental European VC (E VC 61) where one venture partner is based in Silicon Valley and helps European deals assess US opportunities. Another venture partner is from the private equity sector and helps on later stage deals with, for example, structured finance.

Summary

The use of venture partners by VC firms has not been previously investigated. Whilst venture partners are often used in UK, continental European and US VC firms, they are proportionately more common in the US firms, as in the sample studied here. The diversity of how they are used, additional to sourcing deals and providing operational assistance on deals, is greater in the US as can be seen from the above.

Their greater use in the US may contribute to the difference in performance between European and US VC funds as the additional resource that they bring to deals with their specialist skills and knowledge helps to reduce information asymmetries in the investment process.

4.9 Advisory boards

In the private equity sector advisory boards of LP representatives are constituted to discuss matters pertaining to a fund (Pearce and Barnes, 2006). Some VC firms may also set up advisory boards, usually of technical experts, to assist with the investment process in a similar manner in which companies may appoint an advisory board (Arundale, 2007). It is in the latter context that advisory boards are discussed here. Advisory boards bring additional human capital and access to networks for VC firms which could help to improve investment returns. Use of these technical advisory boards by VC firms has not received much consideration in the literature and is now specifically considered here.

Advisory boards were used by 9 UK VCs, 5 continental European VCs and 5 US VCs. Eleven UK VCs, 6 continental European VCs and 4 US VCs specifically commented that they do not use advisory boards, either because they had used them in the past and not found them to be particularly helpful or because the sectoral activities of the VC firm were relatively broad and it would require an extensive board of advisers to represent all the sectoral interests: *“They sound great and in some ways it’s good marketing but typically I’m not convinced people get a lot of value out of them and when I speak to people on advisory boards they are often dissatisfied, they feel ignored or abused.”* (UK VC 1). Other firms may well use individual advisors or an informal network of advisers or did not comment specifically on their use or otherwise of advisory boards. Three UK VCs and two US VCs commented that they prefer a network arrangement: *“With the open ecosystem we have a ton of people that we can call on and do call on.”* (US VC 57). Two US VCs and one UK VC have tried advisory boards in the past or considered them but commented that there were not effective or were difficult to get members engaged, or the VC was more of a generalist nature and would need people who are experts in many areas as with UK VC 52, E VC 50 and US VC 57. One US VC has an advisory group for biotech comprising seven or eight industry figures who get together on a regular basis but does not have a group for tech

as tech is too broad a sector and the VC prefers a network arrangement instead (US VC 57). Similarly, a continental European VC which invests in both tech and lifesciences has an advisory board for lifesciences comprised of 6 persons who are operational in the top 20 pharma companies in world.

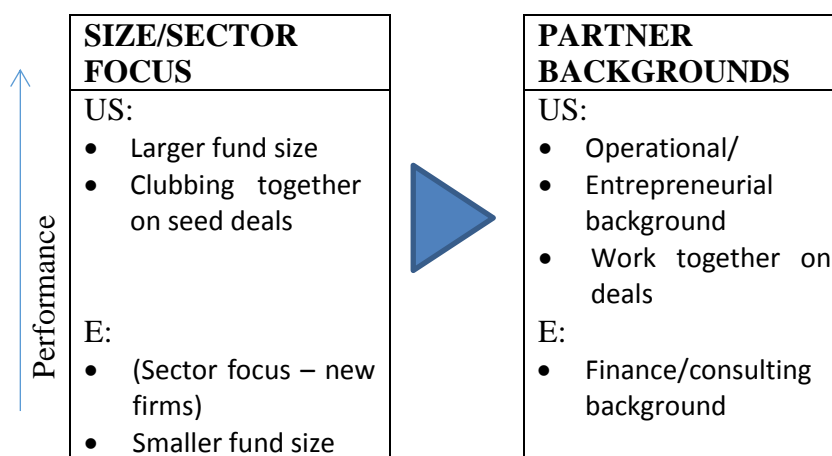
Summary

UK VC firms tend not to use advisory boards, either because they haven't worked effectively in the past or because the sectoral activities of the VC firm are seen as too broad and an advisory board covering all sectors would be too large and unmanageable. The relatively few US VCs who do use advisory boards fill them with people from high profile tech or biotech companies; other US VC firms rely on their extensive networks of industry contacts on a more informal basis than by engaging an advisory board. Use of technical advisory boards has not received much consideration in the literature. However, there is no evidence from the current study that the use or non-use of advisory boards is contributing to the difference in performance between US and European VC funds.

4.10 Conclusion

The research contributes to the literature on structural factors impacting on VC funds in Europe and US by identifying a number of factors additional to those identified in previous studies which may contribute to the performance difference between European and US VC funds. As summarised below, these are the more entrepreneurial and operational background of partners in US firms, two partners working together on deals which is more prevalent in US firms and the clubbing together by US VCs in small, seed stage investments. The specific sector focus exhibited by particularly the newer UK VCs (Figure 4.2) is also noteworthy.

Figure 4.2: Structural differences between European and US VC funds



US VC firms had proportionately more partners with operational and, to a lesser extent, entrepreneurial backgrounds. European VC firms had a greater proportion of partners with a financial, investment or consultancy background. Viewed from the perspective of human capital theory this suggests that US firms have individuals with higher quality operational skills who are able to achieve a higher performance in the tasks that they carry out such as adding value to deals. Partners with entrepreneurial and operational backgrounds are often focused in specific sectors and that specialisation and knowledge can lead to better returns. US firms share expertise on deals more than UK and continental European firms, often having two partners working together throughout the life of an investment. This sharing and working together on deals has not been subject to empirical investigation in the past. Additional knowledge and experience gained by two partners working together reduces information asymmetries which should lead to better investment and consequent better fund performance. There are no significant differences between European and US VC firms in the use of venture partners and advisory boards, although venture partners were more common in the US firms and their backgrounds and roles more diverse than in European firms.

There was evidence of US VCs clubbing together with relatively small investments in very early, seed stage investments in order to “test the water” and not to miss out on potential outlier investments. This has not been subject to previous research. Outlier investments are likely to contribute to significant fund returns.

Some UK VCs, particularly the newer VCs established in the last 5 to 10 years, had more of a specific sector focus than US and continental European VCs. As Gottshalg et al. (2003) found, funds that invest in a single industry sector strongly outperform more generalist funds it is not inconceivable that the focused approach of the newer UK funds may lead to improved performance. In addition to a strong, sectoral focus the newer UK VCs exhibited other characteristics of US VC funds, notably the more entrepreneurial and operational backgrounds of their investment executives and a higher risk approach to investing (Chapter 4.6). Further investigation into these newer UK funds in the context of fund performance is proposed (Chapter 8.7).

The research confirmed existing studies on other structural differences between UK / European and US VC firms notably concerning the size of funds. US funds were larger on average than UK and continental European funds. This is generally acknowledged to lead to a shortage of finance, particularly of later stage finance, for growing and scaling companies in Europe. The larger size funds in the US noted in this research is consistent with previous studies, including Lerner et al. (2011). Larger funds are able to employ larger numbers of personnel, including partners, and indeed US firms in the sample had around one more partner in total than European firms. The larger size of US funds and the more plentiful supply of money in the VC sector in the US contributes to the overall better performance of US VC funds.

CHAPTER 5: OPERATIONAL DIFFERENCES

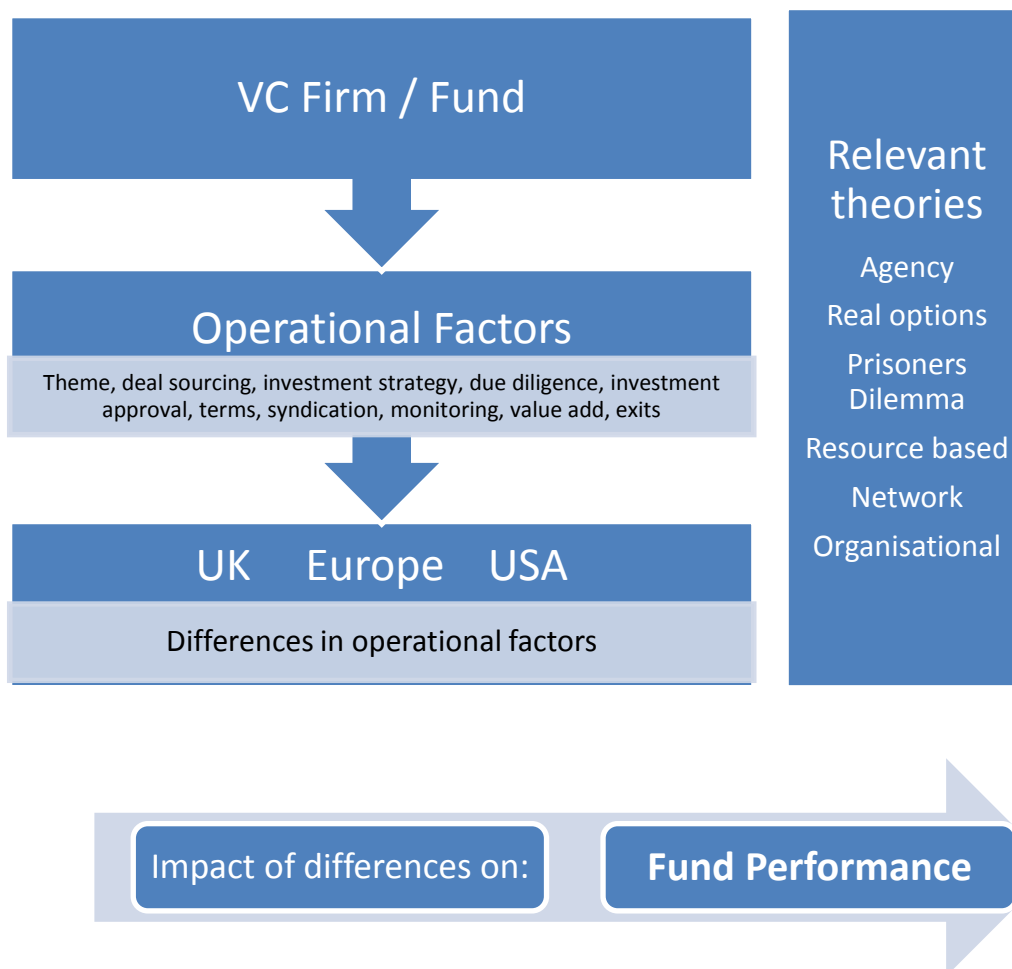
5.1 Introduction

This thesis has proposed that the performance difference between European and US VC funds may be due to differences in the structural, operational or wider environmental areas in which VC firms operate. Having discussed structural differences in the preceding chapter, this chapter now documents the findings of the interviews with VC firms and other stakeholders into the operational aspects of VC firms. Wider environmental differences are discussed in Chapter 6. Operational aspects of VC firms pertain to the entire investment process, from sourcing deals through to exiting deals (Tyebjee and Bruno, 1984), and include how the VC firms go about finding deals in which to invest (deal flow), how they evaluate and approve deals, including due diligence procedures, how they structure deals and the investment terms that they negotiate with the management teams of the prospective investee companies, how they monitor deals post investment and how they seek to add value to their investments, and finally how they exit from the investments.

Previous studies have shown significant differences in investment practice between US and European firms. Some of these differences have been postulated as contributing to the gap in performance between European and US VC funds (Chapter 2.7). These include the difference in the contractual relationships between VCs and entrepreneurs, the superior screening abilities of US VCs, the greater sophistication and better use of networks by US VCs and syndication used more effectively by US VCs (Hege et al., 2003 and 2009) and also the finding that European VCs are less “active” investors (Schweinbacher, 2008). There are other areas of the investment process where it is not known whether they contribute to the performance gap between European and US VC funds.

Previous studies have not reviewed the entire investment process from sourcing deals to exiting deals (Tyebjee and Bruno, 1984), specifically contrasting Europe and the US in the context of the variables pertaining to the investment process and the impact on the fund performance gap. This research carries out such a review.

Figure 5.1 Conceptual framework: Operational factors



A multi-theoretical conceptual framework has been proposed for the variables potentially impacting on the performance difference (Chapter 2.8). This is illustrated in Figure 5.1 in the overall context of VC operational differences. Agency theory and real options theories are most pertinent in the context of operational factors affecting the investment process. Information asymmetries exist in many areas of the operational aspects of the investment process. These include the theme approach to investing, use of milestone financing in the investment process, the due diligence process, investment decisions and investment terms, syndication and monitoring and adding value. The seemingly greater knowledge of sectors and markets exhibited by US VCs and the integrated networks in which US VCs operate for sharing of information reduces asymmetries in the investment process, embracing agency theory. Real options theory is consistent with the theme approach to investing, investment strategy, deal sourcing, milestone financing, due diligence, investment decisions, syndication, monitoring including portfolio reviews, adding value and the exit process. Prisoners dilemma theory is relevant to VC investment terms, particularly with regards

to alignment of interests between VCs and entrepreneurs. Resource based theory, social network theory and organisational theory all relate to the syndication activities and networks of VC firms. The relevant theoretical context is discussed in connection with the findings for each of the operational areas below.

The investment strategy of VC firms is first discussed in terms of their risk approach to investing, use of milestones and reserving for follow-on finance. How VCs in the sample source their deals and the competitive environment in which they operate is then discussed, together with their approach to due diligence. How VC firms make their investment decisions and their use of investment committees is then reviewed. This is followed by a review of the various terms of investment that VCs include in their offer letters (term sheets). Differences between entrepreneurially friendly (West Coast) terms and investor friendly (East Coast) terms are discussed. Syndication with other VCs and the monitoring of and adding value to investments by VCs are then discussed and lastly the findings from the VC's choices of exit strategy, including the timing of exits, are considered.

5.2 Investment strategy

In deciding on their investment strategy within their agreed sector and geographic focus (Chapter 4.3, 4.5), VCs determine their appetite for risk in making investments, for example whether to pursue a high risk, “home-run” approach to investing or a lower risk, growth approach (Chapter 2.5.1). They may seek to manage their risk by the use of milestones and “drip-feeding” investments. VCs also need to decide how much, if any, funds are reserved for follow-on investments. Some VCs may carry out in-depth research on new investment themes and focus on disruptive technologies. These different approaches to investment by European and US VC firms are now considered.

5.2.1 Risk approach

Dantas Machado and Raade (2006) suggest that US VCs have a higher risk approach to investing than European VCs. Their data shows that the pooled J-curve of US VC funds appears to be significantly deeper and narrower than that of European funds. They comment that “this suggests that, on average, US venture capitalists support projects that are initially riskier than those of their European counterparts, but

that the investee companies of the US venture capitalist turn around more quickly and more steeply” (Dantas Machado and Raade, 2006, p.20). VCs tend to pursue either a home run, “1 in 10” investment strategy when they select deals for investment on the high-risk basis that at least one out of every ten investments they make will return the fund as a whole (Zider, 1998), or they pursue a potentially less risky, growth strategy of achieving a 2x to 5x return on all their investments. The choice of strategy may depend on whether they are investing at early stage or later stage.

A higher risk strategy, such as the “1 in 10” approach can lead to higher returns by the performance of outlier investments that can return the fund as a whole. This links in to real options theory whose drivers are uncertainty and competitive pressures. Investments could be delayed until additional information is available, such as waiting to invest until a later stage in a project’s lifecycle, thereby reducing uncertainty which is the case with European VCs who have moved to later stage investing as discussed in Chapter 4.4.2 above, or investing in projects where more information is available about the project thereby reducing the risk of investment as is again the case with European VCs.

Dantas Machado and Raade (2006) did not investigate the “1 in 10” approach as such in the context of the difference in performance between US and European VC funds. The current research specifically investigates whether US VCs adopt this “1 in 10”, higher risk approach to investing. This approach can lead to outlier returns, as is the case with high profile US VC backed investments such as eBay and Facebook, and may account for the superior performance of US VC funds.

In the study it was apparent that more US VCs commenting on investment strategy pursued a “1 in 10” strategy (87%) than UK (60%) and continental European VCs (57%), potentially leading to outlier returns (Table 5.1): *“So you have to be absolutely willing and ready to lose companies and to push them really hard on going big. The battle is being won by people who produce big exits.”* (US VC 57). US VCs invest on the basis that all their investments will be highly successful: *“You can’t hit big winners unless every deal you shoot for is a big winner”* (US VC 46), *“The way we think about it is every company we invest in we think has the capacity to be a big hit.”* (US VC 40). UK VCs confirm the “1 in 10” model in use in the US:

“Europe as a whole has third, third, third re returns: a third of the assets you return less than the money you put in, a third you return between one and two times and a third you return more than three times. The US is one, three, six probably. Yes, one returns all the money, three return a profit and six less than a profit.” (UK VC 19).

Table 5.1: Risk approach

Theme category	Themes
Strategy (“1 in 10” approach)	<ul style="list-style-type: none"> • 87% of US VCs pursued a “1 in 10” investment strategy or a goal of 10x return cf 60% UK and 57% E VCs • 43% of E VCs, 40% of UK VCs and just 13% of US VCs stated that they specifically did not pursue this strategy

The greater proportion of US VCs in the sample embracing a “1 in 10” strategy was not due to there being more early stage than later stage investors in the US sample. The proportion of purely early stage VCs in the US sample was 40% compared to 45% in the UK sample and 57% in the continental European sample.

More recently established UK VCs in the sample (VCs 26, 27, 29, 30, 31 and 72), i.e. those formed since 2005, pursued a “1 in 10” strategy, although one of these said that they do not necessarily pursue home runs (VC 72). One of these newer VCs adopts an even riskier “1 in 20” model (UK VC 27). Another commented: *“You need some real outliers to drive returns. Our model is to try and find a couple of deals in the fund that are fund returners.”* (UK VC 26). The higher risk strategy adopted by the newer UK VCs is consistent with Bottazzi et al. (2004a) who noted that older VC firms have a more conservative investment approach whereas newer VCs tend to be more risk tolerant. The newer VCs considered in this study have been formed after Bottazzi’s study. Further in-depth investigation of these newer VCs is proposed (Chapter 8.7).

VCs may be encouraged by their LP investors to adopt a higher risk approach to investing. For example, two VCs in the UK which are, or were operations, of US VCs (VCs 21 and 24) adopted the higher risk strategy of US VCs. One of these US VCs operating in the UK commented that they: *“Look for huge outliers of 20-30x return in order to return the fund 3-5x.”* (UK VC 21) and that they are paid by their

LPs to take risks: *“when we speak with one of our LPs in particular I mean their constant push is “are you taking enough risk in your portfolio?”* This was also the case with a VC in the UK which was formerly part of a US VC but is now independent who commented that their LPs expect them to take risks (UK VC 24). A newer UK VC commented on the expectation of its LPs: *“A lot of the thinking about the strategy has evolved through input from our LPs, particularly the US guys who are very focused on this hits driven model for venture capital funds.”* (UK VC 30).

Some VCs who invested across early and later stage ventures chose not to pursue a “1 in 10” strategy preferring a more balanced portfolio. Eight UK VCs, six continental European VCs and just two US VCs did not specifically pursue a “1 in 10” strategy. One of these US VCs adopts more of a growth model and not a *“lottery ticket”* approach (US VC 37) whilst the other was looking for 3 to 5x returns on its investments (US VC 38). US Silicon Valley VC 46 was keen to avoid the perception that US VCs are just throwing money at deals and effectively placing “bets”: *“I always love the perception which is somehow we’re perceived as gamblers in Silicon Valley. The reality is, I’m a pretty conservative guy who just takes enough risk to generate the high returns we want.”*

Consistent with the above finding that more US VCs pursue a “1 in 10” investment strategy than European VCs, 5 other stakeholders (2 VC related, 2 advisors and 1 CVC) confirmed the more risk taking approach, particularly of Silicon Valley based VCs: *“The risk taking culture here (in SV) is of the notion of swinging for really big outcomes, outsize outcomes.”* (US VCR 22); *“You see more deals that look crazy out here by people who made crazy bets. It’s the Wayne Gretzky “play to where the puck is going to be, not where it is” approach”* (US A7), whereas European VCs tend to be a lot more conservative.

Summary

It can be concluded that the US VCs interviewed pursued more of a “1 in 10” investment strategy than European VCs with a greater propensity for risk which can lead to outlier returns and contribute to the superior performance of US VC funds. Previous studies had not investigated the “1 in 10” approach as such in the context of the difference in performance between US and European VC funds (Dantas Machado and Raade, 2006). US VC returns have been dominated by home runs with a relatively

small number of very large returns contributing to the high performance of some funds (Fraser-Sampson, 2010). If several investors are considering investment the competitive pressures may cause the investor to invest sooner than uncertainty would normally allow as is often the case with US VCs, particularly in the highly competitive ecosystem in Silicon Valley.

The newer VCs in the UK included in the study (those formed since 2005) appear to adopt a higher risk, “1 in 10” approach to investing. Independent performance data on these funds is not yet available. The newer VCs that Bottazzi et al. (2004a) studied were from the large wave of European VCs that set up in the dot.com internet period of 1999 and 2000, several of which did not survive this period. The interview data in the current study relates to newer VC firms set up after this period, since 2005. It is proposed to study these new VC firms in more depth, see Chapter 8.7.

5.2.2 Use of milestones

Milestones are used to set goals that a management team has to reach before additional financing tranches are put into a company by a venture capital firm or management salaries are reviewed or share options granted. Milestone financing reduces information asymmetries on an investment and so helps to mitigate risk. The term sheet between VC and entrepreneur may specify different milestones with regard to technical, production, marketing or financial progress.

Milestones were mentioned as being used by only a small number of the firms interviewed, just 4 US firms (VCs 8,15,35 and 55), 5 UK firms (VCs 3,7,13,18 and 22) and 2 continental European firms (VCs 5 and 14). Some US VCs were specifically against the use of milestone finance (Boston- based VC 57, Silicon Valley VC 40): “*We don’t use milestone finance. To me that’s a fool’s errand because as we know and, this is a cliché, your business plan is invalid the moment you hit the send button.*” (VC 57). If the milestones are too onerous, or too geared to incentivisation, management may focus all their efforts on meeting the milestones to the detriment of the overall business. But European VCs, with their lower appetite for risk, preferred tranching investments with part of the money paid upfront and the rest paid later at pre-agreed terms based on achievement of milestones (UK VC 13, 18; Irish VC 5). Some US VCs and other stakeholders would just see this as undercapitalising

companies: “American CEOs think that European VCs just want to drip-feed them; the European VCs under-capitalise companies.” (Silicon Valley VC 36), “It’s kind of a dripping model versus a fire hose model.” (US Advisor 7).

Although a lower risk, drip-feed approach to financing investments can be restrictive on investment growth, in view of the difficulties with scaling in Europe (Chapter 6.4) some view a drip-feed approach as appropriate: “My perception is that the UK style of drip feed suits our market. Because you don’t have the same sort of scale that you have in the US so you’re more likely to lose a lot of money doing that (investing large amount of money up front) in the UK than you would in the US.” (UK VC 22).

Whilst milestone financing was not used to any great extent by US VCs focused on technology companies it was used by those US VCs that invest in life sciences companies. For example, a US Pittsburgh based VC (VC 8) used the milestone approach with its med tech investments with three tranches of finance being provided at different stages of development of its investee companies from the building of a working prototype to application for FDA approval.

Summary

Milestone financing has been subject to empirical investigation in the past (Bergmann and Hege, 1998; Cornelli and Yosha, 2003; Gompers, 1995; Schwienbacher, 2008; Witt and Brachtendorf, 2006), though not in the context of the fund performance differential. The current study shows that it is a technique that is used, particularly by European VCs, but also by life science focused US VCs, to help minimise their risk exposure.

5.2.3 Reserving for follow on finance

Many VCs reserved finance from their funds in order to be able to support their portfolio companies at subsequent financing stages as the companies grow. 15 UK firms, 14 US firms and 8 continental European firms commented that they reserve finance in this way. US VCs are better able to reserve substantial monies for follow-on investments as they have generally have larger funds to disburse, for example US VC 55 reserves 50% to 100% of upfront commitment for follow on investments. There

is also a more plentiful supply of investor money for later stage investments: *“In America you put your money into the company you like because you know there’ll be follow-on investors. Here (in UK) you put a bit of money in and syndicate more early on because we need to reserve for follow-on rounds because you have to because you just cannot rely on anybody else.”* (UK VC 19).

Summary

There was no apparent difference between UK, continental European and US VCs in reserving for follow on finance, although US VCs, with their larger fund size (Lerner et al, 2011), are better able to `reserve such finance.

5.2.4 Focus on investment themes

The propensity and ability of VCs to predict future investment trends has not been subject to empirical research, although Mason (2007) mentions that the sharing of information through VC networks can provide knowledge about likely technological trends to help VCs decide their investment focus. Identifying a new “hot” area for investment, particularly in the technology sectors, can lead to considerable competitive, first-mover advantage (SVB Capital, 2010) and potentially give rise to outlier investment returns.

Agency theory comes into play due to the asymmetry that VC firms experience in gathering together all the information from all the various sources that they need to enable them to make an informed decision as to which investment theme(s) to follow. US VCs are better connected to deeper networks (Chapter 6.3) and have larger people resources than European VCs (Chapter 4.6.1). This reduces information asymmetry in connection with the choices they make on investment themes and could contribute to the better performance of US VC funds. Social network theory and organisational theory pertain to the networks that VCs establish with the various stakeholders in their local technology ecosystems which permit the sharing of information on technology trends. Hochberg et al. (2007) embracing social network theory found that the better-networked VC firms, such as some US VCs, achieved significantly better fund performance. VC’s personal networks, as discussed by Florida and Kenney (1988) in the context of organisational theory, can be similarly be used to share this information.

The greater resources of US VC firms to carry out in-depth research into likely future trends are clearly linked to resource based theory.

All US VCs in the sample of VCs interviewed who discussed investment themes (11 VCs) said that they used this approach, going “deep” into a theme and looking for angles to differentiate from the competition: *“I went out and met just about every start-up that I could that was involved in the (internet) real estate space and I think I probably ran through about 12 different projects.”* (US VC 57). Just 5 UK VCs and 3 continental European VCs said that they used a theme approach although one of these UK VCs (VC 68) commented that they just “pretend to do it” as, in their view, do many other VCs: *“There is more rhetoric than reality to it but we all do it; we all pretend we do it, yes. LPs like the idea. I’m being a little cynical about that.”* Another UK VC (VC 45) said that they used to brainstorm for themes and that they *“probably should do this again.”*

Leading US VCs aim to spot investment trends early. *“The majority of the quality venture firms actually know how to spot a trend, spot it early, and then find who are the companies worth backing; or who are the entrepreneurs in their stable worth backing into that trend.”* (UK VC 45). This VC went on to say that Europe does not have “enough of that” and either the European VCs think that venture is about finding something “buried in a lab” or they look at trends that happened a year or two ago and try to continue the previous trend. That approach clearly takes resource, which as noted above and commented upon by UK adviser A2 (see below) is more available in US firms with their relatively larger funds and teams: *“About 10 times per year partners decide where to put resource to try and identify an investment thesis, whatever it takes, and present to everyone in the group a thesis with respect to is there an investable idea behind that?”* (US VC 36). Such resource is simply not usually available to European VCs.

US VCs appear to adopt a rigorous approach to researching and developing investment themes. However, European VCs pay it “lip service”, as with UK VC 68 above, or do not profess to have the foresight to be able to predict future trends, as with UK VC 72 who said that they follow the trend, focussing on sectors but as followers: *“I follow them. I don’t profess to understand what’s going to be bigger.”* This following of trends by European VCs illustrates the “lemming-like” behaviour

described by Sahlman and Stevenson (1985). Two US VCs specifically commented that they do not follow the “herd”, they do not chase “fads” unlike UK VCs (US VC 35 and 56). It is by talking with entrepreneurs and other “movers and shakers” through US VCs’ extensive networks that enables the US VCs to spot emerging trends: “*We think that the entrepreneurs are the smartest folks and so we go out of our way to find the opportunities for them to explain what they’re working on and hope that we have the foresight to say, “Ha! That’s interesting, we should do it.”*” (US VC 40).

Other stakeholders agreed on how US VCs “network like crazy” using their extensive networks to establish themes: “*They are just sort of are out there talking to a lot of people, synthesise a lot of information, hear a lot of good ideas and a lot of bad ideas and over time I think they’ve just developed judgment.*” (US LP5). The other stakeholders commented on how UK VCs have fewer resources to spare on theme research and adopt more of a follower approach in Europe: “*European VCs have smaller funds and therefore they have fewer resources to spare on this kind of exercise.*” (UK A2).

Summary

There appears to be a clear distinction between the approach to theme generation by European and US VC firms. This may contribute to the performance differential between European and US VC funds. The theme approach has not been subject to prior empirical research. Whilst some UK VCs said that they follow a theme-based approach to investment trends it is clear that they do not do this to the same extent of the US VCs. This is partly due to a lack of resources to carry out the necessary research and partly due to the less use of, and less availability of, networks of entrepreneurs, technologists, large technology corporates and other stakeholders to share information on new technology trends. Networks and the sharing culture are discussed further in Chapter 6.3.

5.2.5 Focus on disruption

VC firms from all regions commented that they aim to invest in disruption as this provides competitive advantage for portfolio companies potentially leading to excellent returns for the investors. Disruption could be either in terms of the technology or product being disruptive or the business model or the market being

disruptive. The term “disruption” was coined by Prof Clayton Christensen of Harvard Business School (Christensen, 2003) and, in the case of disruptive technology, means a new technology that suddenly, and often unexpectedly, displaces an established technology. A focus on disruption may be part of the theme approach to investing, discussed above, or VCs may follow the trend of investing in an existing disruptive technology.

The disruptive nature of investee companies was cited by more than half of the interviewees (56%). Of these, most interviewees cited a company’s technology as being disruptive (2/3 US VCs, ½ UK and all but one continental European VC), though a third of UK VCs commenting on disruption cited the business model and a fifth cited the market as the disruptive force.

Table 5.2: Focus on disruption by VCs

Theme category	Themes
Disruption: (technology, business model, markets)	<ul style="list-style-type: none"> • Technology (US 6, UK 9, E 7) • Business model (US 2, UK 7, E 2) • Markets (US 1, UK 4, E 0)

US VCs said that they were generally looking for “ground breaking”, emerging disruptive technology (2/3 of US VCs citing disruption) as this is what can lead to investments with outlier performance: *“A very firm belief and I think rooted in many, many years of data is that the outliers are what makes the fund. So we’re looking for, you know, billion+ exits of which we can own 20%.”* (US VC 57). This is again evidence of the theme approach to investing, adopted more by US VCs: *“We like to invest in things that are thinking broadly about the market, you know, quite a few years ahead. Sometimes we get that wrong and we are way too early; sometimes we get it wrong and we’re too late but when you get that right it’s really valuable.”* (US VC 40). A UK limited partner (UK LP 3) commented on just how early US West Coast VCs invest in emerging technologies: *“The West Coast of the US in the IT venture domain seems to be very early into the emergent trends within whatever pieces of technology need to be assembled to surf that trend.”* However, some US VCs focused on the business model more than the technology: *“We tend to have this belief that you should back the company that is going to make revenues, you’ll not back the company*

that's got brilliant disruptive technology and somebody's going to buy it purely for the tech." (US VC 25). Continental European firms also focused predominantly on disruptive technology, though UK firms focused either on the technology or the business model being disruptive with some focused on disruption by market leaders: *"Our investment thesis is to try and find the leader (in a sector), because the leader always ends up having a disproportionate increase in value than the number two or number three."* (UK VC2).

Summary

In conclusion, most US VCs focused on disruptive technology and not on the business model or market. Some UK VCs in the sample were more focused on the business model and the market being disruptive than on the technology per se, though more were focused on disruptive technology. Most continental European VCs appeared to focus on disruptive technology. Disruption in the context of VC fund performance has not been subject to much empirical investigation. Clearly the more disruptive the technology, the market or the business model of an investee company the more likely the company is to impact on competitive forces at least for a short timeframe before competitors catch up. This should lead to superior performance by the companies and in turn to a superior investment return for the VC backers. Silicon Valley based VCs, in particular, were focused on disruptive technology. The ability of US VCs to locate and invest in such up and coming technology is a reflection of their theme approach to investing. The strength of their networks in terms of connections with leading technology companies could better enable US VCs to "check out" potentially disruptive technology with their contacts at the technology leaders.

5.3 Deal sourcing and due diligence

5.3.1 How deals are sourced

VC firms source deals in several different ways. Some proactively go out into the marketplace and find suitable companies in which to invest. This approach requires an in-depth knowledge of the particular sectors in which the VC firms operate. Other firms might rely on their brand name, profile in the marketplace and track record in working with successful portfolio companies to attract deals; more of a reactive approach. Deals may come via the proprietary networks of the executives in the firms.

Teten and Farmer (2010) showed that private equity and VC funds that use a proactive origination strategy generate higher returns.

Real options theory impacts on deal sourcing in terms of the decision to pursue a deal through initial enquiries or not, depending on the attractiveness of the deal to the VC. Social network theory pertains in terms of the strength of the networks between entrepreneurs and VC firms which, in part, is influenced by the strength of the brands of VC firms. Branding of VC firms has not been subject to much empirical investigation, although reputation of VC firms, which has an impact on brand strength, has been subject to some studies, including Gompers and Lerner (1999), Hsu (2004) and Nahata (2008) as discussed in Chapter 2.5.3. Brand strength may impact on performance as higher profile VC firms with strong track records of investment can attract the better quality deals.

Adequacy of deal flow was seen as highly important to investment success by VCs completing the questionnaire from all geographies (Appendix 3). For the VCs interviewed in the study commenting on deal sourcing, proportionately more UK and continental European VCs cited a proactive approach to sourcing deals than did US VCs (UK 43%, E 50%, US 26%) (Table 5.3). More US VCs cited their brand name, profile in the marketplace and track record as the principal means whereby deals are sourced (US 26%, UK 9%, E 8%). This may be associated with the extremely competitive environment in which they operate, particularly in Silicon Valley. This is where having a well-established brand name to attract the best deals certainly helps: *“I certainly think a company like Facebook has had wide-ranging global impact on the brand.”* (US Silicon Valley VC 39). This competitive advantage of being a global player with high profile successes extends across their locations: *“The halo effect from any great deal done locally spreads across the whole VC 21 platform and that's fundamental.”* (UK VC 21, UK operation of US VC39).

Table 5.3: Deal sourcing

Theme category	Themes
Deal sourcing: (proactive, brand strength, proprietary)	<ul style="list-style-type: none"> • More UK and E VCs cited a proactive approach to sourcing deals than US VCs (UK 43%, E 50%, US 26%) • More US VCs cited their brand name/profile/track record as key for attracting good deals (26% cf 9% UK, 8% E) • Personal networks/proprietary deals were more important to UK (52%) and E VCs (33%) than US VCs (26%) • More US VCs referred to deals being highly competitive

US VCs can achieve outlier returns because people who have been successful for them in the past come back with new deals as with US VCs 39, 40, 46 and 64: *“The entrepreneur chooses to go to someone he knows and trusts because he had a good relationship last time, so the proprietary deal flow goes back to the person who has already been successful.”* (UK VC 45). Serial entrepreneurs are more common in the US (Chapter 6.6) and so a virtuous circle of success is set up.

Personal networks and proprietary contacts were more important to UK and continental European VC firms (UK 52%, E 33%, US 26%): *“It’s actually quite rare now that we end up in a deal that we have not had some level of proprietary relationship either with some key member of the executive team, quite often the founder, or if not at least with another investor that we’ve invested substantially with before.”* (UK VC 7). In fact 10 UK VCs and 6 continental European VCs referred to their proactive approach to seeking deals (UK VCs 3,6,7, 13,16, 21,23,24,45,52; E VCs 4,14,28,49,50,74). Being proactive can include reading up about the company, cold calling them and visiting them as with UK VC 24 or targeting a sector and become aware of everything that is going on in the sector as with UK VC 16. Silicon Valley VCs do not have to proactively seek deals, people come them: *“The big brand VCs say “I don’t’ do anything outside of the Valley; I don’t’ do anything that involves catching a plane” but you know when you look at what they’ve got there, they are dead right. They don’t need to.”* (UK VC 7). UK and continental European VCs are also more concerned to keep proprietary information to themselves for competitive advantage, in contrast to the greater willingness of US VCs, particularly on the West Coast, to share information (see Chapter 6.3).

Seven stakeholder interviewees (including 4 LPs, 2 VC related and 1 CVC) commented on the strength of the brands of US VC firms, particularly those in Silicon Valley, which aids quality deal flow and optimal exits often through relationships with big corporates. There was general agreement between the LPs that big brand name firms, as are seen in the technology hot spots of the US, obtain the best deal flow, entrepreneurs with exciting technology seek them out, have better access to strategic partners, customers and investment bankers and the best LPs invest in their funds: *“I think if I was to look for reasons for the difference between US and European VCs I do think that there is something to be said for the intangibles. If you have a firm that is backed one of these brand name VCs (eg Sequoia, Kleiner Perkins, Andreessen Horowitz) that helps on the exit a lot. They just have to tell the world that Kleiner Perkins has invested, so the self-fulfilling, success has a self-fulfilling effect also, which the Europeans are bereft of.”* (UK LP 3).

Summary

Personal networks and proprietary contacts were more important to UK and continental European VC firms than to US firms who cited their brand name, profile in the marketplace and track record as the principal means whereby deals are sourced. Whilst European VCs have a more proactive approach to sourcing deals which might result in higher returns (Teten and Farmer, 2010), Hsu (2004) showed that VC firms with better reputations are able to negotiate deals with lower valuations which would also lead to higher returns. It is the higher reputation of some US VCs that attracts the better quality deals which can lead to better fund performance.

5.3.2 Competition to do deals

Having the brand and profile to attract the better quality deal flows clearly sets out the US VCs from the UK and continental European VCs. Better deals that materialise into successful investments can lead to high returns and better fund performance. However, competition to do deals may reduce returns. 64% of US VCs commenting on competition mentioned the (very) competitive environment in which they operate. The highly competitive environment in Silicon Valley was acknowledged by all of the US VCs who were interviewed from this area and by a UK VC and a continental European VC operating in Silicon Valley. 78% of UK VCs and

40% of continental European VCs said that there was little competition, although two continental European VCs mentioned the competitive nature of later stage deals.

Whilst the US VC sector is generally very competitive, and exceptionally so in Silicon Valley, VCs interviewed in other areas, such as the mid-Atlantic region of the US found it not so competitive (US VCs 10 and 12), as there are only a few VCs based in that region as compared to Silicon Valley. Firms specialising in healthcare also found it less competitive, as with US SV VC 46 and Boston based VC 55, as there are relatively few life sciences VCs. UK and continental European VCs said that the VC sector was less competitive than the US or not competitive at all.

The considerably more competitive environment in the US, and particularly in Silicon Valley, has implications in connection with the risk approach to investing. US VCs invest in earlier stage, riskier deals to get a “foot in the door” ahead of the competition and they provide more entrepreneurially friendly terms with, for example, higher valuations, than VCs operating in less competitive environments (Section 5.3.2). Real options theory is pertinent to competition amongst VCs to do deals as a decision to invest sooner rather than later in an attempt to beat the competition might be made even with market uncertainty (see Chapter 2.8.2). Ljungqvist et al. (2007) comment that the tougher the competition for favourable investment projects becomes, the lower the return for the venture capital fund. However, investing at an early stage could lead to exceptional returns; investing at higher valuations would usually result in lower returns.

Summary

Competition to do deals is generally high in the US VC industry, particularly in Silicon Valley. Whilst a high level of competition can lead to higher valuations and therefore potentially lower returns (Ljungqvist et al., 2007), US VCs tend to invest at the very early stages which can lead to outlier returns.

5.3.3 Due diligence

VC firms may carry out much of the due diligence on potential investments in-house; they will form their own views as to the strengths of the management team, the

attractiveness and growth potential of the market and the uniqueness and reliability of the product. Some may also involve external experts to a greater or lesser extent.

There has been relatively little research on the due diligence process, certainly in terms of the extent to which VCs carry out checks themselves or engage external experts. Hege et al. (2003) argue that the outperformance of US VC funds relative to European counterparts is due (at least in part) to the superior “screening” abilities of US based GPs when they seek to invest in portfolio companies. Due diligence would be part of this screening process.

Agency theory and real options theory are pertinent to the due diligence process. The process reduces information asymmetries and uncertainty is also reduced as more information becomes available as a result of the due diligence investigations, whether these are internal checks performed by the VC or external checks using consultants or other advisors. Amit et al. (1998) see the “raison d’etre” of VCs as the ability they have to reduce the cost of information asymmetries, such as when they are screening investments. Once due diligence has been carried out VCs have the options of making the investment (if due diligence was satisfactory), re-negotiating the terms of the investment (if the due diligence revealed issues which, for example, might impact on valuation) or aborting the deal (if the due diligence revealed major issues). Information gleaned during the due diligence process supports the making of better investment decisions and hence improved performance. Due diligence carried out in-house by knowledgeable investment executives may be more effective, and less costly, than due diligence carried out by external advisers and this would also help to improve returns.

In the sample more US VCs performed most of their due diligence in house (Table 5.4); UK and, particularly continental European VCs were more likely to use external experts for technology, financial, IP and legal due diligence (US: 76% in-house cf UK 52%, E 60%).

Table 5.4: Due diligence

Theme category	Themes
Due diligence: -internal -external	<ul style="list-style-type: none"> • 76% of US VCs do DD largely in-house cf 52% UK and 60% E VCs • Only 20% of US VCs use external experts for tech DD cf 43% UK and 67% E • Only 12% of US VCs use independent accountants for financial DD cf 35% UK and 47% E • Only 12% of US VCs have external advice on IP cf 26% UK and 33% E • Only 12% of US VCs have external legal advice cf 39% UK and 47% E

Carrying out due diligence largely in-house by US VCs reflects their greater technical operational knowledge, again aiding performance. This is illustrated by the following comment from a US med tech VC: *“We only invest in areas where we have the expertise in house. If we can’t diligence it because it’s not an area we know and understand we are not going to be helpful to the company.”* (US VC 73). In contrast, a German VC comments that they always involve external technical experts:

“We do a lot (of due diligence) in house but no matter how good your own team is technically you can never really understand every product to the fullest extent so we always bring in know- how from our board of advisors...or the networks of those guys.” (German VC 14).

The extent of the due diligence carried out usually depends on the stage of investment with sometimes relatively little due diligence being carried out at the seed stage. US East Coast VC 57 commented that at the seed stage they have around three meetings with the management team, they talk to contacts who know the team, make a few calls to potential customers and use their own intelligence on the market that they have largely built up through the research they had carried out as part of their theme approach to investing, as discussed in Section 5.2.4: *“By that time we knew the market really well because of the thesis approach. The due diligence had sort of been done by using that approach.”* (US VC 57). This approach was also referenced by Silicon Valley VC 37 in connection with due diligence. This VC talks to as many people as they can to get different viewpoints on the management team, the market opportunity and potential customers’ feedback on the product.

Many US VCs commented that they do not use external consultants for due diligence. Just two US VC (mid-Atlantic VCs 8 and 12) would hire consultants to review a technology if it was outside the core area of the firm's in-house technical expertise. Silicon Valley VCs carry out due diligence on the management team and the market themselves. If they do not have the in-house capability to assess the technology, they often rely on friends of the firm who are experts to help give an opinion on specific technology sectors: *"You know, a lot of it's speculative so you do a lot of thinking and reading and working on broad markets to understand how the thing is moving and then you have a conversation with your partners about what you think is happening in the market."* (US VC 40). US VCs have extensive networks that they can call upon in connection with their due diligence investigations. This is illustrated by Silicon Valley US VC 36 whose profile in the marketplace certainly helps in reaching out to people: *"I would say an advantage of (our profile) is that people take your call and tell you stuff maybe something they shouldn't tell you."* US VC 36). This VC also has a "phenomenal" CRM system where information pertaining to potential investments is maintained: *"If you have a good CRM system you say, "Oh two years ago he said he was going to do x and y and here's what's going to happen". What happened? So I think being systematic and process driven can really help in terms of generating confidence."* (US VC 36).

Engaging external consultants to carry out due diligence can be expensive. UK VC 27 commented that it is sometimes more effective to make a relatively small investment in a seed stage deal, and then see how the company progresses, than to incur costs on due diligence: *"A very small seed investment for us is a DD process. Rather than spend that much money on accountants and lawyers, give it to the founder let him figure it out and if after six months it hasn't worked we know an awful lot more than we would have known in the DD report."* (UK VC 27). Cost effectiveness of due diligence was a theme that came out of the interviews with UK VCs, for example UK VC 1 uses individual experts for technology due diligence that is more cost effective than engaging a large consulting firm: *"We called an expert contact in renewable energy who "told us everything". So that was one telephone call and it was probably better than a couple hundred thousand pounds worth of diligence."* (UK VC 1). Dutch healthcare focused VC 74 uses external clinical experts, in addition to regulatory and re-imburement consultants and ex FDA people, due to the specialised nature of their sector: *"We could maybe talk to 20 odd clinicians before we make an investment."*

UK VCs may use their networks for gathering information on potential deals, as is particularly evident with the US VCs, perhaps through their advisory groups where these exist as with UK VC 72. An Irish VC also mentioned about the use of their networks for technology due diligence by bringing in experts who they know in different countries: *“You’re looking for help very much from the network and from your own portfolio to help you do some of these analyses. It can be extremely valuable.”* (E VC 50).

Some VCs go to great lengths to check on their potential investments as for Irish VC 50: *“I then went on a road trip for a further specific application which was in neurology for stroke treatment. I went to the States and visited a bunch of stroke centres to get an understanding of the market need and talk to some of the opinion leaders, etc., etc., kind of answering your sort of tech and market side of it, talked to a bunch of the corporates who would be interested.”* (E VC 50)

The corporate VCs commented that they carried out their due diligence largely in-house, with technology due diligence carried out by their parent companies, with maybe tax and legal due diligence, including patents, carried out by external specialists. This is not surprising as the corporate VCs are usually investing in companies which can supplement or add value to the technical sector focus of the corporate parent.

Summary

It appears that US VCs have better ability to carry out their investigations in-house as a result of the more knowledgeable, particularly technical, resource that they can bring to bear. Resource based theory is relevant to the due diligence process. The internal resources of US VCs permit an effective due diligence process, resulting in better investments and improved overall returns. Hege et al. (2003) argue that the outperformance of US VC funds relative to European counterparts is due in part to the superior “screening” abilities of US based VCs. Due diligence would be part of this screening process. Due diligence carried out in-house may be more effective, and less costly, than due diligence carried out by external advisers and this should help to improve overall returns.

5.4 Investment approval process

Whilst there has been considerable work on the VC investment decision process, as discussed in Chapter 2.5.6, there has been little, if any, prior empirical work as to how VCs formally approve their investment deals. Real options theory plays a part in the investment approval process. With a consensus or unanimous approach to investment approval (Section 5.4.2) the option can be taken to delay investing until additional information becomes available so that all partners become comfortable with an investment decision. However, such an approach may mean that riskier investments are not pursued which may impact on eventual fund returns.

The vast majority (95%) of VCs had set up an investment committee to approve deals (Table 5.5). Potential deals are discussed at the investment committee meetings and are ultimately approved if due diligence and other enquiries are successful. 5% (3 firms, US VCs 8, 57 and 64), said that they decided whether to make investments or not on an informal or relatively informal basis, that is without a formal committee structure. The partners reached a decision by talking amongst themselves, without formal investment memoranda, which permitted decisions to be made on the facts and immediately after companies had presented to the partners: *“We found investment memos as a process or actually a way whereby people would make, you know, anything look good by writing a decent memo and sort of almost defocused you from the hard questions about whether we wanted to invest in businesses.”* (US VC 57).

Table 5.5: Investment approval

Theme category	Themes
Investment committee	<ul style="list-style-type: none">• 95% of VCs had an investment committee (three US VCs were informal)
Unanimous or consensus decision	<ul style="list-style-type: none">• More UK and E VCs reached decision unanimously than by consensus; US VCs were equal here• In four cases with US VCs (20%) a senior partner could force a decision

5.4.1 Composition of investment committees

In general, the investment committees comprised just those partners responsible for making investments (78% of firms with investment committees). In

some VC firms, partners with an operational role for the firm and / or the CFO may also sit on the investment committee as with UK VC 21. Others may be informally involved; with some VC firms included in the sample the formal investment committee comprises the partners but in practice everybody sits round the table and has an equal part in the discussions as with UK VC 1. Six UK and three continental European firms, but no US firms, had people external to the firm, such as advisors, involved in the investment decision process. For example, at UK VC 45 the investment committee includes two external members; typically, on any deal the two external members would give their views on the deal: *“They could tell us if they think it’s a stupid idea, but we can overrule them. Generally, we don’t - if they say, “This is a bad investment,” we’ll take their advice, then we’ll step back and restructure it or step away.”* At UK VC 52, which is part of a wider private equity firm, the two founder investment directors of the VC arm make recommendations to a committee which includes three members who are not part of the investment team, including the CEO of the parent private equity firm and two external advisers: *“It’s very different from the usual VC investment committee process. It’s not something that I particularly like, but you know, that’s how it is and it’s, you know it’s worked, so it’s fine.”* Some UK and continental European firms involved all the members of the investment team and other internal people in the decision process (UK 3 firms, E 1 firm). All US firms with investment committees involved either all of the investment partners (11 firms) or just the senior partners (5 firms) in the decision, with no other internal or external people involved in the decision process.

5.4.2 How an investment decision is reached

The investment committees of the VC firms largely reach decisions either on a unanimous basis or by consensus. With a unanimous basis all members of the committee have to agree to an investment and the investment would not proceed if even one member was dissenting. With a consensus basis any issues concerning an investment are debated, and further investigations made if necessary, until individual concerns are satisfied. Unanimous implies 100% vote in favour. Consensus may end up being unanimous. More UK and continental European VCs reached investment decisions unanimously than by consensus. US VCs were equal in their use of unanimity or consensus. The greater use of unanimity in UK and continental Europe compared to the US may reflect less of a propensity to risk.

In four US firms, but no UK or continental European firms, a senior partner could force a decision (US VCs 38, 39, 56, 57): *“What we found was that consensus would kill the outliers. Anybody who feels strongly about something can make it happen.”* (US VC 57). This approach can mean that US VCs are more likely to decide to back very high risk propositions which can potentially lead to outstanding returns. Whilst opinions are given and voting takes place the ultimate decision rests with the sponsoring GP. A senior partner can “lay across the tracks”, that is push a deal through (eg US VC 39). Another US VC (VC 38) goes with a majority vote but if the senior partner “calls the shots” the deal gets done, In this VC’s view the best deals are controversial: *“If everyone agrees on a deal then it won’t be a great outcome, because another 100 firms would invest too. John Doerr (Kleiner Perkins) “laid on the tracks” to get the Google deal through.”* (US VC 38). However, UK VC 68 commented that this “lay across the tracks” approach by John Doerr is what lost Kleiner Perkins *“so much money (billions) in clean tech”*. Shepherd et al. (2003) note that less experienced partners may find it difficult to challenge more experienced senior partners, hence the senior partner gets to force their decisions through. Guler (2007) notes that a more junior partner would not veto a senior partner in order not to lose the support of the senior partner in future deals.

Stakeholders agreed that consensus can kill the outlier deals: *“If you’ve got 10 people sitting around the table who are making a conservative decision, there is no doubt about that.”* (VCR 1). Two of the LPs interviewed mentioned that they prefer the core team, who have the largest share of the carried interest in a fund, or indeed a senior “rainmaker” to have the decision rights: *“When you get back to the successful firms it’s been our experience that the more concentrated the authority or responsibility in the firm then your odds of success go way up.”* (US LP 6). In fact, one US LP said that they will only invest in VC firms where the decision making for investments (and exits) is concentrated with the founding partners who have experience and *“scar tissue”* (US LP 6).

Summary

In conclusion it is generally the investment partners who approve investment decisions. However, in some UK and continental European firms, but no US firms, investment committees also included external people. Senior partners could veto a

decision in some UK / continental Europe firms, a risk reducing process. Senior partners could push deals through in some US firms, a risk enhancing process. Greater risk is evident with the US investment decision process and therefore greater opportunity for outlier deals and potentially superior returns. There has been little, if any, prior empirical work as to how VC firms formally approve their investment deals.

5.5 Investment terms

Investment terms are used in the attempt to control the agency relationship between VC and entrepreneur and reduce the uncertainty caused by information asymmetries in this relationship. Agency issues should be minimised, and performance maximised, if the interests of VC and entrepreneur are properly aligned through the structuring of deals and associated terms. Previous work on investment terms has largely focused on the use of convertible securities where it has been found that such instruments are used less frequently in Europe than in the US (Kaplan et al., 2007; Schwienbacher, 2008). This study examines the many other terms that are used in investment agreements between entrepreneur and VC in order to ascertain differences in their use between European and US VCs and their potential impact on performance.

Prisoners dilemma theory is relevant to VC investment terms, particularly with regards to the alignment of interests between VC and entrepreneur, as it concerns cooperation and the degree of trust between two parties or the lack of cooperation even if it is the best interests of the parties to do so (Rapoport and Chammah, 1965; Axelrod and Dion, 1988). The importance of trust between VC firm executives and entrepreneurs / management teams to investment success was rated highly by questionnaire respondents (Appendix 3). The use of entrepreneurially friendly terms by West Coast US VCs in offer letters is an example of this trust, as opposed to more investor friendly, controlling, terms used by East Coast US and European VCs (Section 5.5.2). The better the personal contact and cooperation between the entrepreneur and VC the better the amount and quality of information transferred between the parties leading to the ultimate success of the relationship and therefore the venture (Cable and Shane, 1997).

The term sheet is more of a final offer in the US but more of an initial offering to be negotiated as the due diligence process proceeds in Europe. This different

approach can create conflict between European and US VCs as US East Coast VC 25 comments:

“In America (in our firm) when we offer you the term sheet, it’s effectively you know we’ve done the diligence, this is our offering. In Europe what you find is you’ve got the term sheets quite early in the process, then they start doing diligence and negotiate away from the term sheet. So the Americans just view the terms sheet from the Europeans as you know a faithless piece of garbage which was designed to try and block other people out of the deal and then they’d never honour it; Europeans should never be trusted with term sheets. The US term sheet is treated as sort of final offer and a European term sheet which is treated as a starting point that you negotiate away from. We’ve had more aggressive and unpleasant negotiations with European VCs (including UK) than any other.”

As there are relatively few VCs in Europe they can “call the shots” in negotiating term sheets with entrepreneurs (US VC 25).

Terms vary depending on sector. Healthcare is less competitive as there are fewer VC firms operating in the sector. UK VC 52 confirmed that they can “dictate” terms with their medtech investments as it is an investors market and teams are: *“happy to get the money offered. In medical devices I think investors can dictate whatever terms they want. I think people are pretty lucky and happy that they get money. It’s always been an investors’ market here. There’s an equity gap definitely in early stage medtech, both in Europe and the US.”*

5.5.1 Specific investment terms

Individual investment terms are discussed below.

Preference shares

VCs tend to use preferences shares to structure their investments. Preferred stock is generally convertible into ordinary shares on a sale or liquidation event. Use

of preferred shares was referred to by 10 US VCs (12,15,25,35,36,38,39,40,41, and 57) but only by 4 UK VCs (7,19, 23 and 26) and two continental European VCs (VCs 63 and 74). This greater use of preferred shares by US VCs in the sample is consistent with Schwienbacher (2008) who found that convertible securities were used three times less often in Europe than in the USA, confirming similar results for specific European countries reported by Kaplan et al. (2007), Cumming (2008) and Bascha and Walz (2002). The proportion of VCs actually using preference shares may be much larger as all those VCs who said they were using “standard” terms, or based on the BVCA model term sheet or SeedSummit term sheet would be using preference shares as these are encapsulated in these documents. This would add another 24 VCs (7 US, 11 UK and 6 continental European) using preference shares and resulting in little difference between US and Europe in this context.

Dividends

Only UK and continental European VCs referred to the requirement for dividend streams (UK VCs 19 and 68 and continental European VCs 59 and 74). No US VCs in the sample mentioned that they used participating preference shares. European VCs might seek to enhance their returns by insisting on a dividend stream much to the criticism of US Silicon Valley VCs:

“No American CEO wants a European VC. I worked for a European VC because they do things exactly as you describe. What are our dividends that we’re going to get? Questions that American VCs just vomit all over.” (US Silicon Valley VC 36). This approach of European VCs makes them less attractive partners to US VCs when syndicating deals (Section 5.6).

Table 5.6: Investment terms

Theme category	Themes
Investment terms: -specific terms -entrepreneurially friendly vs investor friendly	<ul style="list-style-type: none"> • Only UK and E VCs referred to dividend requirements • 71% E VCs referred to liquidation prefs cf 36% UK and 29% US VCs • 23% UK VCs had used ratchets cf 14% US and 14% E VCs • 57% US VCs used entrepreneurial friendly terms cf 23% UK and 14% E VCs

Liquidation preferences

Continental European VCs use liquidation preferences more than US VCs (Table 5.6). A liquidation preference is the right of a VC preference shareholder to receive before any other shareholders cash that is available in the event of the company being liquidated or indeed sold, as in a trade sale, or achieving an IPO. 71% of continental European VCs, 36% of UK VCs and 29% of US VCs commenting on investment terms included liquidation preferences in their term sheets. They tended to be 1 times preferences, not the more onerous multiple preferences, though multiple preferences may be used at later stages. The liquidation preferences are used to protect downside risk, particularly by European VCs. They are also be used by US East Coast VCs. UK VCs do not necessarily agree that US VCs are less focused on downside protection: *“The Americans cover the downside. There may be a theory that smaller funds are more defensive than larger funds and that may create a culture of more protectionism here (in UK) but I don’t see that on a day to day basis.”* (UK VC 19).

Ratchets

Ratchets were used occasionally by some VCs (Table 5.6). Five UK VCs use or have used ratchets (VCs 3,6,13,22 and 29), two continental European VCs (VCs 5 and 14) and 3 US VCs (VCs 12,15 and 39). Ratchets are disliked by many VCs as they tend to disincentivise management and can be inflexible (UK VC 22): *“I hate ratchets with a passion because to me they are legislating for an argument in the future and they tend to presuppose an investment business strategy which probably won’t survive the duration of the ratchet anyway.”* (UK VC 1). Ratchets can also complicate future funding rounds (UK VC 13) and are not market competitive: *“We’d never get any deals if we used ratchets.”* (UK VC 31). Sometimes they are used when there has been a failure to agree on a valuation (UK VC 6), or to bridge a negotiation, for example if a VC is not comfortable with for example the company’s revenue projections. Ratchets can be a useful way to resolve differences (Irish VC 5), if a company gets into trouble (US Boston VC 15) or is not doing very well (US Silicon Valley VC 39). Sometimes they are used in an attempt to incentivise the management team and get them working towards agreed goals (UK VC 29). Ratchets were not viewed as important to investment success by questionnaire respondents (Appendix 3).

Veto / consent rights

Consent rights give VCs the right of veto even though the VC may not have a majority of the shares with voting rights. They can therefore have effective control over areas critical to the company but usually outside of the day-to-day business of running the company. The VC may set limits over which they want the right of veto, for example new equipment purchases greater than £100,000 or borrowing limits greater than £250,000.

Vetos were specifically mentioned by 19 firms in the sample. Nine UK VCs said that they include the usual vetos and consent rights in their term sheets (VCs 2,3,6,16,20,21,22, 49 and 68) and 6 continental European VCs (VCs 4,5,28,34,69 and 70) said that they include these compared with just 4 US VCs (VCs 8,36,41 and 57). The larger proportion of European VCs mentioning the veto may be a further reflection of the greater focus on downside protection whereas US VCs, particularly those in Silicon Valley, are focused on the upside.

Anti-dilution

Anti-dilution provisions protect the VC preferred shareholder from dilution resulting from later issues of shares in connection with a subsequent financing round at a lower price than the VC investor originally paid (known as a ‘down round’). Anti-dilution protection was not widely used, being mentioned by 3 US (VCs 15, 35 and 40) and 2 UK VCs (VCs 17 and 26).

Liquidity re exits

The ability of a VC to force an exit was only mentioned by UK and continental European VCs (1 UK, 2 continental Europe): “*We have a liquidity clause in our shareholder agreement, usually after five years we have an agreement with the management that we can appoint an M&A adviser and start a formal sales process but usually we don’t do that even if we have the right to force it.*” (French VC 69).

US VCs tend to wait for the company to have grown to an optimum value and for the market timing to be right before contemplating a sale.

5.5.2 Entrepreneurially friendly versus investor friendly terms

The use of “simple” terms or “entrepreneurially friendly”, management aligned terms was referred to by 19 VCs. “Entrepreneurial friendly” terms mean that the valuations offered by the VCs are higher and more attractive to entrepreneurs, often due to the competition involved in doing deals which is particularly evident in Silicon Valley, and onerous terms are not included in the offer letter or term sheet. In contrast “investor friendly” terms may include full ratchets, multiple liquidation preferences and cumulative dividend streams.

Aligning the interests of management and investor, through the structuring of the terms of an investment, is seen as important to an effective relationship by many VCs: *“We wanted to try to structure an investment so that the entrepreneurs believe that once the deal is done, we’re on the same side of the table as them and that we’re not somehow perversely incentivised to take it in a different direction.”* (US Silicon Valley VC 35). The importance of alignment of interests with the founders was not exclusive to US (West Coast) VCs. Two UK VCs (VCs 21 and 27) commented on this: *“So we’ve got to get good terms but we’ve got to be aligned with the management team, and you just piss off the management team otherwise and you then end up with a broken relationship from the start.”* (UK VC 21).

More US VCs said that they had “entrepreneurially friendly” terms in their term sheets than UK and continental European VCs (US 57%, UK 23%, E 14%) (Table 5.6). 42% of US VCs commenting on investment terms cited the use of entrepreneurially friendly terms as a key difference between US and European VCs, compared with 32% of UK VCs and 36% of continental European VCs. West Coast VCs referred to their terms being more “entrepreneurially friendly” than East Coast or European VCs, avoiding more “investor friendly” terms that may include ratchets, anti-dilution clauses, dividends and different types of redemption clauses: *“If you look at a venture deal structure, it’s probably the most lenient here and it gets kind of more onerous as you go east.”* (US Silicon Valley VC 35). West Coast VCs are focused on the upside potential of a deal with East Coast VCs being focused on downside protection: *“I think the best VCs look at an idea, look at an opportunity and say, “I want to be a part of this and I’m not going to worry about how I’m going to make sure*

my money's protected or how do I make sure I get a 3 x on this? I'm going to invest in something that could be big.”” (US Silicon Valley VC 43).

European VCs are similarly keen to protect their downside exposure. US VC 41 commented on European VCs looking for every reason to say “no” to an investment: *“Europeans are saying how do I not lose and Americans look at the question how do I win?”* European VCs may not necessarily agree that downside protection is a purely European focus: *“I think the downside thing is a misnomer. Companies nearly go bust everywhere. I sit in a partners' meeting in California; the way that they are talking about deals and downside and everything is very much the same.”* (UK VC 19).

VCs outside of Silicon Valley subscribed to the view of the East West difference, as for Pittsburgh VC 8 who also commented on the similarity of East Coast and European terms:

“We tend to have more of a west coast model. The east coast, they're more financially driven, so they have more punitive terms. And that's not the method we subscribe to. My experience with European venture capitalists is very similar... a lot of similarities to east coast investors in the US.” Due to the heightened competition on the West coast an entrepreneur is likely to receive several term sheets and can therefore select the most advantageous. In the UK and continental Europe with far less competition for deals the entrepreneur is less able to be selective; hence the terms can be more onerous to the entrepreneur.

Other stakeholders agreed with the concept of the difference between entrepreneurially friendly and investor friendly terms. Six commented on the difference between US and Europe, with the US being seen to be entrepreneurially friendly and Europe being seen to be investor friendly (2 VC related, 1 advisor, 3 CVCs) and three agreed with the difference between East Coast and West Coast VCs (1 entrepreneur, 2 CVCs): *“East Coast is more about Wall Street type marking your valuation up as high as you can, as quickly as you can, versus the West Coast approach which looks at the longer term a bit more and can see the down side of marking up a valuation too high, too quickly.”* (US CVC 6).

The reason that European VCs are more cautious in their investment approach is because of their historic poor investment performance: *“The history and the track record of the industry in Europe is things go wrong most of the time and when it goes right it doesn’t go very far. It’s actually quite rational to think maybe I should be a bit careful here.”* (UK advisor 2). The use of more investor friendly terms is entirely rational and problems with scaling makes it reasonable for UK VCs to want to protect the downside: *“There is such a track record of failure of European and Israeli companies trying to break into the US. It’s much harder than people think and it costs a lot more money. Then it becomes entirely rational to want to protect a little bit more of the downside when the upside does require another jump.”* (UK CVC*⁶)

5.5.3 Use of standard terms

Eight UK VCs (VCs 13, 17, 18, 19, 20, 21, 23, 31) and 6 continental European VCs (VCs 4, 49, 50, 60, 70 and 74) said they typically used standard European terms as might be included in the BVCA model term sheet for early stage investments (www.bvca.co.uk), as revised in October 2014, and / or the Seed Summit early stage term sheet, as agreed by 21 early stage UK/European VCs in July 2011 (www.techcrunch.com). The Seed Summit term sheet includes provision for a 1x liquidation preference with convertible preferred shares as opposed to possible multiple liquidation preferences in the BVCA term sheet. More entrepreneurially friendly seed term sheets in the US require the VC to choose either to take their 1x liquidation preference or to convert their preferred shares into ordinary shares and share pro rata with the ordinary shareholders. However, the Seed Summit term sheet is certainly prepared on a more entrepreneurially friendly basis. It is noteworthy that newer UK VCs (VCs 26, 27, 31 and 34) had adopted the Seed Summit term sheet. Terms included in the BVCA model term sheet are not necessarily entrepreneurially unfriendly per se and are simply what is deemed to be acceptable and the “norm” in the UK environment.

US VC firms did not refer to using “standard” terms as such in their term sheets but more the simple, entrepreneurially friendly terms that are prevalent especially in Silicon Valley. Three Silicon Valley VCs commented that the simpler the term sheet and the more aligned the investors and entrepreneurs the less chance of difficult

⁶ Verbatim comments by BVCA VC committee members with whom the research findings and implications were discussed, are indicated with an * to distinguish them from interviewees’ comments in the main fieldwork.

negotiations at subsequent financing rounds as deals become more complex with other investors becoming involved (US VCs 40, 41 and 46): *“The simpler you keep the terms the better off you are because the more complex you get, it comes back to bite you down the road. So I tend to personally try to keep the terms relatively straight forward and simple and make sure everybody’s going to do well if the company’s successful.”* (US VC 46).

Summary

This study has found that investment terms are generally less onerous to entrepreneurs in the US compared to Europe and also less onerous between the West Coast and East Coast of the US. This latter differential was noted by Dessi (2011) who investigated the geographical variation in VC contracts in the US and found that those in California contained fewer contingencies affecting entrepreneurs’ performance based rewards. Use of more entrepreneurially friendly terms, particularly on the West Coast of the US, as compared to UK and continental Europe has not been subject to investigation in the past.

The more entrepreneurially friendly terms used by US VCs, particularly those in Silicon Valley, versus more investor friendly terms used by European and some East Coast US VCs, is a reflection of the competitive environment in which the VC firms operate. Silicon Valley is more competitive than the East Coast and other areas of the US and considerably more competitive than UK and continental Europe. Acceptable terms to an entrepreneur depend on the competition. In the UK they take whatever deal they can get; in Silicon Valley they can strike the best deal in terms of the valuation on offer and other terms. Higher valuations result in lower gains when investments are sold which is contradictory to US VC funds outperforming UK and continental European VC funds. However, because of the competitive environment in which US VCs operate, particularly those based in Silicon Valley, investments are often made earlier in a company’s life, at the seed stage, in order to beat the competition. This higher risk approach to investing can lead to outlier returns (Chapter 4.4.1). The brand strength of US VCs also attracts the better deals which also improves investment and fund performance.

5.6 Syndication

5.6.1 Rationale for syndication

Syndication can be used to reduce the impact of information asymmetries and reduce risk as more information is shared about deals by the different syndicate members (Gompers and Lerner, 2001; Engel, 2004). VCs may collaborate in several areas of the deal process including deal sourcing (Section 5.3) and clubbing together to invest in seed deals (Chapter 4.4.1), at the due diligence stage sharing information and knowledge about the technical and market aspects of a deal (Section 5.3.3), and at the value add stage where the different expertise of the different VCs in a syndicate can be pooled together for the benefit of portfolio companies (Section 5.7.3). Resource based theory and social network theory are applicable to syndication. Checkley et al. (2014) found that the performance of VC firms in UK is positively related to the network connectedness with other VCs in a syndicate, with access to skills, information and social ties as distinct from the financial resources of the syndicate members. Organisational theory in terms of information sharing within networks is also relevant to the syndication process (Florida and Kenney, 1988), with collaboration of VCs based on mutual trust with other VCs that they know well.

There was very little difference in syndication activity between UK, continental European and US VCs (Table 5.7). All of the US VCs commenting on syndication activity, all but two of the UK VCs and all of the continental European VCs syndicated with other VCs on their investments, usually locally but sometimes internationally. There was no evidence of less syndication activity in Europe compared to the US in the VC firms sampled, in contrast to Schwienbacher (2005) who found that syndication is used more often in the US.

Table 5.7: Syndication activity

Theme category	Themes
Syndication	<ul style="list-style-type: none">• 100% US VCs, 100% E VCs and 96% UK VCs actively syndicated• 24% US VCs, 22% UK VCs and 27% E VCs syndicated for monetary reasons• 10% US VCs, 22% UK VCs and no E VCs syndicated for value add reasons• 19% US VCs, 35% UK VCs and 47% E VCs syndicated internationally

Anecdotally it is claimed that there is greater tendency to syndicate for monetary reasons in Europe compared to the US, as previously reported by Manigart et al. (2002). This may be due to the relative scarcity of funding in Europe for scaling up ventures. In the US syndication may be for non-monetary reasons: *“We syndicate not because we need to (we have the ability to write the whole cheque if we wanted to) but because we want to.”* (US VC 41). In the sample interviewed the propensity to syndicate more for monetary reasons in Europe was not so apparent. 22% of UK VCs, 27% of continental European VCs and 24% of US VCs said that they syndicated for money reasons. However, other stakeholders confirmed the need for additional financial resources as a reason for syndicating in Europe. Some US VCs also appreciate the additional finance and reduction in risk that syndication provides: *“We want someone whom we think is rational who we have a personal relationship with who also has a deep pocket as part of our syndicate and so doing things on your own doesn’t make any sense because you don’t know what bad things will happen.”* (US VC 36). US, UK and continental European VCs referred to the “deep pockets” that syndicate members can provide in case “bad things” happen (US VC 36, UK VC 13, E VC 58).

22% of UK VCs and 10% of US VCs commenting on syndication said that they syndicated for the value add gained from syndicated partners. No continental European VCs commented on this. Syndication provides access to “smart” money through introductions and connections and resource networks that the syndicate member VCs have. Overall however, it de-risks an investment, especially if the investment is early stage: *“Sharing risk in early stages is the sensible thing to do.”* (UK VC 18).

5.6.2 Alignment of syndicate interests

VCs mentioned that it is important for the interests of syndicate members to be aligned in order for the syndication to work effectively, for example with exit strategies: *“The biggest problem is getting everyone aligned to act before it’s too late.”* (UK VC 20). This is particularly important with international syndicates where one member might have a high risk, high reward strategy (the US West Coast model) and one has a low risk, commensurately lower reward model (the continental European model) (UK VC 30). Syndicates work well if the investors are properly aligned in

terms of having similar fund sizes, similar investment horizons and similar operating philosophies: *“We’ve been in companies where somebody wants to sell because they’re in a ten-year-old fund and I’m in a two-year-old fund, and you have conflicts and stuff.”* (US VC8). VCs tend to syndicate with people they like, respect and trust: *“We tend to invest with the same half dozen friends consistently over time.”* (US VC 37). US Silicon Valley VC 39 commented that its competitors were like-minded and so make the best syndicate partners: *“So your biggest competitors are often your best partners because you get people on a board situation that are like-minded and have, you know, the similar interests in mind for the company. You may be competing on a new deal in the morning and be on a board with the same partner later in the afternoon.”* The concentration of VC firms in Silicon Valley facilitates the syndication of investments by VC firms (Zhang, 2007).

5.6.3 International collaboration

The area where there was a notable difference between the syndication activities of European and US VCs was in the area of international syndication. 35% of UK VCs and 47% of continental European VCs commenting on syndication said that they actively syndicate with US VCs (Table 5.7). Just 19% of US VCs said that they invest with UK / European VCs. Three US VCs specifically said that they have not invested with European VCs because of a difference in investment approach and style: *“American CEOs think that European VCs just want to drip-feed them. American CEOs think that European VCs under-capitalise companies. American CEOs think they’re playing long ball and that European VCs are playing the short game. There’s a cultural mismatch that’s very strong.”* (US VC 36). However, a UK VC (VC 17), which also has operations in Silicon Valley, said that they see no difference in the behaviour of syndicates that include US VCs compared to those that do not. For example, they see no evidence that US VCs want to exit earlier or later or indeed to “pull the plug” on an investment earlier.

Six of the other stakeholders interviewed (1 LP, 1 VC related, 2 advisors, 2 CVCs) referred to the difference in risk approach and /or style between US and European VCs and the impact on their willingness to syndicate: *“I had this recently with a couple of French VCs, all feared the US VCs. They didn’t want US VCs to get involved because their appetite for risk is much higher and they’re much more willing*

to throw a lot more at a problem or at an opportunity.” (US Advisor 6). Hege et al. (2009) reported that US firms perform worse when they invest in Europe and Europeans perform better when they invest in US. This may be due to this difference in approach: *“Europeans with US syndicates will get a lift and the US with European syndicates will get a drag.”* (UK LP 3). VCs also tend to be very “cliquey” in Europe according to a UK advisor in terms of the firms with which they syndicate and a proprietary approach to investing. This view was shared by a US VC related interviewee:

“When I got to the UK in the early days there was a combination of two things: one is a sort of more “I want this deal to myself” you know what I mean? And number two was it’s a small universe of VCs and so it’s not as natural to find a partner where it’s hard to go from a situation where you are really banging heads and competing hard on a deal and in the next breath saying “well why don’t we work on it together” right, I mean in the US there are enough firms where cooperation can just exist more naturally.” (US VC related 7).

Despite the reluctance of some US VCs to syndicate with European VCs in the study a recent report from KPMG does however note that “many US investors are choosing to syndicate with European VC partners” (KPMG, 2017, p.73). The foreign exchange rate post Brexit and the increasing competition for deals in the US has encouraged some US VCs to seek investment in European companies. Syndication with European VCs enables a closer geographical connection with their investments.

Summary

There was no evidence of less syndication activity in Europe compared to the US in the VC firms sampled, in contrast to Schwiendbacher (2005) who found that syndication is used more often in the US. There was evidence that US VCs syndicate with other VCs that they know, even if the other VCs are competitors, in order to aid better alignment of interests and less conflict between syndicate members. Their motivation for syndicating is not for predominantly monetary reasons, though this may be welcomed, but more to share risks and pool expertise on an investment. The US VC style is more collaborative than the European more proprietary style. Additionally, US VCs can be reluctant to syndicate with European VCs because of their different risk propensity and their approach to such matters as investment terms (Section 5.5).

Viewed from an agency theory perspective this suggest that US VCs are better at reducing information asymmetries on deals through better collaboration with other VCs and pooling of expertise and knowledge about a deal than are European VCs. The pooling of expertise and collaboration which was more evident with US VCs than with European VCs can lead to better outcomes with due diligence at the investment stage and to improved value add from the different syndicate members, contributing to better investment outcomes and therefore improved fund performance. The more proprietary approach of European VCs and conflicts between syndicate members in terms of when to exit from investments is not as conducive to optimal investment and may well contribute to the poorer performance of European VC funds as compared to US VC funds.

5.7 Monitoring and adding value to investments

5.7.1 Monitoring processes

The monitoring processes adopted by VC firms post-investment are an attempt to overcome issues related to potential differences in goals between VC and entrepreneur and the information asymmetry that is present in the VC/entrepreneur principal –agent relationship (De Clercq and Manigart, 2007). The greater experience of US VCs as compared to European VCs can put them at an advantage in the monitoring process. A VC firm is better able to recognise “danger signs” and take corrective action at an early stage if it has in-depth knowledge of a portfolio company’s industry (Sorenson and Stuart, 2001). This is more likely to be the case with US VCs than with European VCs (Hege et al., 2003; Schwienbacher, 2005). Taking corrective action may improve the performance of an investment or prevent additional investment being made in a poor performing investment.

In contrast to Schwienbacher (2005) there was no evidence from the interviews with VCs that European VCs spend less time monitoring their investments than US VCs. In terms of formal monitoring, 95% of UK VCs and 67% of continental European VCs commenting on monitoring activities took a board seat compared to 73% in the US (Table 5.8).

Table 5.8: Monitoring

Theme category	Themes
Monitoring	<ul style="list-style-type: none"> • 95% of UK VCs take board seat cf 73% US VCs and 67% E VCs • 30% UK VCs take observer role cf 27% US VCs and 8% E VCs • Five UK VCs said they limit no. of board seats cf one US VC (one US VC said no limit) • Weekly contact with portfolio companies was most popular in all three regions

30% of UK VCs took an observer role on the board compared to 27% US VCs and 8% continental European VCs. VCs may take observer roles on a board instead of a formal director position for a number of reasons, including if they are following behind a lead VC in a syndicate or if they do not wish to be conflicted by having a formal board position with regards to their duties as a company director and their position as an investor. Four US VCs, but no UK or continental European VCs, specifically commented that they only sometimes or did not take board seats (US VCs 37, 43, 51 and 71): *“Board seats are ego trips for venture capitalists, you know. If you have to have a board seat to get your opinion heard you are probably kidding yourself”* (US Silicon Valley VC 37). The smaller proportion of continental European VCs not taking board seats or observer roles may be due to their involvement in syndicated deals led by UK or US VCs who would take on these roles for the syndicates.

UK VCs limited the number of board seats taken by each of their investment partners to around 5 or 6 board seats each, so that the partners have more time available to spend monitoring each of their portfolio investments (UK VCs 19, 20, 26,29 and 31): *“We uphold that rule quite religiously compared to our American counterparts who can do twelve, thirteen board seats, which I don't quite know how they add any value because it means you are only turning up half a day a month”* (UK VC 19). Only one US VC (VC 38) referred to such a limitation, commenting that each partner could generally sit on as many as 10 companies at a time. Another Silicon Valley VC (VC 39) said that there was “no limit” to how many boards a partner could sit on. This could be a reflection of the better quality of US management teams with the consequent need for VCs to spend less time on formal monitoring: *“You may have technical talent to create new product but you need managerial talent to run the company and the*

companies are run very, very well compared with Europe” (US business school professor based in Silicon Valley).

The time spent by VCs on their portfolio companies outside the formality of board meetings ranged from daily involvement, through once a week to twice a month and just once a month. The extent of VC’s involvement depends on issues that the companies are facing; the aim of the monitoring process is to uncover issues before they become major problems: *“I see a big part of my job as being a kind of... looking ahead to major issues there, which can be either negative or positive issues”* (UK VC 3). This may involve speaking with the CEO and the management team several times a week (US VC 9). Time spent also depends on the needs of the company and the stage of investment: *“At the later stage you are much more hands off but the earlier stage investments, you just can’t afford to be that hands off really”* (Irish VC 5).

US VCs spend similar amounts of time with their portfolio companies as with UK and continental European VCs. However, they may not always take up formal board seats. This may be a reflection of the more informal, close-networked driven relationship evident in key technology regions in the US, particularly in Silicon Valley. Sapienza and Korsgaard (1996) comment that the extent of monitoring may be reduced the more entrepreneurs share information with VCs in frequent and open communication, in accordance with procedural justice theory. It may also reflect their access to a greater supply of experienced CEOs and less problems with growing and scaling up companies. In terms of their responses to the questionnaire (Appendix 3) “monitoring and control processes over portfolio companies” was rated highly important by UK and European VCs but seen as less important by US VCs. From the interviews US VCs do appear less concerned about formal monitoring and control processes, such as taking board seats, though many do use a focused, metrics-driven approach to monitor progress by their portfolio companies as discussed below. European VCs involvement with their portfolio companies may be more in order to control their investments whereas US VCs sit alongside founder CEOs to help build companies in contrast to more of a “control check” approach in Europe (UK A3).

5.7.2 Portfolio reviews

Carrying out a periodic review of a VC’s portfolio is an integral component of the monitoring process. Reviews are carried out for considering whether to follow on

with subsequent rounds of financing and for the level of support that is provided to portfolio companies. This might involve a formal rating of investments every 6 to 8 months (UK VC 27) or an informal rolling review, two to three times per year (Irish VC 50). Some VCs even reviewed all their portfolio companies each week (East Coast US VC 65). One of the purposes of such reviews is to identify and cut off losers as early as possible and to concentrate on supporting the better performing companies in the portfolio in the aim to achieve optimal fund performance. Reviews are also carried out for the purpose of reporting on investment performance to limited partner investors. Five UK VC firms (VCs 17,19,27,30 and 68), three continental European VCs (VCs 50,60 and 65) and three US VCs (VCs 8,10 and 56) mentioned that they carried out portfolio reviews. For example, UK VC 30 carries out formal triaging of its portfolio four times per year in order to determine which investments they are going to continue to support: *“They (partners) tend to fall in love with their investments and they become a little too emotionally attached to them and it is very hard to then stop.”* A formal triaging helps to resolve that issue *“Normally can spot the ones that aren’t going to make it.”* One US VC (VC 65) reviews all of its portfolio companies every Monday: *“We discuss the companies, we argue about the companies, we discuss what we need to do towards scale.”* In fact, many VCs will review their portfolios and potential investments at the typical Monday morning partner meetings but this may not be in as much depth as with a quarterly or six monthly formal portfolio review.

There was no particular difference in the approach of the US and European VC firms as regards portfolio reviews for the sample of firms interviewed. BVCA Committee members, however, commented on the focus of US VCs on monitoring investments through formal portfolio reviews and weeding out of underperforming investments. This is partly due to the higher risk approach to investing by US VCs:

“There is one very successful (US early stage) fund that we’ve worked with a couple of times. They tell the companies on the way in ‘you will be triaged and we have three layers of triage; there is the continues to fund, the wait this one out, and the we won’t invest in you again’ And they mine the data and they are very, very clear about not continuing to invest and the amount of money. They’ve got very strong US returns as a result of that.” (UK VC*).

As part of their monitoring activities US VCs have a much clearer idea of what metrics they should be using to monitor portfolio companies; metrics are quantifiable measures used to gauge performance or progress based on VC's experience with their previous investments. This helps VCs to determine how much money to invest and continue to invest at subsequent rounds and to achieve successful outcomes for their investments. BVCA Committee members felt that this was largely due to experience in that the US VCs have worked on many more deals than UK firms and know how to share that experience with their investee companies and advise their companies on metrics and what signs to look for: *"The US VCs know exactly what metrics they're willing to fund. The reason they're willing to put another X in is because they've seen that happen before. And I think the Euro guys really don't, they're just imputing it from what they read rather than having (the experience)." (UK CVC*)*. There is not the same focus on metrics in Europe: *"US investors can spot a good company from a bad company. And then the good ones they know how much money they should put in, what the valuation should be and then what you need to do to then get it to the next stage. So, that doesn't really exist over here."* (UK VC*).

European VCs tend to keep poorly performing companies going for longer than US VCs who are better at cutting off an investment when it is not working (UK VC 7, 21). US VCs have the reputation of seeing the signs early, perhaps through their metrics approach, and reducing the funding for poorly performing companies after the first round. UK VCs 21 and 22 admitted to keeping some companies going for too long: *"I think the bad thing is just to continue to put money in the hope that something good is going to happen."* (UK VC 21). European VCs may see the US approach as giving up too soon on poorly performing investments: *"A lot of people would have given up, especially US VCs, so the tenacity of European VCs also has a positive to it, I think. Especially in our industry where it takes so long for things to come to fruition."* (Dutch healthcare VC 74).

Other stakeholders (three UK LPs and a UK advisor) also commented that European VCs tend to keep poor investments going for longer whereas US VCs would cut their losses:

"Europe is learning from this and I think that's one of the mistakes that's past, I think they are learning to call things more quickly. Again maybe it comes back to the

fact that the US have much larger portfolios so it is easier emotionally to let things go when you've got a bigger portfolio than when you're in a smaller portfolio.” (UK LP 1). The tendency to keep poor investments going may be due to the smaller fund sizes in Europe: “In the UK, with smaller funds (than US), the proportion of the fund of each investment is going to be larger and, therefore, there's going to be greater reluctance to walk away and admit you got it wrong.” (UK LP2). It also may be due to a lack of courage and self-confidence on the part of European VCs: “Leading (US) VCs, like Sequoia and KP, have the courage to cut. I think the difference between those that are great venture capitalists versus those that are not is to have the courage to do that. In Europe we keep things going for too long because we're lacking self-confidence and therefore admitting defeat is difficult and obviously our paltry track record is disastrous.” (UK Advisor 3).

Summary

From the interviews it can be seen that some US VCs in the sample do not always take board seats, in contrast to European VCs, and if they do take board seats, some take many more board seats than do European VCs. The US VCs have a more informal approach to monitoring their investments particularly in the tight-networked communities in which they operate. On the other hand, they have more of a metrics based approach to their monitoring and they weed out poorer performing investments sooner than do European VCs. This is a reflection of a more “bullish” approach to investment exhibited by US VCs (Chapter 5.2.1).

The closer focus on diverting resource away from non-performing companies exhibited by US VCs can impact on overall fund performance as valuable VC time is spent on the more promising companies in the portfolio. The focus on metrics means that only well performing companies are considered for follow-on finance. Guler (2007) comments that it is essential for a VC firm to evaluate its investments and terminate investments in unsuccessful ventures in order to maximise fund performance. Viewed from the perspective of real options theory, in terms of making the decision to continue funding or to curtail an investment, US VCs appear better at focusing their effort and resources into investee companies that promise the best returns.

5.7.3 Adding value

In addition to providing finance to their investee companies, VCs usually seek to assist their companies in various ways, to add value to their investment and thereby contribute to the success of the company and hence their investment (Hellmann and Puri, 2002; Bottazzi et al., 2008). A VC firm can provide a range of resources to a portfolio company, including monitoring, networking, recruitment and strategic advice (Wijbenga et al., 2003). Adding value to their portfolio companies was rated as highly important to investment success by questionnaire respondents (Appendix 3).

Schwienbacher (2008) comments that European VCs are less active investors than US VCs. This poses the question as to whether this is due to a lack of ability on the part of European VCs or a preference for a hands off approach. It might explain the low performance of European early stage investments (Schwienbacher, 2008). Schwienbacher refers to European VCs being less “active” in terms of using convertible securities less, syndicating deals less often and having longer round durations than US VCs; he does not comment on specific value adding activities which can improve investment, and thereby fund performance, as are discussed here. Viewed from a resource based theory perspective, as US VC firms are larger than European VCs both in terms of fund sizes (Chapter 4.2) and personnel (Chapter 4.6), they have more resource available to help the growth and development of investee companies.

The most common methods of adding value were helping to recruit CEOs for portfolio companies (67% of VCs commenting on adding value referred to this activity), assisting with further financing (38%), introducing the portfolio companies to useful contacts in their networks for commercial purposes (29%) and assisting with the exit process (28%) (Table 5.9). The extent of value add provided by individual VCs can be considerable. For example, UK VC 17 has helped to form boards, shape businesses, recruit key individuals via their specialist in-house HR person, advised on selling business through their corporate group, putting in stock option schemes, advised on which banks to work with, CEO induction processes and helped with training courses and mentoring.

Table 5.9: Adding Value

Theme category	Themes
Adding value	<ul style="list-style-type: none"> • Key activities are recruiting CEO and team members (67%), assisting with financing and bringing in other VCs (38%), commercial connections (29%) and assistance with exits (28%) • 83% UK VCs helped with recruiting cf 52% US VCs and 62% E VCs • 48% US VCs helped with financing cf 33% UK VCs and 31% E VCs • 48% UK VCs helped with commercial connections cf 13% US VCs and 31% E VCs • 42% UK VCs helped with exits cf 24% US VCs and 8% E VCs • Assisting with international expansion was not cited as value add by US VCs; only one acted as a sounding board for CEO (both more prevalent for UK and E VCs) • Two US VCs shared best practices with portfolio companies (no UK, E VCs cited this)

There was less evidence of adding value activities by US VCs despite their greater resources. This may reflect the strong screening skills of US VCs to invest in better quality companies which consequently need less non-financial support from a VC. As can be seen from Table 5.9, more UK VCs helped with recruiting, commercial connections and exits than for US and continental Europe VCs. More US VCs helped with financing than for UK and continental Europe VCs, in particular introductions to other financial VCs and to corporate VCs, perhaps a reflection of the greater supply of later-stage finance available in the US and a closer relationship with other US VCs. Opportunities for adding value may be identified at board meetings (UK VC2); US VCs may not always take board seats and so would need to discover opportunities for value adding activities through their more informal monitoring activities with their portfolio companies. Acting as a sounding board or mentor to CEOs and assisting with their coaching and development was a feature of the value adding activities of UK and continental European VCs. Only one US VC (VC 51) mentioned this as a value-add activity, compared to six UK VCs (VCs 1,2,6,17,26 and 68) and 5 continental European VCs (VC 4, 14, 34, 28 and 61). This may reflect the lesser experience of CEOs and quality of entrepreneurs in UK and continental Europe.

Three US VCs (VCs 36, 38, and 57) and three UK VCs (VCs 26, 27, and 68) commented that their best deals were where they needed to add the least value: *“The best companies are the ones where you add the least value.”* (US VC 57), as *“If you're an amazing company and an amazing team, you don't need to add a lot of value.”* (UK VC 26). US mid-stage Silicon Valley VC 38 commented that it is a myth that value add is important: *“Most successful companies are built by good CEOs not by VCs. My best deals are where I do the least work, because the company is run by a good CEO.”* (US VC 38). Silicon Valley VC 51 commented on a mentality difference between West Coast and East Coast VCs in terms of adding value: *“There's a belief in the Valley that it's really great individuals and founders and entrepreneurs that build great companies, not venture firms. (On East Coast) there's a bit of a perspective that's more of a coat and tie mentality that these great institutional investors are the ones that really shape these companies.”*

The apparent less involvement in adding value by particularly US Silicon Valley based VCs is further corroborated by a comment from UK VC 19, whose firm is part of an international network, in connection with exits: *“It's a real weakness of my colleagues in California. They are very good at selling the stars to go public on NASDAQ when they've got a syndicate of six or seven investors and two bankers advising them. When actually they've got a company that needs some help they're not that good at coaxing them through transactions.”* One of the Silicon Valley VCs (VC 36) commented that having to add value could be the result of poor due diligence. Areas where the companies need help should have been identified at the due diligence stage: *“All these companies as you know are insanely fragile. They're fragile, fragile, fragile. Even if they're big they're fragile and good things happen and bad things happen. A guy who I really like in this company said that venture capital value add is a result of bad due diligence.”* Despite Silicon Valley VCs questioning whether they add value, other stakeholders commented on the huge efforts made by US West Coast VCs to support their portfolio companies in terms of finance, connectivity and networks: *“US (West Coast) VCs use overwhelming force in supporting a project. And I don't just mean dollars of overwhelming force, but connectivity and networks and relationships with big corporates.”* (UK LP3). UK entrepreneur E4 commented on how a Silicon Valley VC had helped to leverage the company's expansion in the US, sharing best practice between portfolio companies and sourcing executives: *“The reason we took money ultimately from the Silicon Valley guys was that we were*

expanding fast in America and just felt that they could help us leverage the situation and Kleiner had a lot of experience of building or backing consumer facing businesses in the US, including Amazon and eBay.” Rosenstein et al. (1993) found that the top US VC firms are perceived as adding more value than other firms.

Assisting with expansion on a pan-international basis was not cited as a value add activity by any of the US VCs perhaps reflecting the more parochial approach of US VCs and the ability of their portfolio companies to scale in the much larger US environment without necessarily having to seek opportunities overseas. Five UK VCs (VCs 19, 23, 24, 29 and 68) and three continental European VCs (VCs 14, 69 and 74) commented on their assistance with international expansion.

Much of a VC’s advice is down to the fact that they have seen issues many times in the past with their various investee companies and can share best practices with their companies: *“The real value add is in just being there during these critical periods and having seen similar situations many times before and using that expertise and talking to CEOs when they are going through this moment.”* (US East Coast VC 15). US West Coast VC 47 also commented on the sharing of best practices across its portfolio companies; this VC has an active group of marketing executives of portfolio companies which compares best practices. The VC is looking to do this across other functional areas. No European VCs commented on the sharing of best practices.

Summary

Several VCs interviewed believe that the best investee companies are where they have to spend little effort in adding value activities because the companies are well managed by their CEOs and management teams and are performing well. Where value was added, acting as a sounding board for CEOs and assisting with international expansion was more prevalent with UK and continental European VCs than with US VCs. More experienced CEOs in the US and a national market large enough for initial scaling up of companies may explain this prevalence. Other stakeholders commented on the huge resource that US VCs do however put into play in helping to grow their companies. Whilst Schwienbacher (2008) referred to European VCs as being less “active” than US VCs he did not comment on specific value adding activities as have been discussed here. The sheer resources that US VCs can bring to bear on their investments, where these are required, together with the underlying inherent quality of

their portfolio companies, should contribute to overall improved performance of US VCs funds over European VC funds.

5.8 Exiting from investments

5.8.1 Exit process

The type of exit, duration of exit and influence of VCs on the exit process can all impact on the returns made on investments and hence the overall performance of VC funds. This section considers the relative difficulty in exiting investments in Europe compared to the US whether by trade sale or IPO, the timing of exits and the VC's role in the exit process. By exercising the option to exit at the most appropriate time a VC can achieve optimal returns on an investment.

Interviewees commented on the relatively easier exit process in the US, particularly with the number of large technology companies keen to acquire complementary or competitor technologies, and the less receptive state of the European stock markets to technology companies.

Table 5.10: Exit process

Theme category	Themes
Exit process: -proactivity -timing	<ul style="list-style-type: none"> • 36% of US VCs take proactive approach, inc appointing investment bankers cf 27% UK VCs and 23% E VCs • 32% US VCs state companies are bought not sold cf 27% UK and 31% E VCs • 32% UK VCs, 21% continental European VCs and 16% US VCs referred to the less liquid exit markets in Europe compared to US. • 23% of US VCs wait for the best exit cf 14% UK VCs and no E VCs

A proactive approach to achieving exits was taken by 36% of US VCs commenting on the exit process, for example by appointing investment bankers to find suitable buyers, compared to 27% UK VCs and 23% continental Europe VCs (Table 5.10): *“Somebody doesn’t knock on your door that you’ve never heard of, that you’ve never spoken to, that you don’t know anything about and say “I want to buy your company.””* (US VC 65). Nevertheless, many VCs believe in the concept that for better performing investments “companies are bought not sold”: *“We’re working to elicit unsolicited offers by doing business development with companies who might become acquirers.”* (UK VC 3).

The easier exit process in US (via trade sales to large technology companies and a more receptive market for IPOs) was identified by interviewees as one of the key differences between the US and European exit environments. This confirms Schwienbacher’s (2008) observation that markets are less liquid in Europe compared to the USA. Other stakeholders (1 VC related, 1 advisor and 1 CVC) also commented on the relative difficulty of achieving exits in Europe, for example due to the lack of ability of European VCs to forge contact with potential acquirers (VCR 2). However, European VCs commented on their exits being in the form of trade sales to US buyers (UK VCs 7, 24; Dutch VC 74) and so international exit opportunities are indeed achieved. The vast majority of large technology firms that pursue buy to build strategies are US based (such as Google, Apple, Microsoft and Facebook). The EIF notes around 50% of their investee companies are acquired by non-European corporations, principally from the US (European Investment Fund, 2017).

US LP 6 commented on a cultural bias in the US, more so than in Europe, to trade sale exits to large technology companies rather than exit via IPO: “*I believe the best VC returns come from strategic M&A exits not the IPO.*” This is because trade sales usually provide a full exit for the VC for cash: “*Clean exits for cash are not a bad thing, right?*” (US VC 57). There was general agreement amongst the advisors interviewed that US VCs in Silicon Valley have the best contact with corporate buyers for exits.

The difficulty in achieving exits in Europe may also be due to the less receptive state of the stock markets in Europe for, particularly, technology listings. UK VC 3 commented on the difficulty in obtaining full value for an investment on listing, citing investor attitudes in the City with stock market investors “*not really understanding technology businesses.*” The financial markets are seen as being superior in the US: “*NASDAQ acts as an engine for the whole venture capital process because the prospect of IPOs at high valuations, more frequently, more easily than we can achieve in Europe, attracts venture capitalists into the field, attracts money into the field, attracts entrepreneurs to the field and so on.*” (UK VCR 1). It might be viewed as a last resort to list a technology company in the UK: “*You don’t IPO your company in London unless there’s something wrong with it usually. Because it’s not an exchange that’s gonna value a high tech company.*” (UK CVC1). This is borne out by the disappointing uptake of the London Stock Exchange’s new High Growth Segment, with only one company listed to date, and the lack of a pan-European stock exchange for growth companies, following the demise of EASDAQ and NASDAQ Europe, which has been put forward as a key reason for the underperformance of VC firms in Europe (Oehler et al. 2007). IPO activity in Europe and the US (and China) has been volatile since the dot com boom of 2000 (Mason, 2011). European IPOs have not seen the same degree of decline as in the US but the number of IPOs, particularly by those companies which are VC backed, has fallen as VCs have chosen to exit their investment by trade sale rather than to bring them to market by IPO (Mason, 2011). Only 7% of exits in Europe by cost of investment were by IPO compared to 27% by trade sale and 15% by secondary sale (Invest Europe, 2017). However, Hege et al. (2009) found no evidence that the stock market environment caused any difference in performance between European and US VC backed companies.

5.8.2 Timing of exits

Despite previous studies showing that the duration of the exit stage is longer in Europe (Schwienbacher, 2008; Dantas Machado and Raade, 2006), more US VCs than European VCs in the study were prepared to exercise the option to wait for the most optimal exits in terms of returns rather than cashing out early (Table 5.10). The pressure of fund raising activities to show a track record of exits and pressure from LPs to achieve exits were cited as reasons for early exits by European VCs: *“In the first year or two after the financial crisis began we were under pressure to produce cash.”* (UK VC 3). A former founder and senior partner of a UK VC firm (VCR 1) commented they had to push for exits at his former firm as the investors expected it in terms of the fundraising cycle and that, as a result, companies were sometimes exited too early: *“There is no doubt at all that some of your companies sought earlier exits than they might have done.”* Guler (2007) comments on the indirect influence that LPs may exercise as funds come under pressure to exit from their investments in order to show a return to LPs in a subsequent fund raising process. Sometimes, however, it is the European management teams who want to cash in on their investment (UK VC 16, Irish VC 5), unlike in the US where there are more serial entrepreneurs and where teams are more inclined to grow their companies further:

“Management teams in the US have been through a number of exits before and are repeat entrepreneurs, probably have paid for the mortgage and have a few quid in their pockets and they’re willing to roll the dice that bit harder. Whereas in Europe if somebody manages to do well and build a company to a reasonable value point, and if there’s a life transforming chunk of money that they can get, they tend to be a little bit eager to take that rather than go it the long term route.” (Irish VC 5).

Deciding when to sell requires an assessment as to whether it is better to cash in at a certain point in time or take the risk of continuing to grow a company in the hopes of higher returns: *“Am I better off taking the offer or am I better off continuing to grow?”* (UK VC 2), an exercise of real options theory.

Other stakeholders (3 LPs, 2 VC related, 1 advisor) commented on the tendency in Europe to exit from investments earlier than would be optimal to achieve the best exit in terms of returns due to pressure to show investment returns to LPs either in connection with fundraising or because the LPs themselves need their money

back: *“There are investors who, for a number of reasons, want to have their capital back. Particularly we saw this after the Lehman collapse in 2008 / 2009; so 2009 was the first time we started seeing investors encouraging investors to have liquidity events.”* (UK LP 4), but also by having waited too long to exit after the dot com bubble and “getting their fingers burnt” as a result (UK LP 1). Exiting too early in Europe may also be due to VCs not having enough money to grow and scale investments into big businesses: *“You’ve got to take the best offer on the table for the money that you’ve got so you’re maximising your return within the capabilities you have of limited fund sizes and that is a big issue for the UK.”* (UK LP 2).

5.8.3 Who makes exit decisions?

There were different views as to who makes the decision to exit and investment; whether this is a collective board decision, the VC’s decision and / or the management team’s decision. More US VCs than European VCs saw this as a board decision (6 US VCs compared with 2 UK VCs and 2 continental European VCs). Whilst a VC can influence a decision on exit timing these US VCs believe that it has to be a collective board decision even though the VC itself would prefer to exit: *“I would never make a company sell that didn’t want to sell. Unless our management team really wants to pursue an IPO I wouldn’t force that on them. And then even in a trade sale there’s times that I may want out of the business, but management doesn’t or vice versa, so it’s a group decision.”* (US VC 8). However, whilst it is a collective board decision to exit, if an entrepreneur or management team really wants to sell their company then there is not much the VC can do even if they believe that the company is being sold too early: *“You certainly wouldn’t want to convince a CEO to sell their company if they’re not on board with it.”* (US Silicon Valley VC 39). Another US Silicon Valley VC (VC 37) shared this view, commenting that it is management’s decision to exit: *“The Board may want to take it public or sell the company but if the management doesn’t then it doesn’t work.”*

More European VCs than US VCs saw themselves as the real decision makers on exits and not the management teams (4 UK VCs, 3 continental European VCs and one US VC). The European VCs believed that, with their experience of exiting many times before, they are in a better position to know how and when to prepare a company for exit (UK VC 13). It is the investors who usually remind management teams of the

need to achieve exits and actively push for exits: *“As investors we tend to be the most active and the one who most prominently keeps it’s in everybody’s focus that we are working eventually towards an exit.”* (German VC 14). Investors may also have the right to “force” exits, via liquidity clauses in their shareholder agreements so that usually after five years they can appoint an M&A adviser and start a formal sales process.

The tendency of US VCs to go with a collective board decision on exits and European VCs wielding pressure to exit may be a reflection of the more entrepreneurially friendly approach adopted by US VCs compared to the more investor friendly approach adopted by European VCs as discussed earlier. The different approaches can also cause frictions within investor groups. US Boston VC 55 commented on these different tensions within the investor group as to when an investment should be exited: *“It’s not exit at all costs. It’s exit at the right price and under the right circumstances. Sometimes you have tensions among different investors based on how old their investment in the company is. Earlier investors may well feel more urgency to exit than later investors who might want to take the company to a later inflection point and get even more value.”* This point was also made by UK VC 18: *“Normally what you would expect is that the guys who are most recently in would have the patience to go with it for longer; guys who have been in for longer obviously want to get out sooner.”* A UK entrepreneur agreed with the different time scales of different VCs as regards exits. One of this company’s investors is a family office evergreen fund with no real time requirement to get money out: *“They’d rather wait 20 years and get a bigger return than five years and get a smaller return. Whereas our other UK VC has much shorter time horizon; we’ve got another four years left in their fund.”* (UK Entrepreneur 2).

Summary

European VCs tend to exit their investments earlier than US VCs. The US VCs are prepared to wait for a better exit in order to achieve optimal gains from their investments. The tendency to exit earlier is due to pressure from limited partner investors to show returns on the funds or in connection with fundraising for subsequent funds and the need to demonstrate realised returns. It is also due to pressure from management teams to realise all or part of their investments. Investors’ ability to

“force” exits was more notable with European VCs than with US VCs in this study. In terms of real options theory, whereas US VCs exercise the option to defer exits until more valuable realisations can be achieved, European VCs tend to exit early, a “take the money and run” approach. This also reflects the lower propensity for risk exhibited by European VCs throughout this study. With US VCs, the value of the option is maximised where the downside risk of continuing to invest can be contained whilst the upside potential of a later exit is maximised.

The tendency of European VCs to exit earlier is in contrast to earlier quantitative studies that showed that the duration of the exit stage is longer in Europe. Schwienbacher, 2008 refers to the less liquid exit markets in Europe which they conjecture causes European VCs to wait for longer until they find exits. Dantas Machado and Raade (2006) comment that US funds realise their investments quicker than European funds which they say could be due to shorter growth phases of US companies and also the better ability of US VCs to identify potential trade buyers for their investee companies. The interviews reveal that both US and European VC backed investee companies are largely seeking trade sales to other corporates, mainly to US corporates. As discussed by Kelly (2011) there are strong links between corporates and the VC community in the US which Kelly explains may be the reason for the much greater amounts of exits realised in trade sales as opposed to flotations in the US. Interviewees in this current study mentioned the poorer quality of links between European VCs and the potential US corporate acquirers.

Lerner et al. (2011) note the smaller number of exits and less profitable exits in the UK compared to the US. This study complements Lerner et al’s findings by showing that European VCs in the sample exit earlier than US VCs, and as they thereby achieve less than optimal realisations for their investments this results in less profitable exits and lower returns for European VC funds.

5.9 Conclusion

This study of the operational activities of VCs firms in UK, continental Europe and US has revealed a number of areas about the distinctiveness of US VCs compared with their European counterparts. These findings contribute to the literature on the performance differential between European and US VC funds.

US VCs have a higher risk approach to investing which can lead to outlier returns for VC funds as a whole. The research identified the pursuit of a home run, “1 in 10”, investment strategy by US VCs compared to more of a growth strategy by European VCs (Section 5.2.1) which provides qualitative evidence of the riskier approach to investment by US VCs noted by Dantas Machado and Raade (2006). The research also shows that the newer UK VCs in the sample have adopted more of the US “1 in 10” approach to investing, confirming previous work by Bottazzi et al. (2004a) who found that the investment styles of younger VCs in Europe more closely resemble their US peers. This suggests a possible future convergence of the European and US VC industries which could be subject to further investigation.

Evidence of the higher risk approach adopted by US VCs is also provided by the manner in which US VCs approve their investments. Whilst most US VCs reach investment decisions unanimously or by consensus, a senior partner could force a decision in some US VCs (Section 5.4.2). This can lead to outlier performance. Consensus can remove the potential outlier deals. There was evidence of greater use of unanimity and use of veto by European VCs. Others, not directly involved in the investment process, are involved in the approval process at some European VC firms. This was not the case with any of the US VCs which is a reflection of the lower propensity for risk evidenced by European VCs. Moreover, US VCs, particularly the West Coast based VCs, have entrepreneurially friendly terms in their term sheets as opposed to the investor friendly terms found with European VCs and with some East Coast based US VCs (Section 5.5.2). This demonstrates US VCs’ focus on the upside of investment growth and the European focus on downside protection.

US VCs can bring enormous resource to bear on their investment activities through their larger size as discussed in the previous chapter and the extent of their networks as discussed in the following chapter. The research shows that US VCs put considerable resource into researching and developing innovative new areas for investment. They use a “theme” approach to identify future areas for potential investment more so than European VCs who may pay more of a “lip service” to theme development (Section 5.2.4). With US VCs deep networks and relative large resources for developing investment themes and predicting future trends, information asymmetry in connection with the choices they make on investment themes is reduced and could well contribute to the better performance of US VC funds. Silicon Valley

based VCs had a particular focus on disruptive technology. The ability of US VCs to locate and invest in emerging technologies is a reflection of their theme approach to investing.

European VCs use external experts for technology, financial, IP and legal due diligence (Section 5.3.3). With their greater resources US VCs are able to carry out most of their due diligence in house, which is also a reflection of the greater knowledge of technical and market aspects of deals by US VCs due to their backgrounds (Chapter 4.6) and their networks (Chapter 6.3).

The greater brand strength of US VCs attracts quality deal flow (Section 5.3.1). European VCs have more of a proactive, and proprietary, approach to generating deals. Having the brand and profile to attract better quality deals clearly sets apart US VCs from lesser well-known UK and continental European VCs. Better deals that materialise into successful investments can lead to high returns and better fund performance.

US VCs exhibited a more collaborative approach to syndication than European VCs (Section 5.6.3). US VCs appeared less willing to invest with European VCs due to the differences in cultures, risk propensity and approach.

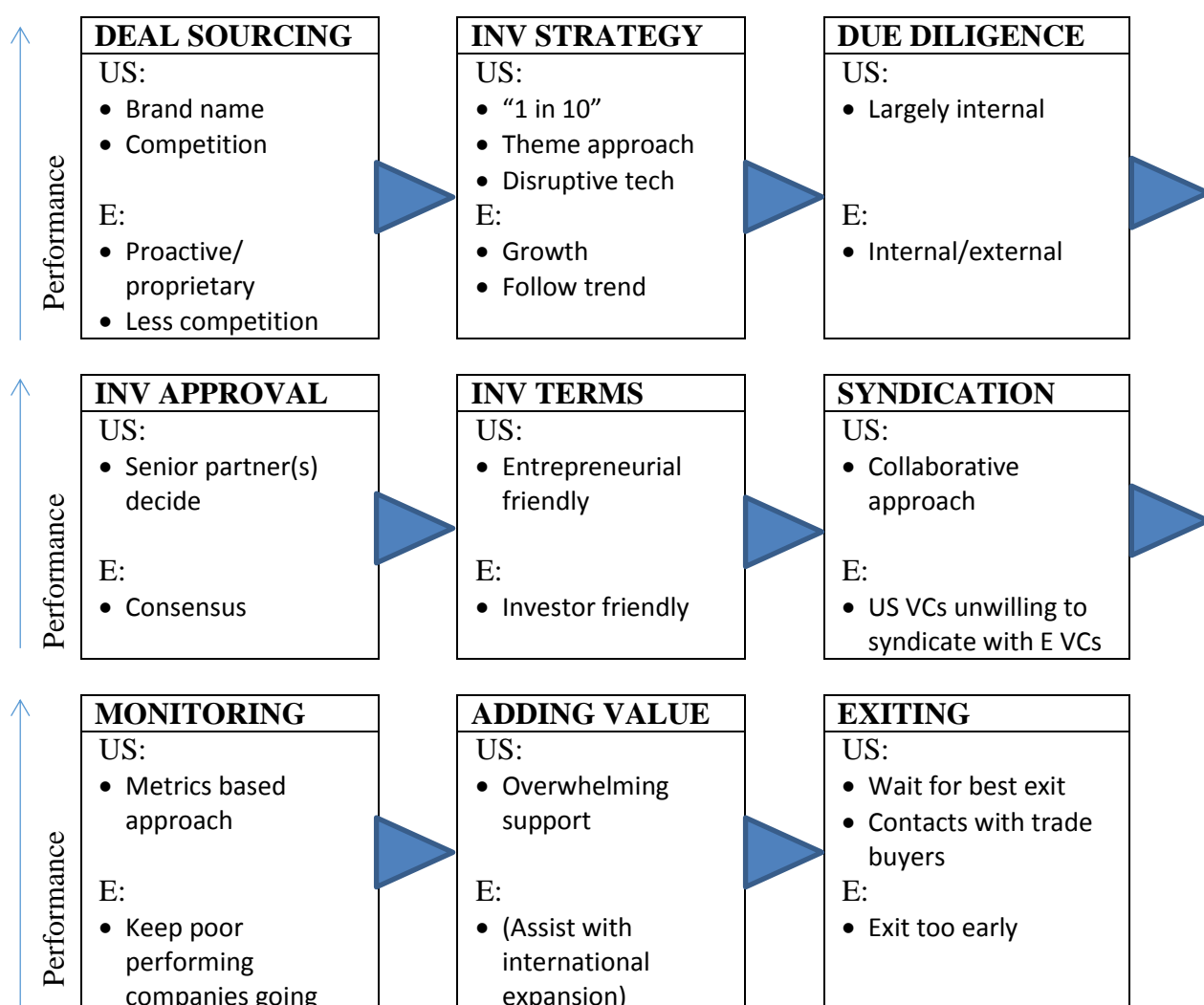
More US VCs provided introductions for their portfolio companies to other VCs and to corporate VCs in connection with further financing rounds (Section 5.7.3). They appeared less likely to assist with the international expansion of their portfolio companies compared to European VCs whose portfolio companies are often seeking to scale up by expanding to the US for example. The overwhelming force that US VCs use to support and grow their portfolio companies was also evident from the interviews.

US VCs have a more definitive approach in terms of reviewing their investment portfolios and deciding on the optimal time for exits. European VCs appear to keep poor performing investments going for longer than US VCs which can clearly impact on performance (Section 5.7.2). Whilst some US VCs had a more informal approach to monitoring their investments in terms of formal board positions they adopted a metrics based approach to monitoring their portfolio companies' performance and controlling future investment rounds. US VCs also wait for the best exits whereas

European VCs tend to exit early on account of fund raising pressures (Section 5.8.2). US VCs appear more able to achieve optimal exits for their investments with their wealth of contacts with potential trade buyers, such as the larger technology companies, and an overall easier exit process in the US including a stock market more receptive to technology companies.

To summarise, a flowchart of the investment process showing the divergence between US and European operational practices as revealed by the research, such as the “1 in 10”, high risk investment strategy adopted by US VCs compared to a lower risk investment strategy adopted by European VCs, is shown in Figure 5.2.

Figure 5.2: Operational differences between European and US VC funds



As discussed in the individual sections of this chapter where the findings are revealed these can all impact on the underlying performance of individual investments and therefore on overall fund performance and may well contribute to the difference

in performance between US and European VC funds. Having reviewed the findings in connection with operational differences between European and US VC firms, the wider environmental conditions which affect the manner in which VC firms operate are now discussed in the following chapter.

CHAPTER 6: WIDER ENVIRONMENTAL DIFFERENCES

The research has established that there are a number of structural and operational factors that are contributing to the performance differential between European and US VC funds. Structural differences include the more operational and entrepreneurial backgrounds of VC executives in US VC firms which may well assist with screening and value-adding capabilities. US firms work together on deals more than UK and continental European firms, often having two partners involved on deals throughout the life of the investments. Additional knowledge and experience gained by two partners working together reduces information asymmetries which can lead to better investment and consequent better fund performance. There was also evidence of US VCs clubbing together to make relatively small investments in very early, seed stage investments in order to “test the water” and thereby, consistent with real options theory, reducing the risk of missing out on potential outlier investments which have the potential to contribute disproportionately to the overall returns of a fund.

Operational differences include the theme approach to identifying “hot” future areas for potential investment which is adopted more by US VCs than by European VCs with the latter following existing investment trends. Getting ahead of the competition in this way and investing at the earliest stages of new technologies could contribute to the better performance of US VC funds. More US VCs pursue a home run, “1 in 10”, investment strategy than European VCs. This is a high risk approach but can lead to outlier returns for a fund as a whole. A senior partner can force the approval of investments at some US VCs against the wishes of other partners. This can also lead to outlier performance as the more usual consensus approach can remove potential outlier deals. It was also found that more US VCs, particularly the West Coast based VCs, have “entrepreneurially friendly” terms in their term sheets as opposed to the “investor friendly” terms found with European VCs and with some East Coast based US VCs. This again demonstrates US VCs’ focus on the upside of investment growth and the European concern to protect the downside risk. European VCs appear to keep poor performing investments going for longer than US VCs which can clearly impact on performance. US VCs are also more patient investors. More US VCs wait for the best exit than European VCs who tend to exit early, perhaps due to fund raising pressures from their investors.

Such structural and operational differences do not, however, account for all influences on the performance differential between European and US VC funds. The wider environment in which the firms operate also impacts on investment and thereby fund performance and is an integral part of the research question (Chapter 2.9). Wider environmental factors are the political, economical, social and technological macroeconomic influences on a business, such as culture and customs (Tyabji and Sathe, 2011), barriers to development (Lerner et al., 2011) and regulation, fiscal policy and technology infrastructure. Those wider environmental factors where interviewees specifically commented on a difference between the US and European VC sectors are discussed in this chapter. These include culture with the differing propensities for risk of European and US VCs and the wider ecosystem in which the firms operate including the fragmented markets of Europe, difficulties in scaling up companies in Europe and a shortage of experienced CEOs and serial entrepreneurs in Europe. The importance of technology clusters is also discussed in this chapter as is the impact of luck which several interviewees mentioned as a component of their success with the investments that they make.

6.1 Cultural differences

Cultural differences between European and US VC firms have not been subject to much empirical investigation in the context of the performance difference between European and US VC funds. Whilst not specific to VCs, there are frequent mentions in the literature to the difference in cultures and propensity for risk in the US as compared to Europe. Tyabji and Sathe (2011) comment that whilst VC firms in Europe operate in a similar manner to those in the US, there are important differences related to the external environments in which those firms operate, such as differences in culture and customs. Europe is “far behind” the US in terms of a strong start-up culture and the availability of venture capital finance (Rohl, 2016). There are of course many different cultures, laws, regulations and taxes in the separate European countries and vis-a-vis the USA. Lerner et al. (2011) comment that UK funds performed well when investing in the US and US funds performed worse when investing in the UK. They suggest that wider environmental factors, such as the ambition and ability of entrepreneurs, the backgrounds of investors and other cultural issues may be a contributor to the unexplained difference in performance between UK and US VCs funds. The influence of the backgrounds of VC firm investment executives on returns

was discussed in Chapter 4.6. Cultural factors are examined here, principally in the context of VC firms but also with reference to the entrepreneurial companies in which the firms invest.

With their higher propensity for risk, viewed from a real options theory perspective, US VCs exercise the option to invest in higher risk companies where the upside potential is maximized leading to potential outlier returns on investments. The cognitive influences of the institutions in which VCs operate also have applicability in the cultural context. Embracing human capital theory, the more entrepreneurial backgrounds of US VCs tends towards a more risk taking approach than the more conservative, risk averse, financial backgrounds of European VCs.

When asked about their perceptions of differences in the environments for VC funds in the US and Europe 33% of VCs cited cultural issues concerning the VC executives themselves in terms of their attitudes to risk, lack of confidence and not thinking “big” enough (cited by 47% US VCs, 23% UK VCs, 29% continental European VCs). This is perhaps summarised as a “How do I win?” US attitude versus “How do I not lose?” European attitude. US VCs are more positive in their outlook, seeing the upside potential of their investments in contrast to European VCs’ focus on the downside and what might go wrong with their investments: *“This is a cultural thing, in California we ask the question, well if everything this guy says is true, how big can the outcome be? In Europe they ask the question, what are all the ways this guy could be lying to me?”* (US Silicon Valley VC 41). The US culture is more conducive to risk taking compared with Europe (US Silicon Valley VC 37, US East Coast VC 57) which is seen to have a low tolerance for risk and failure, especially with start-up capital (VC 57). People are very careful about not losing their cash, especially with angels and seed funding. “Painful” due diligence is carried out at very early stages and risk controls put in place which *“hampers a little bit the ability to run fast and try big things”* (VC 57), though the situation is better with the more mature, international VCs in Europe.

The relative wealth of US VCs, particularly those in Silicon Valley some of whom are billionaires, compared to European VCs may partially explain the higher level of risk taking on the part of US VCs: *“Because all the partners have made hundreds of millions so far (in US), it’s a totally different ball game.”* (UK VC 45).

The personal wealth of VCs in Silicon Valley in particular was commented on by other stakeholders (1 LP, 1 VC related, 1 advisor): *“There are wealthy partners in the Valley: well, they started wealthy. They were very successful entrepreneurs. They can take more risk and they can write a big cheque to start the fund.”* (US VCR 4).

Culture also has an impact on investment opportunities. It may be the entrepreneurs in Europe who do not “think big” enough with their business ventures, as referred to by UK VC 19, German VC 28 and US Silicon Valley VC 51: *“Need to convince Europeans (entrepreneurs) to think big – not just a business plan to do say just \$20m in 5 years.”* (UK VC 19). This “not thinking big enough” in terms of growth ambition on the part of European entrepreneurs has been commented on by previous researchers, including Levie (2014) who refers to an “ambition gap” between the UK and US post-recession. He suggests that UK firms have lower levels of growth expectations. Goldman Sachs (2015) put forward a lack of growth ambition as a reason for UK SME’s limited engagement with internationalisation and innovation. However, a lack of ambition does not appear to have been considered in the context of VCs “not thinking big enough” in terms of the potential growth and development of their portfolio companies. Silicon Valley VC 47 commented that in general European VCs are more cautious, more downside orientated and the opportunities to “think big” and build value are not there: *“In general the mass of Europe has adopted out-dated, government structures, risk avoidance structures. It’s just far safer not to bother. Because you’re not gonna get the outcome you seek (as a VC).”*

Other stakeholder interviewees cited culture as the principal difference between the US and European VC environments. Cultural differences were commented on by a range of different classes of other stakeholders (1 LP, 4 entrepreneurs, 4 VC related, 3 advisers, 1 other, 3 CVCs) and across the countries (8 US, 5 UK, 3 E). As with the VC interviewees the other stakeholders were of the opinion that the US has a more risk-taking, entrepreneurial, thinking “big” (for example in terms of VCs and entrepreneurs seeking multi-billion dollar exits), open and sharing approach in the US as opposed to a more protectionist, egotistical / status driven / hierarchical focus in Europe. However, not all stakeholders viewed the “thinking big” attitude of US VCs and entrepreneurs as a difference in cultures between Europeans and Americans. The attitude is not due to any ingrained difference in national background, schooling and upbringing but is entirely rational in view of

the highly competitive market in the US: *“The reality is that people are thinking bigger (in US) but it’s not a personality issue. It comes from rationality.”* (UK VC*). The high degree of competition in the US forces VCs to “think big” and they have the financial resources to be able to back entrepreneurial companies that also “think big”, unlike in Europe:

“It’s not cultural, it’s not because we don’t play baseball and American football and like watered down beer. It’s actually because there are some real constraints economically and historically. The UK company with a great SaaS product can enter the US immediately. The reason they don’t isn’t because there are cultural mismatches, it’s just the competition is so high and the amount of money it’s going to take is so big.” (UK CVC*).

A South African entrepreneur in the US (Entrepreneur 6) introduced another aspect of culture commenting on the arrogance of European VCs which is not present in US VCs. This arrogance on the part of European VCs was also mentioned by a US advisor, who originates from the UK: *“One feels, with European VCs certainly again, looking back, why have returns been not so good after the last few years, that it’s a completely different mindset. When you walk in the doors of a European VC there’s a sort of arrogance: you’re incredibly lucky to receive our money, we’re very important, we’ve got very nice offices. Here, there’s a feeling very much that the entrepreneur is the customer.”* (US Advisor 7). Seven of the other stakeholders referred to the culture of “giving back” which is evident in Silicon Valley:

“Silicon Valley is very good at welcoming in people who are very giving back to the community who have something to give. It’s a very pay it forward mentality. You know, a huge number of wildly successful people spend time on folks who will never be able to repay them, right? And the intent is that those people then, in turn, as they become successful turn around and help other people who couldn’t possibly repay them.” (US Entrepreneur 5).

There was general agreement from a number of VC related interviewees about the much higher propensity for risk in the US: *“I think the UK venture industry has shrunk in the core, this is largely for Europe as well, and it is a self-fulfilling prophecy that they put themselves into, as they’ve shrunk and become more conservative, the returns have shrunk. They (VCs) are not taking as much risk and, therefore, the LPs*

have walked away in many cases.” (US VC related 4). There is also the prevalence of an entrepreneurial spirit in the US contrasted with a fear of failure in Europe which extends to both business owners and VCs. This VC related interviewee went on to comment that: *“When you fail in the UK a lot of VCs still turn round and go, “You’ve failed, you’re done.””* Others similarly commented about the lack of entrepreneurial spirit and fear of failure in Europe: *“I think that there is an entrepreneurial spirit in the US that is still lacking in many other countries.”* (US professional association executive); *“In the US, failure has not been equated with “your life is over.”*” (US VCR 5).

There was general agreement amongst advisors that the entrepreneurial and enterprise culture is much more developed in the US than in Europe. As commented on by three advisers (UK Advisor 3; European Advisor 4, US Advisor 7), whilst there is much innovation coming out of Europe this can be thwarted by a lack of entrepreneurial energy and capital to properly commercialise this innovation into successful global companies: *“There are just as many smart people with good ideas in Europe. I think there’s only just a lack of entrepreneurial capital and mindset.”* (US Advisor 7).

Rohl (2016) contrasts the strong entrepreneurial spirit evident in the US, particularly in its technology “hotspots” such as Silicon Valley and Boston, with the more risk averse culture and lack of a “can do” attitude in many European countries. The positive, upbeat frame of mind, particularly in Silicon Valley, extends to outlooks on the overall economy as extolled by US VCR 4 (who is a UK citizen currently on secondment to the US): *“People are talking (in Europe) about another ten years of restructuring and reform to go through, so I do think that a lot of the impression here for US VCs is, “Europe’s f....ed.” I’m being very honest which is, “We’re coming out of it, Europe’s not. Why should I bother?”*

Summary

This study has attempted to shed some light on the cultural factors that might contribute to the unexplained difference in the performance of European and US funds highlighted by Lerner et al. (2011) and Marston et al. (2013) in their comparison of UK and US VCs. These include the factors of “not thinking big enough” by both entrepreneurs and VCs in Europe and the lower propensity for risk of European VCs

in making their investments as discussed in the previous chapter. Thinking big may be entirely rational in the US with its much more competitive environment. The higher personal wealth of US VCs may permit a greater propensity for risk. Adopting a higher risk and “thinking big” approach can clearly impact on the potential returns of investee companies, leading to outlier returns as exhibited by some US VC funds, and contributing to the performance gap between European and US VC funds.

6.2 Fragmented markets

Europe is heavily fragmented in terms of different laws, stock markets and tax systems unlike the US which, apart from separate state and federal tax and legal systems, is more uniform. There is no evidence that these country-by-country differences are responsible for the performance gap between European and US VC funds (Hege et al., 2009). However, the myriad of different legal and fiscal systems in operation in each European country hinders cross-border activity and hence the ability of companies to grow and scale internationally (Section 6.4) and this could contribute to the gap. If companies cannot scale-up VC investment returns will clearly suffer. Institutional theory is pertinent here due to the different influences that governments and other institutions have on a country-by-country basis in terms of regulation, social rules and conformity with accounting standards and corporate governance. These hinder the ability of VC backed enterprises to scale across borders and limit the scope of VCs’ value-adding activities and exit routes (Chapter 5).

Issues with fragmented markets in Europe were commented on by 12 VCs. For example, German VC 28 commented: *“Because they (German companies) don’t know the language (of other European countries), they don’t know the legal environment and so on, and they don’t know the people, actually, they prefer to go to the States and that is very capital intensive. That’s one reason why we can’t create big companies in Europe.”* VCs in continental Europe are much more local investors, for example French investors invest in France (UK VC 52). There is also the issue of dealing with many different languages when investing across countries in Europe (French VC 69). Consequently, it is harder to build a big company in Europe as there are no individual countries where there is the critical mass to scale companies (US VC 47). The difficulty of scaling companies in Europe is discussed below in the context of fund performance.

Other stakeholders (3 LPs, 2 VC related, 1 other, 1 CVC) similarly commented on the fragmented markets in Europe with different cultures, laws, regulations, languages and politics. Hege et al. (2009) found no evidence that the performance gap between European and US VC funds can be attributed to differences in legal frameworks, stock market capitalisation and the tax environments of Europe and the US. However, a stock exchange executive commented that he sees the difference in performance between US and Europe VC funds being largely due to the difference in size and structure of the markets which are too small in Europe, too fragmented, lacking homogeneity with a lack of mobility between countries and political differences. A UK corporate VC agreed with the issue of fragmented markets: *“Most people want to start in Europe and go to America. That’s still the kind of the working assumption that you make it big in America. You don’t make it big in Europe because you do have 27 different countries, most of which are not very rich.”* (UK CVC 1). A US limited partner investor made the same point: *“In the US it’s easier to take a piece of technological innovation and the whole of the US and Canada is your white space automatically. It’s just so integrated; the challenge of different cultures and different languages and how big is your initial market, when you have an idea, in Europe, is a different question.”* (US LP 5).

Summary

Previous research has indicated that country-by-country differences in Europe compared to the more uniform market in the US do not appear to be responsible for the performance gap between European and US VC funds (Hege et al., 2009). However, many interviewees in this study (both VCs and other stakeholders) viewed Europe’s fragmented markets as a key issue, particularly in scaling businesses, and this may well have some bearing on the performance differential.

6.3 Ecosystem

Florida and Kenney (1988) observe that VCs sit at the centre of networks and rely on these networks for the generation of deal flow and in connection with due diligence on their investment opportunities. The effectiveness of such networks depends on the ecosystems in which these networks operate. Better sharing of information between VCs, entrepreneurs, large technology companies and other

stakeholders can lead to more informed decisions being made and actions taken by VC firms with regards to investee companies which results in improved fund performance.

In their questionnaire responses VCs from all geographies viewed the quality of networks in terms of sourcing deals, adding value to deals and exiting from deals as highly important to investment success (Appendix 3). VCs referred to the more open ecosystem in the US, including a willingness to share contacts, talents and information, versus the proprietary networks in Europe. In the interviews 52% UK and 33% continental Europe VCs referred to the use of their proprietary networks for sourcing deals compared to 26% US VCs. US East Coast VC 57 who has worked with his VC firm on both sides of the Atlantic commented on the much more open, sharing ecosystem in the US with a willingness to share talent, for example in introducing entrepreneurs that a firm may not wish to invest in to other VC firms. There is also more sharing of intelligence and information, more syndication activity and a non-proprietary approach to networks in the US: *“There’s a notion that if you provide help and connections that, you know, it tends to kind of flow back to you.”* This VC commented that this “pay-it forward” mentality is a mainstay of the West Coast but is also true of Boston and New York and also London and South East UK, and Cambridge and the Thames Valley depending on the maturity of the ecosystem. However, in his view in continental Europe there is a lot less connectivity on both a pan-European level and within the local ecosystem: *“There’s more of an “us versus them” between VCs and entrepreneurs and a lot less, you know, propensity to go syndicate internationally and stuff like that.”* (US VC 57).

A South African entrepreneur (Entrepreneur 6) also commented on the US VCs being more willing to share. This was reinforced by a UK entrepreneur who stated that US VCs are more open, willing to talk and outgoing. They are not so worried about “what’s in it for them” and are usually happy to share what they are doing. This willingness to share was also commented on by an advisor based in Silicon Valley: *“This country is a lot more philanthropic. People feel they want to give back and that runs through the whole Valley. People are much more protective in Europe: “I’ve got here and I’m not necessarily going to help you.””* (US Advisor 7). As a result of the openness of the US ecosystem competitive intelligence is much better and VCs understand markets better. A UK CVC agreed with the more open, sharing culture in the US and the lack of collaboration in Europe: *“It doesn’t have that collaborative,*

respectful competition that you have in the US. The battle lines seem to be drawn a lot more. A lot of suspicion. The US people are much more humble, much more open to talk. Everyone will take a meeting in the US. And kind of very open, very amenable.” (UK CVC 1).

A number of VCs (including UK VC 52, German VC 61, Swiss VC 49, French VC 70, Dutch VC 74 and Silicon Valley VC 37) mentioned that the US VC ecosystem is more mature than that in Europe; the US “has been doing it for longer”. However, an eminent UK limited partner rejected the view that the performance of VC funds is better in the US because they have been “doing it for longer”:

“You could have said that straight faced twenty years ago maybe thirty years ago, its absolute nonsense now. There’s just no excuse, basically. I don’t see that any of that can’t be done here. You’ve got the same rule of law in this country, the same contract system, the same access to global technology players, you’ve got the same access to consumer markets. It’s just how you organise and behave, how you filter, how much capital you apply, how much network leverage you open up for your investees, how much operational resource you give without snuffing them out. You know all of that stuff is a choice of a highly configured industry and that Europe has only configured itself enough to do average rather than to do excellent.” (UK LP3).

The US ecosystem has many large technology companies that are able to acquire smaller, growing companies, often at high valuations, which is not the case in Europe which lacks large businesses that are willing to buy technology start-ups at high prices (UK VC 45). US East Coast VC 57 commented on the importance of having landmark local companies which can act as acquirers and are pools for talent and help to pull the ecosystem forward with the Bay Area, including Silicon Valley, in the US being a “shining example”:

“There is ARM⁷ in the UK and a few other examples, but you just don’t have enough of those to sort of have a critical mass of local acquirers.”

⁷ ARM has subsequently been acquired by SoftBank (Japan).

Five of the other stakeholders (2 VC related, 1 advisor, 1 other, 1 CVC) commented on the more desirable ecosystem in the US compared to Europe including access to capital and with legal and regulatory systems more conducive to entrepreneurialism in the US: *“My perspective is that European VC is nowhere near as successful or as vibrant as US VC and the ecosystems that they sit in. And it’s not the fault or the responsibility of the VC because the VC is only one component in the ecosystem.”* (UK CVC 1). The high-profile founder of a UK VC firm believes that it is ecosystem differences in Europe that are currently the main reason for the difference in performance between US and European VC funds (UK VCR 1). He believes that strong R&D capabilities need to be attracted to specific areas in Europe in order to create effective networks and clusters (Section 6.5).

Interviewees also identified regulatory and legal environments, including copyright laws, as less conducive to innovation in Europe. European law is less flexible than US law: *“There’s no easy way for the law to evolve with the technology without an act of parliament or an act of the European Commission. That makes innovation very difficult.”* (US Other 7). This Silicon Valley based patent expert commented that it is not possible to license all of Europe from a “one-stop shop” which can deter US VCs from investing in Europe: *“If we want to open (US company product) across Europe it takes a lot of negotiation across all the different member countries. Whilst there is now a unitary patent system and copyright across Europe the issue is who licenses it for which territory?”* Individuals interviewed by Marston et al., 2013 similarly commented that copyright laws and the different jurisdictions in Europe can be a barrier to investment. There are also difficulties in getting access to intellectual property (IP) in Europe with many differences between universities in Europe in who holds IP rights compared to a more standardised approach in the US: *“There are challenges working with the universities, getting access to IP, we’re still way down in terms of tech transfer out of universities, and in engaging universities we’re hopeless.”* (UK Lifesciences VC 17).

Summary

Interviewees were clear about the more open and sharing ecosystem in the US which contrasted with a more closed and proprietary approach in Europe. This sharing versus proprietary approach has not been identified in previous studies. In terms of network theory, the more open networks exhibited in the US encourage information sharing and hence better knowledge of new technology developments and potential markets for new products and services. These networks can lead to better investments being made and nurtured by VCs. The US has more global technology companies that can act as pools of talent and provide a ready source of spinout companies and exit routes for VC investments via trade acquisitions. The easier exit process in the US was discussed in the previous chapter. Regulatory and legal environments, including copyright laws, need to be more conducive to innovation in Europe.

The argument that the US has been in the VC business for longer than Europe is often made, with the relative immaturity of European VC contributing to the difference in performance between US and Europe as suggested by Axelson and Martinovic (2013). As European VC has been active now since the late 1970s this should no longer hold weight. However, EVCA (2010, p.8) has the view that a “fully-fledged venture capital ecosystem” that is able to exploit the innovation and skill base in Europe “remains elusive”. Kelly (2011) comments that European VC still lacks an effective VC ecosystem where VC funds are co-located for ease of syndication and where there are strong ties between corporate VCs and the mainstream VC community to aid trade sales.

6.4 Scaling issues

The difficulty in scaling up companies in Europe is well known anecdotally and is addressed by Coutu (2014) in her report on UK economic growth. As the ability to scale up and grow a company has a direct influence on the performance of investments it may well contribute to the performance gap between European and US VC funds. Resource based theory informs on the scaling issue to the extent that it relates to a lack of later stage capital in the European VC ecosystem for scaling up companies (Chapter 4.2) as well as in other areas such as human capital (Chapter 4.6).

A number of VCs commented on the difficulty of scaling in Europe as one of the key differences between the European and US VC environments (UK 3, E 2, US 2): *“There is no single national market in Europe that is either an earlier adopter market for technology or has sufficient scale to be able to support a good sized business. Whereas, in the US you have both an early adopter market and one at scale.”* (UK VC 68). A continental European VC commented that it is harder to scale companies in Europe as three key ingredients are missing viz: *“One, a very big country where you can scale a business much faster and much more easily. Second, there can be tons of money invested in companies to scale them; and third you can find managers with outstanding scalability capabilities.”* (E VC 70).

Seven of the other stakeholders (1 LP, 3 VC related, 1 adviser, 1 other, 1 CVC) similarly commented on the difficulty of scaling in Europe with not enough finance available to grow big businesses. This can result in European VCs exiting from investments too early as noted in the previous chapter: *“Certainly, there’s lots of evidence to say we sell things earlier but I think that’s because we haven’t got enough money to build them into truly great companies.”* (UK LP 2). The scaling issue may also be due to European VCs not “thinking big” enough as discussed earlier.

BVCA Committee members believed that the lack of ability to scale in UK / Europe is the most important issue in the difference between the UK and US environments. The smaller and fragmented markets in Europe and a shortage of expansion finance do not permit effective scaling. The mindset of entrepreneurs and VCs in Europe who do not think “big” enough is also a factor with scaling (Section 6.1).

Summary

As noted by Coutu (2014), the inability to scale is a major issue for European companies. This is likely to be a contributor to the performance gap between Europe and US.

6.5 Technology clusters

There are a number of studies that show that being located in a technology cluster or “hotspot” provides better access to investment opportunities and exits (Zook,

2005, cited in Mason, 2007; Dantas Machado and Raade (2006); Hochberg et al., 2007). Lerner et al. (2011) found that fund managers located in the technology clusters of Silicon Valley, Massachusetts, New York and London achieved higher fund performance than those based elsewhere. In addition to social network theory being pertinent to clusters, organisational theory suggests that VCs are relying on their personal relationships to help them source and select which particular ventures to fund and to help develop businesses over their growth stages (Florida and Kenney, 1988). The relationships developed by VCs through their networks with entrepreneurs and other VCs in technology clusters aids the transfer of information (Venkataraman, 1997), helping to overcome the issue of information asymmetry in the VC decision process.

A number of the VC interviewees referred to the importance of operating in close networks in technology clusters, citing Silicon Valley as the outstanding example of a super successful technology hub (UK 4, E 3, US 2): *“The investments, the CEOs and their teams are just surrounded by a phenomenal ecosystem (in Silicon Valley). The connections are just phenomenal: connected advisers, connected partners. The Valley is just unique.”* (UK VC 7). It is the proximity between the VCs and the entrepreneurs in Silicon Valley that helps to develop the personal networks that facilitate the investment process (Saxenian, 1994; Zook, 2004). Silicon Valley VC 51 explained that the clustering together of young, most talented engineers in urban areas like San Francisco and New York contributes to the faster sharing of ideas, techniques and innovation with VCs and “fuels on itself”. Business and personal networks are not kept separate by Silicon Valley VCs: *“They’re all going out for dinner with each other every other night and sharing so it’s a very loose network of confederacy of data information.”* (UK CVC*). A UK VC (VC 45), which also has an operation in Silicon Valley, did however comment that it is necessary to get into the inner circle “club” of the Valley to be able to share its benefits: *“You become collegial with everybody and once you do one good deal and you become part of that club that’s a great club.”*

Whilst there are a number of successful technology “hot spots” in the European ecosystem with perhaps a comparable calibre of companies and people, they are not so well developed or as concentrated as the Valley: *“The raw calibre, plenty of IQ, plenty of great engineers, great ideas, all of that is just as good, it’s just that it’s so distributed that you don’t get the cluster effect, that you get in the Valley.”* (UK VC

7). It is Silicon Valley that is generating much of the “changing the world” disruptive technology (US VCR 4). In the questionnaire responses (Appendix 3) “investee company located in a technology cluster” was rated higher for investment success by US VCs than European VCs reflecting that a major proportion of US VCs are located in the tech clusters of Silicon Valley and Boston unlike in UK (and Europe) where VCs are often located in major financial centres (Jones-Evans and Thompson, 2009).

Three of the other stakeholders (1 LP, 1 entrepreneur, 1 VC related) commented on the huge added value that Silicon Valley technology cluster VCs can bring to their portfolio companies through their extensive networks which are lacking in Europe: *“US (West Coast) VCs use overwhelming force in supporting a project.. And I don’t just mean dollars of overwhelming force, but connectivity and networks and relationships with big corporates. Europe is not able to efficiently filter the ones that will gain traction from those that won’t. The vast majority fail to gain traction.”* (UK LP 3).

Summary

The “uniqueness” of the Silicon Valley VCs and the environment in which these firms operate was a common theme arising from the interviews. Reference was made to the outlier performance of Silicon Valley based firms, the operational and /or entrepreneurial background of investment executives, the more risk-taking approach of Silicon Valley firms, the disruptive technology that comes out of Silicon Valley, the brand strength of well-known Silicon Valley based firms which helps to attract the best deals and the best LP investors, the entrepreneurially friendly terms provided by West Coast VCs, the better contact with corporate buyers for exits and the trend to syndicate with fellow VCs at the earliest stages of company development to get a “foot in the door” with potential home-run companies. Reference was also made to the huge added value afforded to portfolio companies through the extensive networks in the Valley plus the non-proprietary willingness to share time and resource in a “giving back” culture in Silicon Valley.

All Silicon Valley VC firms in the sample for which fund performance data were available were in the top performing category, that is they had at least one fund with top quartile performance. Three of the 5 US firms whose funds had outlier performance of greater than 50% were located in Silicon Valley. Of the 12 firms which

had two or more funds with top-quartile performance, 4 of the 7 US firms in this category were operating out of Silicon Valley. The operational characteristics of Silicon Valley based VC firms, as noted in the above paragraph, and the benefits the firms derive from being located in such an interconnected cluster, contribute to their excellent performance. Hochberg and Ljungquist (2007) found that the better-networked VC firms achieved significantly better fund performance. The networks established between VCs and others in Silicon Valley, based on mutual trust, aids information sharing between VCs, entrepreneurs, large technology companies and other stakeholders in the Valley.

6.6 Lack of experienced CEOs and serial entrepreneurs

The skills and experience of an entrepreneurial management team are essential components for the success of a venture (Sahlman, 1990). If there is a deficiency of capable and experienced entrepreneurs and CEOs to initiate, develop and grow businesses then clearly ventures will not materialize nor be successful.

A lack of high quality CEOs, serial entrepreneurs and people with sales & marketing skills was cited as a key difference between Europe and the US by 31% of the VCs interviewed (41% UK VCs, 26% US VCs and 21% continental European VCs). Axelson and Martinovic (2013) state that a contributor to the difference in performance between European and US VC funds is due to serial entrepreneurs being less common in Europe. Coutu (2014) highlighted the lack of experienced leadership teams as one of the contributors to the difficulty in scaling up UK companies. For example, a Silicon Valley based VC with operations in both US and UK commented on the reasonable number of good CEOs in the Valley and the relative lack of them in Europe: *“That’s been our biggest challenge in Europe is finding someone that can really run a startup and take it to success.”* (US VC 35). The “virtuous cycle” of entrepreneurs and management teams growing successful companies and then forming new companies has not happened in Europe (UK VC 21). This was also the view of a Swiss VC operating in Silicon Valley who believes that the shortage of CEOs to run start-ups in Europe is effect not cause: *“You have fantastic managers in Europe, it’s just that they don’t quite take the gamble to go and work for the start up yet because there haven’t been enough cases to follow.”* (E VC 34). However, a UK VC was disappointed by the quality of candidate CEOs in UK: *“I wouldn’t say the quality is*

as high as it should be. I think the UK needs an upgrading across the board.” (UK VC 22).

A number of the other stakeholders also commented on the lack of experienced CEOs (2 VC related, 2 advisors, 1 CVC) and serial entrepreneurs (3 VC related, 2 CVCs) in Europe: *“I think Europe is getting there but we didn’t have that initial, we don’t have that large enough base, yet of entrepreneurs and CEOs that have done it before.”* (UK CVC 2). An issue here is that European entrepreneurs tend to retire if they have made money and not go on to start other ventures or become “super angels” as in Silicon Valley (European VCR3, UK CVC1): *“I still have to see I must admit, this kind of billionaire former entrepreneur, turned billionaire, turned super angel in Europe. I haven’t seen that many examples, if I’m honest.”* (VCR 3). Maybe this is because of the difficulties that entrepreneurs face in Europe, particularly with undercapitalisation of companies: *“In my view a big factor in Europe, we finance companies so poorly when we make life conditions of entrepreneurs seem so bad by the time they’re done with the start-up, three or four years or five years later, they’re exhausted and say “why on earth would I want to go through that again?””* (UK Advisor 2).

A shortage of software engineers in Europe was also seen as an issue: *“For the last 15 years most of Europe, but particularly the UK, hasn’t really stimulated and motivated people to come out of university with engineering degrees particularly in software.”* (UK VC 2); as were difficulties in recruiting the right quality of sales people in UK, both strategic marketing, business development and “out and out sales guys who can make 20 calls, get 5 meetings and make a close”: *“Sales in the UK, I think, are still seen as a bit of dirty... you know, it’s not really a profession.”* (UK VC 72).

Summary

There was general agreement between the VCs and other stakeholders interviewed about the relative shortage of good quality CEOs and repeat entrepreneurs to run high growth venture backed businesses in Europe. The skills and experience of an entrepreneurial management team are essential components for the success of a venture (Sahlman, 1990), thereby contributing to successful fund performance. The findings from the interviews in this study are consistent with previous literature in this

area including Kelly (2011), Axelson and Martinovic (2013) and Coutu (2014) which comment on the lack of CEOs and serial entrepreneurs as contributing to the performance differential between European and US VC funds.

6.7 The impact of luck on investment success

The impact of luck is sometimes cited as an ingredient of VC investment success. Fund performance may be due to the skilful success of the GP or simply due to the luck of conducting business at an economically prosperous time (Aigner et al., 2008). A “lucky hit” home run on an investments can benefit investors who happen to be in the right fund at the right time (Mulcahy et al., 2012).

Luck was cited as an ingredient of their success with investments by eight VCs (UK 5, E 1, US 2). Korteweg and Sorensen (2014) comment that VC performance is mostly due to luck. A Silicon Valley VC agreed that luck has a “*huge amount to do with it.*” (US VC 38). An East Coast US VC did not disagree that luck is important including being in the right place at the right time: “*We effectively live in non-predictable, fast-moving, chaotic environments, so luck plays a big part.*” (US VC 57). Irish VC 50 also agreed that VC fund performance was largely down to luck: “*This is part of what is kind of intriguing about the whole performance thing because I honestly believe so much of this is just down to random good luck, good timing which means that the whole philosophy of carry actually is a complete joke. It’s utterly random.*” Though a UK VC (VC 1) and an Irish VC (VC 5) clarified this as being in the position to take advantage of getting lucky: “*You can be at the right place at the right time because you are lucky and luck helps but who was it said “the more you practice the luckier you get”? So, I think actually, forethought is what enables you to be lucky enough to stand in the right place at the right time.*” (UK VC 1). A point also made by a US West Coast university professor: “*I’d always say luck is important but preparation is important as well. It’s amazing how many people who are lucky are well prepared.*” (US Other 2). Lerner et al (2011) refers to this serendipity, or “smart” luck in connection with the characteristics of better performing VC funds.

A number of the other stakeholders (3 LPs, 1 entrepreneur, 1 advisor, 2 others, 1 CVC) agreed with the part luck plays in investment, and therefore, fund performance success: “*If there were UK managers who had serially successful funds, I’d say it wasn’t luck, it was the skill of the managers, but there have been too few serially*

successful funds.” (UK LP 2). It may come back again to the higher risk approach pursued by US VCs: *“I would say an awful lot of it is luck. That they happened to find Google, Yahoo, Pinterest, Facebook, right? Very, very early on, right? Once you’re lucky, twice you’re good. But I think a lot of that is just a matter of placing a lot of big, risky bets.”* (US Entrepreneur 5). The questionnaire (Appendix 3) also highlighted the role that some participants believe luck plays in the investment process, supplementing the comments from VCs and other stakeholders.

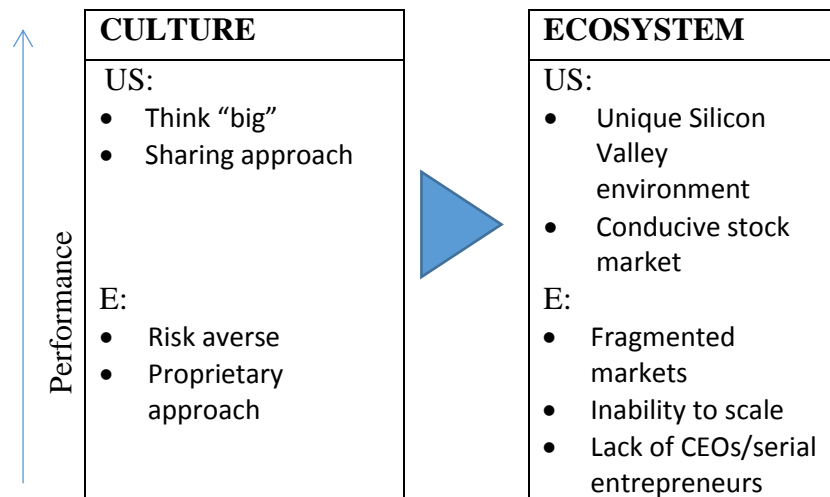
Summary

From the above comments it would seem that luck is believed to be an ingredient of success in VC investing with both European and US investments. US VCs achieve more outlier returns than European VCs. However, this is more likely to be a result of the investment practices adopted by US VCs rather than pure random luck at investing, as a major component of success in both entrepreneurship and venture capital can be attributed to skill (Gompers et al., 2006). If VCs are consistently “lucky” then this is due to their skill in recognising a serendipitous opportunity and capitalising on it, and not simply due to luck per se.

6.8 Conclusion

The findings from this study of the wider environmental aspects in which VCs firms in UK, continental Europe and US operate include the lower propensity for risk of European VCs and not “thinking big enough” with their investments (Figure 6.1). This is partly cultural and also due to the higher risk approach adopted by US VCs in the more competitive environment that operates in the US, in particular in Silicon Valley. US VCs risk approach is exemplified in their “1 in 10”, home run investment strategy as discussed in Chapter 5.2.1. The higher personal wealth of US VCs, observed by several interviewees, may also permit a greater propensity for risk. Viewed from the perspective of real options theory, US VCs’ cultural approach of “thinking big” and making higher risk investments in entrepreneurially favourable environments such as Silicon Valley is in contrast to the more risk-averse, downside protectionist approach of European VCs. This leads to US VCs generating outlier returns on their investments.

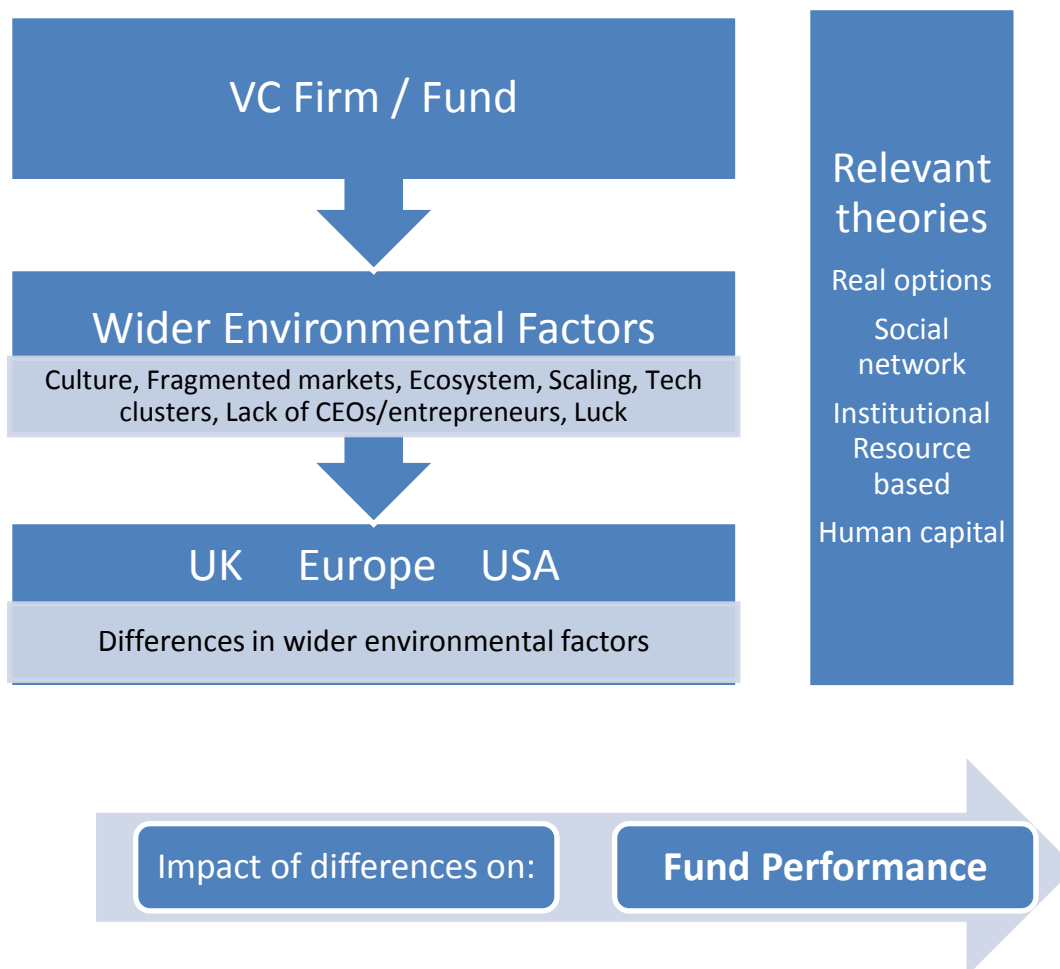
Figure 6.1: Wider environmental differences between European and US VC funds



There is a greater willingness to share contacts, talents and information in the US, again particularly in the unique environment of Silicon Valley, compared with a more proprietary system in Europe. Consistent with social network theory the more open networks established between VCs, entrepreneurs, large technology companies and other stakeholders present in ecosystems such as Silicon Valley encourage the sharing of information and hence better knowledge in such areas as new technology developments, potential markets for new products and service, access to talent and lucrative exit routes to trade buyers. This close networking and information sharing can lead to improved performance. Such information sharing is based on mutual trust earned through long standing personal contacts (Florida and Kenney, 1988) which US VCs are more effective in generating and nurturing. The strong networks present in the technology centres help foster better connections and relationships to help VCs to find the best deals (Zook, 2005; Hochberg et al., 2007).

From an institutional theory perspective, the fragmented markets existing across Europe can be compared to the uniform federal structure in the US which permits the more effective scaling of VC backed businesses. The US also benefits from a more open, sharing culture compared to a more proprietary culture in Europe. From a resource based theory and human capital theory perspective the relative lack of CEOs and serial entrepreneurs in Europe is compared to the more plentiful supply of experienced CEOs and serial entrepreneurs in the US to run innovative, VC backed high growth technology businesses (Figure 6.2).

Figure 6.2: Conceptual framework: Wider environmental factors



The difficulty in scaling up companies in Europe was viewed by several interviewees as perhaps the key difference between the UK and US environments. In addition to the fragmented markets in Europe the scaling issue is also due to European entrepreneurs (and VCs) not “thinking big enough”. The “uniqueness” of the Silicon Valley environment for growing technology businesses, with the superior performance of VC firms in the sample located in the Valley, was highlighted by interviewees. Luck may play a role in VC investing with both European and US investments. US VCs achieve more outlier returns than European VCs but this is more a result of the investment practices adopted by US VC rather than simply luck at investing. These areas can all impact on the underlying performance of individual investments and therefore on overall fund performance and may well contribute to the difference in performance between US and European VC funds (Figure 6.2).

The structural and operational characteristics of VC firms in Europe and US, and the environments in which they operate, have been discussed in this and the

preceding two chapters. The following chapter discusses the characteristics of those VC firms in both Europe and US which have the better performing funds. By comparing the characteristics of the firms with better performing funds in Europe and US with those of firms with lesser performing funds further insights into what constitutes a better performing VC firm and fund may be achieved. By adopting the characteristics of better performing firms, VC funds in both geographies may achieve improved performance.

CHAPTER 7: CHARACTERISTICS OF FIRMS WITH BETTER PERFORMING FUNDS

7.1 Introduction

The three preceding chapters have investigated the performance difference between European and US VC funds in connection with various structural and operational factors of the VC firms and the funds themselves and the wider environments in which the firms operate. These chapters have considered the sample of firms interviewed as a whole. Whilst all the firms in the sample were well-performing in that they had at least one fund with top quartile performance, some were better performing than others. This chapter now reviews the structural and operational features of the firms with better performing funds in both Europe and US in order to identify anything distinctive in the way in which these firms operate and what factors might explain their better performance. Any differences between the top performing firms in US compared with those in Europe are also investigated. As explained in Chapter 1.6, the analysis provided in this chapter is additional to the main study and is included here to provide further insights into the Europe and US performance gap.

The overall performance of VC funds in Europe, in particular, and US has been disappointing compared to private equity funds. For example, the latest performance data published by EVCA (now Invest Europe) prepared by Thomson Reuters showed that the 10 year returns for VC funds were 5.03% for the US and just 0.84% for Europe to 31 December 2013 (EVCA, 2014). 2013 is the latest year for which the European data is available from Invest Europe. In comparison, private equity funds focusing on later stage deals, such as management buyouts, returned on average 9.64% for US and 10.46% for Europe (EVCA, 2014). More recently available data for the UK for 2016 shows that management buyout funds returned on average between 11.1% and 13.4%, depending on whether they were small, medium or large-size buyout funds, compared to just 6.1% for VC funds (BVCA, 2017b).

Whilst the overall performance of VC funds in Europe, in particular, and US has been disappointing compared to private equity funds there are nevertheless VC funds that perform well in UK, continental Europe and US. By comparing the characteristics of the firms with better performing funds in Europe and US with those

of the firms with non-top performing funds further insights into what constitutes a better performing firm and fund may be achieved. By adopting the strategies of better performing firms, VC funds may achieve improved performance leading to increased investment into the VC asset class and thereby continued funding for innovative, high growth companies.

The aim of the research discussed in this chapter is to ascertain from the interviews with VC firm executives and other stakeholders in the VC markets in Europe and USA:

- (1) if there are any factors that are common to the firms with better performing funds in those countries,
- (2) whether the performance of the better funds in the sample in US is indeed greater than that in UK and continental Europe, and
- (3) if there are differences in the characteristics of the better performing firms and funds in Europe and the US.

Better performing firms in the study were defined as those whose most recent fund had top-quartile performance as compared to their peers. These were compared to firms whose most recent fund did not have top quartile performance. Characteristics of firms which had consistent top quartile performance with all of their funds and those with outstanding performance returns of 50% per annum or more were also reviewed.

Top quartile performance was determined from data provided specifically on request to the researcher by Preqin, an independent data provider (covering 26 firms of the 64 firms interviewed in the wider study), data from published independent performance data providers (which provided data for just one additional firm) or, for firms where no independent data were available from VC firms' own views on their performance (23 firms). No data were available for 14 of the firms interviewed, either from independent sources or internally (this was because VC firms were unable, or unwilling, to predict the quartile performance of their funds, possibly in some cases in view of the relative early stage of a fund's life). Aigner et al. (2008) comment that many funds claim to be top quartile as it is their discretion as to which performance

data they use and with which peer group they rank themselves. In order to remove such bias, data from the independent data provider (Preqin) is also considered separately from self-reported data in this study. Harris et al. (2014b) have previously confirmed the reliability of Preqin data.

The findings of previous research into top performing VC funds are first discussed, followed by a comparison of the characteristics of the top performing funds from all territories with those of the non-top performing funds. This is followed with a review of the characteristics of funds with consistent top performance and funds with outlier performance, that is those funds with a return in excess of 50% per annum. Differences between the top performing firms in US and Europe are then reviewed, first of all confirming that there were more top performing firms in the US than in Europe in the sample and then investigating operational differences between top performing firms in Europe and US. The characteristics of the more recent European VC firms (those established in the last 10 years) are then reviewed in order to discover if they have the same characteristics and structures of US VC firms and follow the same investment strategies as the US VCs. The chapter concludes on the characteristics of better performing VC firms and the further insights that the research has provided into the performance differential between European and US VC funds.

7.2 Previous research on top performing VC funds in UK and US

In their study of UK and US VC funds, Lerner et al. (2011) found that the better performing funds in US and UK had a number of characteristics (continental Europe was not covered by the study). Lerner et al. found that medium size funds, which they classify as between \$84m and \$365m in fund size, performed better than the smaller or larger funds outside of this range and that funds investing at the earlier stages of an investment performed better than funds investing at later stages for both UK and US funds. They found that more experienced fund managers achieved higher returns; here Lerner et al. include experience in screening potential deals citing Gompers et al. (2005), adding value to deals post investment (Gompers et al., 2010), having more extensive networks for sourcing deals and experience in finding co-investors and exit opportunities (Hochberg et al., 2007). Lerner et al. found that experience was equally important for both US and UK funds but that the benefits of experience have become much less significant for more recent funds, that is funds of vintages later than 1997.

Lerner et al. found that funds raised by fund managers whose previous funds had performed well were more likely to exhibit superior performance (Kaplan and Schoar, 2005). This characteristic applied to US funds but not to UK funds although Lerner et al. did not have the data for many of the UK firms with multiple funds. They found that this persistence of returns effect varied across time periods, being greatest during the period 1990-93 and lowest during the dotcom bubble period of 1998-2001, increasing again in the period 2002-05. Lerner et al. also found that fund managers located in the larger investor hubs of Silicon Valley, Massachusetts, New York and London achieved higher IRRs than funds based elsewhere in the US and UK. Specifically, they found that funds based in Silicon Valley or Massachusetts had significantly better returns than other US funds. The performance of the London funds was lower than those funds in the US hubs but better than UK funds based outside London. They mention that the superior performance of funds based in hubs was greatest for funds raised in the period 1994 to 1997 and has subsequently eroded over time. Lerner et al. did not find any strong relationship between industry specialisation and fund performance. They did find a positive relationship between the number of partners in a firm and fund performance although this has also eroded over time.

Lerner et al. state that the characteristics of better performing funds only account for around 30-40% of the variation in returns across funds for both UK and US; the rest is unexplained and may be due to a combination of “unmeasured (or unmeasurable) factors and serendipity” (Lerner et al., 2011, p28). This research seeks to identify these possible unmeasured factors, enquiring whether there are any factors that are common to the better performing funds in the UK and US, and now also including continental Europe, that are additional to those identified in previous studies, such as Lerner et al. (2011). The research also investigates if the performance of the better performing funds for the sample of VC firms studied in the US is greater than that in UK and continental Europe. Differences in the characteristics of the better performing funds in Europe compared to those in the US are examined. Lerner et al (2011) did not specifically investigate possible reasons for the difference in performance of the top performing funds in US compared to those in UK.

7.3 Comparison of firms with top performing funds with firms with non-top-performing funds

The structural and operational characteristics of top performing VC firms in both Europe and US, i.e. those whose most recent fund had top quartile performance, were contrasted with those firms whose most recent fund did not have top quartile performance. The performance of the most recent fund of each of the 64 firms included in the study was determined from either independent data, where available, or from the fund managers' own views on performance (Chapter 3.5.1). Some 31 firms in the total sample of 64 firms interviewed had their most recent funds with top quartile performance (13 UK, 12 US, 6 continental Europe). Other firms had their most recent fund not top performing (14 funds), had views on their funds' performance but did not have firm data on performance (4 funds) or the performance was not known (15 funds).

61% of the top performing firms (UK 8, US 7, E 4) - those whose most recent fund was top quartile - used a home run, high risk, "1 in 10" approach to making investments compared with just 35% of the non-top performing firms. This reflects their focus on outlier performance which can lead to exceptional returns. As discussed in Chapter 5.2.1, VCs tend to pursue either a home run, "1 in 10" investment strategy when they select deals for investment on the high-risk basis that at least one out of every ten investments they make will return the fund as a whole (Zider, 1998) or they pursue the less risky, and potentially lower return basis of achieving a 2x to 5x return on all their investments (growth strategy). This usually depends on whether they are investing at early stage or later stage. Engaging real options theory VCs can choose as to whether to continue to invest in a high risk proposal or not. A higher risk strategy, such as the "1 in 10" approach can lead to higher returns by the performance of outlier investments.

In addition, more top performing firms (35%) (US 7, UK 3, E 1) said that they used a theme approach to investing than the non-top performing firms in the sample (17%); that is, they researched potential areas for investment in new technologies rather than simply following the trend (Chapter 5.2.4). By fully researching potential themes for investment VCs can reduce the information asymmetries surrounding their investment decisions. As discussed in Chapter 5.2.4, 19 firms in the total sample of VC firms interviewed said that they used a theme approach to investing, with more US VCs using this approach than European VCs (US 11, UK 5, E 3).

There was no apparent difference between the performance of different sizes of funds in the sample studied nor the stages at which they were investing. Lerner et al. (2011) had previously found that medium size funds, those between \$84m and \$365m in fund size, performed better than smaller or larger funds outside of that range and that funds investing at earlier stages of an investment performed better than funds investing at later stages (Chapter 4.2).

Summary

More of the better performing firms engaged a higher risk, “1 in 10”, investment strategy than non-top performing firms. This approach can lead to outlier returns. More better performing firms were also more likely to use a theme approach to eliciting and researching future investment trends. This provides competitive edge and improves the information available to the VCs to enable them to make informed investment decisions. The use of the “1 in 10” strategy and the theme approach to investing are additional to the findings of Lerner et al (2011) discussed in Section 7.2.

7.4 Consistent top performance

Consistency of top-quartile performance across all funds in a VC portfolio was exhibited by only three firms: two US VCs (a San Francisco based VC and a New York based VC) and a continental European VC (a Swiss based VC interviewed at its operation in San Francisco). There were no UK firms that showed this top-quartile consistency. Harris et al. (2014a) confirmed a persistence in the performance of US VC funds but did not investigate UK VC funds. Previously Lerner et al. (2011) had noted a consistency in performance of US funds but not UK funds.

A UK LP commented about the lack of consistency in the performance of European funds:

“You can always find European funds that perform as well as some of the US funds but what I never managed to find was consistency of performance in European funds compared to the best US funds. So we had portfolios of US funds which would consistently turn in 30% plus IRR from the same management team and we never had a European fund that did it more than...

well, a venture fund, I think I'd struggle to name any one that had done it twice, to be honest." (UK LP)

Consistent themes for the three top-performing funds in the study were that they all engaged the "1 in 10", home run, high risk approach to investing and used the theme approach for new investment areas as described above. The theme approach was specifically referred to by the New York based VC and implied by the Swiss VC ("*focus on game changers*") and the US West Coast VC ("*looking for something that is really significant in this day and age*").

In addition, these three firms with consistent top performance exhibited a number of characteristics which it has been shown previously in this research are more prevalent with US VC funds than with European funds. As discussed in Chapters 5 and 6, they all had partners with operational and / or entrepreneurial backgrounds, in addition to those with financial and / or consulting backgrounds and had more than one partner involved on deals both pre and post investment. Whilst the three firms had a lead partner responsible for deals from sourcing a deal through to exit, other partners at these three firms were often involved at the due diligence or post-investment stages or indeed throughout a deal. In this way the partners shared their expertise on deals as and when required, making optimal use of the available human capital. The three firms also benefited from their relatively high profile and track record for sourcing deals. The brand strength of the firms aids quality deal flow and optimal exits through relationships with big corporates.

All three VCs used entrepreneurially friendly terms in their term sheets. As discussed in Chapter 5.5.2, "entrepreneurial friendly" terms mean that the valuations offered by the VCs are more attractive to entrepreneurs and onerous terms such as multiple liquidation preferences are not included in the offer letter. In contrast "investor friendly" terms may include lower valuations, multiple liquidation preferences, full ratchets and cumulative dividend streams. The two US firms also carried out their due diligence on deals largely in-house. The Swiss VC did involve accounting firms and law firms to do more in-depth diligence on all investments once a term sheet had been signed.

Summary

Only three firms in the sample, all operating in the US, showed consistency of top quartile performance across all their current and previous funds. No firms operating solely in UK or continental Europe showed such consistency in performance with their funds. The US firms exhibited the “1 in 10”, home run, high risk approach to investing and used the theme approach for new investment areas as for the better performing firms discussed above. In addition, these US firms had more partners in their investment teams with entrepreneurial and operational backgrounds, with partners working together on deals. The firms benefited, in terms of sourcing high quality deals, from the brand strength and high profile that was generated on the back of their consistent high performance. Harris et al. (2014a) had confirmed a persistence in the performance of US VC funds but had not investigated UK VC funds, or indeed continental European funds, as in this study. Lerner et al. (2011) had previously noted a consistency in performance of US funds but not of UK funds. Lerner et al (2011) did not specifically investigate possible reasons for the difference in performance of the top performing funds in US compared to those in UK.

7.5 Firms with outlier performance

Outlier performance in terms of achieving a return of greater than 50% IRR on at least one of their funds was achieved by only 9 VC funds, all of which were funds of US VC firms. No UK or continental European firms had funds with outlier returns. The 9 outlier performing US VCs returns ranged from 29.6% to 188.4% with multiples from 1.23 to 19.62. The 9 funds with outlier performance related to 6 US VC firms as follows: 3 West Coast VCs (one with two funds), two East Coast VCs (two funds each) and a mid-Atlantic VC.

Of the nine funds that achieved outlier returns of greater than 50% IRR six funds had vintage years from 1993 to 1997, that is prior to the dot com bubble period of 1999 to 2001. Two funds had vintage years of 2004 and 2010, respectively, that is after the dot com period. Funds formed in the dot com period are likely to have inferior performance as is evident from performance data on this period published by independent data providers (Chapter 2.2). Four of these top performing funds continue to exhibit top quartile performance in their most recent funds, all of which are from the 2011 vintage year. The mid Atlantic based VC had only fourth quartile performance

for its 2011 fund and there was no performance data available for one of the Silicon Valley VCs for its most recent fund. The outlier performance of the US funds in the sample in certain vintage years is consistent with the Thomson Reuters data referred to in Chapter 2.2 with US maximum returns outperforming European maximum returns pre bubble and in the post bubble years of 2004, 2007 and 2010, whilst European VC funds had maximum returns greater than US funds in the bubble vintage years of 1999 to 2001 and in the post bubble vintage years of 2002, 2003, 2006, 2008 and 2009.

The “outlier” VCs tended to have a “1 in 10”, home run approach to investing (4 VCs) and they used a theme approach for researching new investment trends (3 VCs). In addition, they had partners with operational and / or entrepreneurial backgrounds (all 6 VCs), the high profile of the firms aided sourcing of deals (3 VCs), they used entrepreneurially friendly terms (4 VCs) and due diligence on investments was carried out largely in-house (all 6 VCs). Four of the VCs had a consensus approach to approving investments. However, at one of the Silicon Valley based VCs the sponsoring partner approves the investment. At another Silicon Valley VC, a senior partner can “lay across the tracks” to push a deal through which can lead to very risky investments being made which may lead to outlier returns (or substantial losses).

The outlier performance of such super performing funds is often due to the outstanding performance of one or two investments in the fund which provide the stellar return for the fund as a whole. Indeed, two LPs interviewed mentioned that the better performance of the US VC funds was due to outliers: “*The big outliers were in the US, the maximum performance, I think we found, was 720% IRR as opposed to European 260% IRR.*” (UK LP 2). Some VCs believe that it is the outlier, home-run investments with large IPOs such as Google, Facebook and eBay that leads to US outperformance, these home-runs skew the US performance data: “*So the real gap in Europe is the multi-billion dollar IPO exits. They are just precious few of them.*” (UK VC 7). UK VC 45 commented that Europe has very few really phenomenal, outlier VC firms who achieve multi-billion dollar exits; whilst there is a relatively larger cluster of US VCs who have invested in stellar companies such as Facebook and LinkedIn.

Swiss VC 34 also commented on the lack of outlier returns in Europe due to the shortage of good opportunities for investment in the first place, explaining that in the US there may be 5 really successful companies out of 10,000 but there are only 1,000 to start with in Europe, so there is little chance of really successful portfolio investee companies: *“The really, really big outliers the Googles, the eBays, the Facebooks etc. are pretty far on the outlier curve and you just have to have more numbers.”* (E VC 34).

Summary

Only US VCs showed returns on their funds of greater than 50% IRR. These “outlier” VCs had a “1 in 10”, home run approach to investing and used a theme approach to investigating future investment trends. In addition, they had partners with operational and / or entrepreneurial backgrounds, the high profile of the firms aided sourcing of deals, they used entrepreneurially friendly terms in their term sheets and they carried out due diligence on investments largely in-house. Lerner et al’s (2011) study into the best performing funds had not specifically addressed the characteristics of those with outlier returns, although noting that “the very best US funds outperformed their UK equivalents by a whopping 89 percentage points” (p. 23).

7.6 Differences between top performing firms in Europe and US

As has been shown earlier in this study, European VC funds have consistently performed worse than US VC funds (Chapter 2.2). There are nevertheless top-performing funds in Europe. This section contrasts the investment practices of funds with top performance in Europe with those of the top performing funds in US.

7.6.1 Confirmation of more better top performing firms in US

For 26 of the firms included in the current study, where fund performance data were provided specifically on request to the researcher by an independent data provider (Preqin), 15 firms had their most recent fund with top quartile performance, 12 firms had two or more funds with top quartile performance and 19 firms had at least one of their funds with top quartile performance (Table 7.1).

Table 7.1: VC firms in sample with top quartile performance

Top quartile performance	Total	US	UK	E
Most recent fund	15	7	5	3
Two or more funds	12	7	2	3
At least one fund	19	11	5	3

There were more better performing US firms, in terms of top quartile performance, than UK or continental European firms in the sample (Table 7.1). In addition, 6 US firms, but no UK or E firms, had funds whose performance showed an IRR of >50% (Section 7.5). Only 3 firms showed consistency of top-quartile performance between all their funds (2 US and 1 continental European firm) (Section 7.4). Harris et al. (2014a) showed that US venture capital funds have persistence in performance from fund to fund; Harris et al. did not review European VC funds for persistence of performance.

Firms were also asked about their own views on their performance. This provided data for a further 23 firms, who were in a position to form a view on performance, additional to those where independent data were available (US 6, UK 9, E 8). Of these additional firms all US firms, 8 UK firms and 6 continental European firms said that one or more of their funds had top-quartile performance. Firms own views on their performance were in general agreement with the independent data where this was available; in only one case did it not agree.

Additionally, the performance of the top quartile European VCs from the independent data was lower than that of the top performing US VCs. Overall the top quartile European VC returns, for the most recent funds, ranged from IRR of 13.8% to 21.4% with multiples from 1.28 to 2.16. The returns for the most recent top quartile funds of the US VCs ranged from 23.0% to 42.4% with multiples from 1.23 to 1.51. Also from the independent data there were more US funds than European funds that had at least one of their funds with top quartile performance (US 11, UK 5, E 3) and more US funds that had two or more funds with top quartile performance (US 7, UK 2, E 3).

Whilst some US LPs who were interviewed in this study had little experience of investing in European VC funds, 6 of the 7 LPs interviewed confirmed a performance difference between European and US VC funds (US 2, UK 3, E 1) with European returns being worse than US returns overall. This is consistent with the difference in performance noted from the data above: *“I think probably the top deciles of VCs in the US would outperform the top deciles of VCs in Europe.”* (US LP 6). UK LPs had more experience of investing in US VC funds and confirmed the performance difference: *“We have incredibly high performing US venture experience. In Europe we have some okay performing and in both the US and Europe we’ve got some dreadful performing. The US is quite a broad spectrum from super high performing to super terrible. And Europe is a spectrum from terribly okay to super bad performing if that makes sense.”* (UK LP 3).

7.6.2 Operational differences between top performing firms in Europe and US

The difference in performance between the top performing firms in Europe and US is due to operational differences, namely the investment practices adopted by the firms. For top performing firms (most recent fund) in the sample there were differences between US, UK and continental European funds in connection with the theme approach to investing, the investment approval process and the terms of investment. Each of these areas is now discussed below. The performance data were taken from both independent and internal sources.

Theme approach

More top performing US firms adopted a theme approach to research future investment areas than UK and continental European firms (US 7/12, UK 3/13, E 1/6). Leading US VCs aim to spot investment trends early. A theme approach clearly takes resource which is more available in US firms with their relatively larger funds and teams. As discussed in Chapter 5.2.4, and as referred to by several VCs and other stakeholders, US VCs can bring enormous resource into play in researching themes, resource that is simply not usually available to European VCs.

Whilst some UK VCs do say that they follow a theme-based approach to investment trends it was clear from the interviews that they do not do this to the same extent of the US VCs. This is partly due to a lack of human capital resources to carry

out the necessary research and partly due to the less use of, and less availability of, social networks of entrepreneurs, technologists, large technology corporates and other stakeholders to share information on new technology trends. Hochberg and Ljungquist, (2007) found that better-networked VC firms achieved significantly better fund performance.

Investment approval process

As well as more top performing US VCs adopting a theme approach to investing compared to European VCs, proportionately more UK and continental European firms used a consensus / unanimous approach to investment decision making than US firms (UK 11/13, E 5/6, US 7/12). As discussed in Chapter 5.4.2, whilst many US VCs in the sample reached investment decisions unanimously or by consensus, a senior partner could force a decision at 4 of the US VCs. This approach can mean that US VCs are more likely to decide to back very high risk propositions which can potentially lead to outstanding returns. A US LP commented that they will only invest in VC firms where the decision making for investments (and exits) is concentrated with the founding partners who have experience and “scar tissue”.

Terms of investment

The use of entrepreneurially friendly terms was more prevalent for US (8/12) and UK (8/13) than continental European firms (3/6). Nine of the other stakeholder interviewees agreed with this concept of the difference between entrepreneurially friendly and investor friendly terms. Of these six commented on the difference between US and Europe, with the US being seen to be entrepreneurially friendly and Europe, including UK, being seen to be investor friendly (2 VC related, 1 advisor, 3 CVCs). Europe is more cautious because of historic poor performance and therefore the use of more investor friendly terms in Europe may be entirely rational in order to protect the downside investment risk.

Other investment practices

There was no meaningful difference between Europe and US top performing firms in the “1 in 10”, home run approach to investing (UK 8/13, US 7/12, E 4/6) or in the number of firms where partners came from an operational and / or entrepreneurial background (UK 11/13, US 11/12, E 6/6). Nor was there any particular focus of the 19 firms which had funds in the top quartile in terms of size of fund, stage of fund and sector focus; funds operated in a number of different categories. Lerner et al. (2011) and Marston et al. (2013) found that fund characteristics such as the size, stage and sector focus of funds do not explain the magnitude of the difference in performance between UK and US funds. Nevertheless, the relatively larger size of US funds than European funds would better permit US VCs to fund entrepreneurial businesses through to exit.

Summary

In summary, the common characteristics of top performing European funds with those of top performing US funds are the “1 in 10”, home run approach to investing, the operational and / or entrepreneurial backgrounds of the investment partners and partners working together on deals. The areas where US top performing funds appear to differ from European top performing funds, which contribute to the better top performance of US funds in the sample, are the greater use of the theme approach to investing and senior partners “railroading” potential outlier deals through the approval process. Lerner et al. (2011) did not specifically investigate possible reasons for the difference in performance of the top performing funds in US compared to those in UK or indeed in continental Europe.

7.7 Characteristics of more recent European VC firms

It is sometimes claimed that European VCs perform worse than US VCs because the US has more experience as they have been investing in venture capital for longer: *“The US started much earlier with venture and also in a time when there was some massive opportunities.”* (European LP 4). It could be that Europe is starting to “catch up” on the US in terms of VC investment practices that lead to better performance: *“I think Europe is definitely catching up now.”* (European LP 4)

Newer European VC firms, that is those firms included in the sample which had been established in the last 10 years, from 2008 onwards, were investigated to see if they had indeed “caught up” in that they exhibit characteristics of better performing funds. There were 5 UK VCs and one continental European VC included in the sample which had been formed in the past 10 years: *“These are the new kids on the block and they are so different and they’re driving a lot of this business.”* (UK CVC*). These new UK firms did engage in a “1 in 10”, home run approach to investing, with the exception of one firm who commented that they do not necessarily look for home runs but do look for companies where they can make a difference by helping to build the firms *“almost like we would be starting those firms ourselves.”* (UK VC 72). The firms had some partners with operating and / or entrepreneurial backgrounds and partners worked together on deals, with the exception of one VC which only has one partner who is active on a day to day basis, and they generally included entrepreneurially friendly terms in their term sheets. The firms either approved deals on a unanimous (3 firms) or consensus basis (2 firms). These newer firms carried out their due diligence largely in-house. Bottazzi et al. (2004a) found that VC firms that entered the industry at the end of the 1990s (the dot-com era) focused much more than the older, established firms on investing in early-stage companies, especially at the seed-stage, with an investment style that was more risk-tolerant and hands-on more closely resembling US VC firms. The newer VCs that Bottazzi et al. (2004a) studied were from the large wave of European VCs that set up in the dot.com internet period of 1999 and 2000, several of which did not survive this period. The data in the current study relates to newer VC firms set up after this period, since 2008.

A difference from the wider sample of higher performing firms was that a theme approach to spotting new investment trends was not evident amongst the newer European VCs in the study; in fact, one firm said that, whilst they focus on various technology sectors, they do this as followers. However, two of the firms commented that they do focus on “world-class, unique” technology in one case or “ground-breaking technology” in the case of the other VC which would appear to indicate that they are investing towards the forefront of a trend. It could be that the newer UK VCs which had relatively small fund sizes, ranging from just £10m to £70m, and consequently fewer staff than larger VCs simply do not have the human capital and resource to be able to thoroughly research and investigate potential future areas for investment.

A distinctive feature of these newer UK firms is their sector focus. Instead of including a fairly broad range of technology sectors in their portfolio they tend to focus on specific sectors within IT such as cloud computing and software as a service, web / mobile technology or hardware. Stage focus was also a feature as the firms all invested at seed or early stages. As the firms are relatively young they do not have the strong brand names of some of the Silicon Valley VCs included in the sample interviewed, though certainly one of them has a relatively high profile in part due to the profile of one of the partners in particular. As noted above these 5 firms have considerably smaller funds than the average of firms in the overall sample and may therefore have difficulty in following through with further rounds of finance in order to help their portfolio companies achieve scale (Coutu, 2014). It is not possible to judge whether these newer UK firms are well performing or not as it is too early in the life of their funds and no independent performance data were available. However, other VCs commented favourably on these firms and rated their partners highly.

There was just one continental European VC firm included in the sample of firms interviewed that had been established in the last 10 years, since 2008, a French VC. Like the newer UK firms this VC had a small fund size (euro 38m), focused on seed or early stage investments in a specific sector (internet), had partners with operating backgrounds and included entrepreneurially friendly terms in their term sheets. However, unlike the newer UK VCs this French VC did not pursue a “1 in 10” home run investment strategy, looking for more of a 2 to 4 times return on its investments. In fact, they commented that they specifically avoid “*binary projects*”, that is either a homerun or the need to “*shut down an investment and sell rapidly to a Google or Facebook*”, in other words their investee companies do not appear to have global ambition, at least to start with: “*We try to invest in companies with progressive ambition, meaning being a French leader which would lead to a maybe 2-4x multiple. And then becoming maybe a European leader which could get you to an 8-10x multiple, that kind of scenario.*” (French VC 63). Levie (2014) found that there has been an “ambition gap” between the UK and US post-recession which suggests that UK firms have lower levels of growth expectation, perhaps similar to that pertaining in France as noted above. The French VC went on to comment: “*Probably the big, big difference with Silicon Valley VCs is that if you invest in something very risky, in the US you may end up getting some Twitters or Facebooks shares because you have developed the best product, because you have a nice team. In Europe that kind of*

scenario does not really exist.” This French VC does hold off-site meetings to think about its investment strategy in terms of a theme approach but finds it “*impossible to implement any strategy really for a VC. What you can do is react to good projects and decide to back good projects.*” The VC has a good international reputation. A US East Coast VC stated that its founder is “*probably the best VC in France with a great track record.*” (US VC 57).

Summary

Overall the newer UK VCs included in the sample, and one newer continental European VC, exhibit many of the characteristics of the better performing funds as discussed in this chapter, with the notable exception of engaging a theme approach to investing, which is particularly a characteristic of US VCs at least for the sample included in this study. The theme approach has not been investigated in previous studies.

7.8 Conclusion

Whilst not part of the main study the findings reported on in this chapter reveal important differences in the characteristics of VC funds in Europe and US, both between the top performing funds and the lesser performing funds in both regions and between the top performing funds in Europe as compared with the US. The findings provide further insight into the performance differential between European and US VC funds which is additional from that derived from previous studies as summarised below.

There were notable differences between the better performing firms in both Europe and US (those where the most recent fund has top quartile performance) and the non-top performing firms (those where the most recent fund did not have top quartile performance). These included the use of a home run, high risk, “1 in 10” approach to making investments and engaging a theme based approach to spotting future investment trends. Some consistently better performing firms had more than one partner working on deals and they benefited from their high profile and track record for sourcing deals. These characteristics of top performing funds are additional to those identified in previous research, namely size of fund, stage focus, fund manager

experience, location in a technology hub and number of partners in VC firm (Lerner et al., 2011).

There were more better performing US firms than UK or continental European firms in the sample. Only US VCs had funds which exhibited outlier performance in terms of achieving a return of greater than 50% IRR. No UK or continental European firms in the sample of VC firms studied for which independent performance data were available had funds with outlier returns. Lerner et al.'s (2011) study into the best performing funds did not address the characteristics of those with outlier returns. The "outlier" VCs in this study exhibited the characteristics of the overall better performing funds in the sample in terms of a "1 in 10", home run approach to investing and a theme approach for new investment areas. They also benefited from their high profile for sourcing deals and a collaborative approach to working together on deals. Outlier performance may be due to investing in companies that generate stellar returns, such as Facebook. Top performing US VCs may also have senior partners "railroading" deals through the approval process, whereas a consensus approach to approving deals can remove potential outlier deals as discussed in the main study. Such areas have been discussed in the main part of the study in Chapter 5 in the context of differences in investment practice between European and US VC funds which can lead to the performance differential. The fact that they are characteristic of funds with outlier returns, which are only to be found with US VCs, lends weight to the findings reported earlier in this thesis.

US VC firms have greater resources of human capital to work on deals and may be better at optimising the use of human capital so that knowledge and talents is shared at due diligence pre investment and monitoring and value add post investment to the overall benefit of deals and overall fund returns. US VCs in the sample studied exhibited a greater propensity for risk in terms of their home run approach to investing and they appeared to seek to reduce information asymmetries by thoroughly exploring possible new investment areas and effectively utilising social networks with large technology companies, entrepreneurs, corporate VCs and other stakeholders.

Newer UK firms, those formed in the last 10 years, exhibited many of the characteristics of the better performing US funds noted above, with the exception of the theme approach to spotting new investment trends which was more prevalent

amongst US firms. But it is too early to say whether the new firms exhibit high fund performance as performance data is not yet available. However, they do have smaller fund sizes (£10m to £70m) than US firms and so may not have the ability to follow through with further rounds of finance on their investments. Lerner et al. (2011) show that it is mid-sized funds that achieve the best performance (\$84m - \$365m).

For the sample of VCs investigated US firms exhibited a clear supremacy of performance overall than did the European VCs. The operational differences in investment practices between US and European VCs discussed in Chapter 5 contribute to the overall difference in performance between US and European VC funds. The investment practices employed by top performing US VCs discussed above lead to their better fund performance. Of these the theme approach to investigating potential future investment trends and the approval of outlier deals by senior partners are more characteristic of the better performing firms in US than those in Europe. It could be that these two areas are the most important explanatory factors in the performance differential between European and US VC funds. The cultural and economic differences discussed in Chapter 6, particularly the more open ecosystem in the US and a willingness to share talents and information, also contribute to the performance gap.

CHAPTER 8: CONCLUSION

8.1 Introduction

European VC funds have consistently underperformed US VC funds. The performance gap has existed for considerable time (Hege et al., 2003) and continues to the present (BVCA, 2017c) (Chapter 2.2). This has led to reduced allocations of funds raised for European venture from non-governmental sources, such as pension funds, banks, insurance companies and other institutional investors, and consequently less finance is available for investment into high-growth entrepreneurial companies in Europe. This shortage of finance has had policy implications in that the European VC industry has become more dependent on funds from government agencies, such as the European Investment Fund (Aernoudt, 2017). Continued support from the EIF for UK venture funds in particular may be in question following the Brexit decision. Concerned at the shortage of finance for growing and scaling up companies, the UK Government has recently conducted a review into this so called “patient capital” (HM Treasury, 2017b). As a result of the Government’s review the Autumn Budget 2017 announced an action plan to provide some £20 billion over the next 10 years to finance growth in innovative firms. This will be achieved principally through establishing a new £2.5 billion investment fund through the British Business Bank which, with co-investment from the private sector, will support some £7.5 billion of investment. Support for knowledge intensive companies will be expanded through the Enterprise Investment Scheme and Venture Capital Trusts which should provide a further £7 billion. The British Business Bank will also extend its venture capital investment programme to enable it to provide greater levels of investment into individual VC funds that would otherwise find it difficult to raise capital (HM Treasury, 2017b).

This study investigates the factors that may give rise to a performance difference between European and US VC funds in the attempt to explain the reasons for the gap in performance. Potential factors may be structural, resulting from characteristics of the funds themselves, they may be operational such as the investment practices of the VC firms which manage the funds and/or they may reflect wider environmental factors such as culture and attitude to risk and the wider ecosystem in which the funds operate. The research has practical implications for the VC industry. By adopting the characteristics and investment practices of better performing funds,

particularly those evident with US VC firms, and with a pipeline of high quality investment opportunities, European VC performance could potentially be improved. This in turn could lead to increased investment in the VC asset class by institutional investors and thereby improved finance for young, innovative, potentially high-growth European companies. The research has already had impact in that the findings have been shared with, and largely accepted by, the UK professional VC association (BVCA). The findings were also shared with the UK Government's consultation process into patient capital.

Previous studies have investigated certain specific structural and operational factors affecting US and European VC funds in an effort to explain the performance differential (Hege et al., 2009; Lerner et al. 2011; Marston et al., 2013). These studies have identified differences in the contractual relationships between VCs and entrepreneurs, the superior screening abilities of US VCs, the greater sophistication and better use of networks by US VCs and syndication used more effectively by US VCs as contributing to the gap (Hege et al., 2003, 2009) and that European VCs are less "active" investors (Schweinbacher, 2008). Although fund characteristics such as size, stage and sector focus can have an impact on performance, studies have shown that differences in these characteristics do not explain the magnitude of the European / US performance gap (Lerner et al., 2011; Marston et al., 2013). Legal frameworks, stock market capitalisation and the tax environment have specifically been shown not to contribute to the performance gap (Hege et al., 2009). However, there are several other variables, such as the backgrounds of investment partners, the "1 in 10", home run approach to investing and the investment approval process (Chapter 2.3, Table 2.8), where there is a difference between European and US VC funds where it is not known whether they contribute to the performance gap between European and US VC funds. Either these variables, or other as yet unidentified variables, may explain the balance of the performance gap. The performance difference between US and European VC funds was therefore in need of further investigation in order to explore which additional structural, operational and wider environment factors might be contributing to the performance gap. The aim of the current research was to investigate the difference in performance between UK, continental Europe and US VC funds by taking a holistic approach in reviewing the entire investment process from sourcing deals to exiting deals. As summarised below, differences were ascertained in the

structural, operational and wider environments in which the firms and funds operate, which may well contribute to the performance difference.

This chapter summarises the principal findings of this research as reported in detail in Chapters 4 to 6 and the characteristics of better performing funds in Europe and US as discussed in Chapter 7. The chapter is organised as follows. First, the research questions are stated and the methodology revisited, followed by the contribution of the research to the literature. This is followed by the main findings related to the two research questions and the theoretical contribution. A discussion of the practical implications to the VC sector and policy makers follows, including presentation and discussion of the findings to the BVCA VC Committee. Finally, the limitations of the study and suggestions for future research are discussed.

8.2 Research questions and methodology

The overall research question for this thesis was:

Why do UK/European VC funds have a poorer performance than US VC funds?

More explicitly:

What are the differences in the structures of the VC firms managing venture capital funds in UK, continental Europe and US, in the operations of those firms and in the environments in which they operate that contribute to the contrasting performance of UK, continental Europe and US VC funds?

As there are funds in UK, continental Europe and US which perform better than other funds in those countries a secondary question was to ask:

What are the characteristics of the better performing firms and funds in the UK, continental Europe and US and is there anything distinctive about those UK/European funds that perform to US levels, if any?

Given the exploratory nature of the research questions and the diversity of venture capital firms in Europe and US, with different stage and sector foci, an extensive qualitative methodology was adopted for this study. Operating within the

critical realist philosophical framework (Bhaskar, 1975) and embracing engaged scholarship (Van de Ven, 2007) (Chapter 3.2), semi-structured interviews were held with investment executives from 64 separate VC firms across industry sectors in UK (24), continental Europe (15) and US (25). The sample size of VC firms utilized the concept of saturation and also allowed for the assessment of variation between the distinct VC groups in terms of geographical location, stage and sector focus. Purposive sampling was used to source VC firms so that a wide range of well-performing firms operating in UK, continental Europe and US, from a cross-section of stage and sector specialisms, was selected (Neergaard, 2007). Interviews were also held with a purposive sample of 40 non-practitioner industry players (including limited partners, entrepreneurs, advisors and corporate VCs). The views of the VCs on the differences between the European and US environments were contrasted with those of the other stakeholders. Both VCs and other stakeholders agreed with each other as to the factors that could be responsible for the performance difference. This provided a useful triangulation of the overall findings of the study along with the responses to the questionnaire on the importance of factors critical to investment success (Appendix 3). This was the first time that a relatively extensive comparison of the views of VCs with those of other, relevant stakeholders to the VC process has been carried out. A total of 110 interviews were conducted with VCs and other stakeholders. The interviews were semi-structured, allowing for unexpected but relevant topics to emerge. The interviews were recorded with the interviewees' consent and transcribed verbatim. Thematic analysis using manual coding identified emerging themes.

8.3 Contribution to literature

The contribution of this research is to provide, for the first time, a holistic and extensive analysis of the entire investment process in the context of European and US fund performance. The study is unique in that it has reviewed the entire investment process from sourcing deals to exiting deals (Tyebjee and Bruno, 1984), specifically contrasting Europe and the US in terms of the variables pertaining to the investment process and the impact on the fund performance gap. The research contributes to the literature by proposing additional factors in the investment activities of VC firms that have not been considered in previous studies in connection with the performance differential between Europe and US. These are summarised below (Sections 8.3.1 to 8.3.3). The research also uncovers differences in the characteristics of the better

performing firms in Europe and US that have not been mentioned previously (Section 8.3.4).

Previous research in the area of venture capital fund performance and practices has largely involved the use of regression analysis on large data sets or a questionnaire approach (Hege et al., 2003; Schweinbacher, 2008; Lerner et al., 2011; Marston et al., 2013). The current study adopted a qualitative approach of semi-structured interviews with investment executives from 64 VC firms and with 40 non-practitioner industry players, including limited partners, entrepreneurs, advisors and corporate VCs. Previous studies on European and US venture capital fund performance have largely focused on the venture capital firms themselves; few studies have ascertained the views of other related stakeholders. The views of the VC practitioners are complemented with those of the other stakeholders. This is the first time that such an extensive, qualitative comparison between VCs and other stakeholders has been made.

The study has covered areas that have not been addressed in previous research on European / US VC fund performance differences. These include the adoption of a high risk “1 in 10” home run investment strategy by many US firms, the manner in which partners approve investment decisions including some US firms pursuing outlier deals at the behest of a senior partner, the use of “entrepreneurially friendly” deal terms by US West Coast based VC firms compared to the more “investor friendly” terms of European and East Coast based VCs and the benefit “brand name” VCs, particularly in Silicon Valley, obtain for deal sourcing. The use of the extensive networks of US VCs for the development of investment themes and in connection with due diligence, adding value and exiting from investments are also addressed.

The findings of the study were organised into four chapters: those relating to structural aspects (Chapter 4), those relating to operational aspects (Chapter 5) and those relating to wider environmental factors (Chapter 6); the characteristics of the better performing funds included in the sample were discussed in Chapter 7. The principal findings in each of these four areas are summarised below.

8.3.1 Structural factors

The research is consistent with existing anecdotal evidence that US VC firms have proportionately more partners with operational and, to a lesser extent,

entrepreneurial backgrounds, than European firms. Previous researchers, including Lerner et al. (2011) and Marston et al. (2013), did not investigate continental European firms whereas this research includes interviews with 15 separate firms from continental European, nor did they investigate the background of the investment partners in terms of the partners' prior entrepreneurial and operational experience. This has not been subject to previous empirical investigation in the context of VC fund performance. The greater knowledge and expertise of entrepreneurial and operational processes of US VCs, together with their specific sector focus gained from their background experience, enhances their screening and value-adding capabilities which contributes to improved investment, and hence fund, performance. US VC executives within a firm are also more inclined to share information with each other thereby reducing asymmetries in the investment decision making process. US VC firms have greater resources of human capital to work on deals and may be better at optimising the use of human capital so that knowledge and talents are shared at due diligence pre investment and monitoring and value add post investment to the overall benefit of deals and overall fund returns.

The research also revealed that US firms often have two partners working together throughout the life of an investment whereas there is usually just one investment executive at partner level working on a deal in the UK and continental Europe, though with input from others in the investment team. The accumulated knowledge and experience of two partners working together on deals in US VC firms greatly assists both the decision making and the value adding processes. Information asymmetries are reduced which leads to better investment and consequent better fund performance. There was also evidence of US VCs syndicating with each other on very early, seed stage investments, with relatively small investments, in order to "test the water". By investing relatively small amounts at the seed stage US VCs can exercise the option to invest in subsequent rounds with larger amounts of funding if companies grow to meet investment expectation or they can choose not to follow through with further investment if companies fail to perform. In this way US VCs reduce the risk of missing out on potential outlier investments which have the potential to contribute disproportionately to the overall returns of a fund. If companies do not perform at the seed stage the VCs will have lost only a relatively small amount of investment.

8.3.2 Operational factors

There are a number of operational areas where the investment practices of European VC firms differ from those of US firms. Several of these areas have not been subject to previous empirical investigation into the performance difference between US and European VC funds. These areas include the theme approach to investing adopted particularly by US VCs (Chapter 5.2.4), strategies for sourcing deals (Chapter 5.3.1), the approval process for deals (Chapter 5.4), investment terms, other than convertible securities (Chapter 5.5) and portfolio reviews in the monitoring process (Chapter 5.7.2). The research contributes to the literature on the US /Europe performance difference by investigating these areas for the first time.

New findings from the research beyond those mentioned by previous researchers such as Hege et al. (2003, 2009), Schweinbacher (2008), Lerner et al. (2011) and Marston et al. (2013) include the use of a theme approach to the identification of future areas for potential investment more so by US VCs than European VCs who may pay more of a “lip service” to theme development (Chapter 5.2.4). US VCs aim to spot investment trends early. They put considerable resource into researching and developing innovative new areas for investment, going “deep” into a theme and looking for angles to differentiate their investment focus from that of their competition. If several investors are considering investment the competitive pressures may cause a VC to invest sooner than uncertainty would normally allow as is the case with US VCs, particularly in the highly competitive ecosystem in Silicon Valley. Investing at the earliest stages of new technologies contributes to the better performance of US VC funds.

Another new finding is that more US VCs pursue a home run, “1 in 10”, investment strategy than European VCs who tend to pursue a potentially less risky, growth strategy of achieving a 2x to 5x return on all their investments (Chapter 5.2.1). US VCs in the sample studied exhibit a greater propensity for risk in terms of this home run approach to investing. This higher risk approach can lead to outlier returns for the funds and contribute to the superior performance of US VC funds. US VC returns have been dominated by home runs with a relatively small number of very large returns contributing to the high performance of some funds (Fraser-Sampson, 2010).

The research also highlighted the impact that the brand strength of US VCs has on attracting quality deal flow (Chapter 5.3.1). European VCs, in contrast, have more of a proactive, and proprietary, approach to generating deals. Better deals that materialise into successful investments can lead to high returns and better fund performance.

A senior partner can force the approval of investments at some US VCs (Chapter 5.4.2), against the wishes of other partners. Here again this approach by US VCs carries greater risk as opposed to a more consensual approach of approving investments. This can lead to outlier performance as the consensus approach can remove potential outlier deals.

It was also found that more US VCs, particularly the West Coast based VCs, have “entrepreneurially friendly” terms in their term sheets as opposed to the “investor friendly” terms found with European VCs and with some East Coast based US VCs (Chapter 5.5.2). Entrepreneurial friendly terms mean that the valuations offered by the VCs are higher and more attractive to entrepreneurs, often due to the competition involved in doing deals which is particularly evident in Silicon Valley, and onerous terms are not included in the offer letter or term sheet. In contrast investor friendly terms may include full ratchets, multiple liquidation preferences and cumulative dividend streams. The use of entrepreneurially friendly terms by US VCs demonstrates their focus on the upside of investment growth. In contrast European VCs are more concerned to protect the downside risk on their investments.

US and European VCs have different approaches to exiting their investments. This has a number of dimensions: the VCs’ attitudes to poorly performing investments, patience in achieving better exits and proactivity in achieving exits. European VCs keep poor performing investments going for longer than US VCs which can clearly impact on performance (Chapter 5.7.2) due to the detrimental impact on time-sensitive IRRs. US VCs on the other hand cut their losses sooner; as part of their monitoring activities US VCs have a much clearer idea of what metrics they should be using to monitor portfolio companies and to sift out the poorer performing investments. With better performing investments, more US VCs wait for the best exit than European VCs who tend to be less patient and exit early, perhaps due to fund raising pressures from their investors (Chapter 5.8.2). US VCs are more able to achieve optimal exits for their

investments with their wealth of contacts with potential trade buyers, such as the larger technology companies in the US who make many of their acquisitions in the US, and an overall easier exit process in the US including a stock market more receptive to technology companies. European VCs achieve less than optimal realisations for their investments which result in less profitable exits and lower returns for their funds.

8.3.3 Wider environmental factors

The investigation into the wider environmental aspects in which VCs firms in UK, continental Europe and US revealed differences in culture between European and US VC firms in terms of their attitudes towards risk and the sharing of information between VCs and with entrepreneurs. European VCs have a lower propensity for risk and do not “think big enough” with their investments (Chapter 6.1). US VCs risk approach is exemplified in their “1 in 10”, home run investment strategy as referred to above. US VCs’ cultural approach of “thinking big” and making higher risk investments in entrepreneurially favourable environments such as Silicon Valley is contrasted with the more risk-averse, downside protectionist approach of European VCs. This can lead to US VCs generating outlier returns on their investments.

There is also more of a willingness to share contacts, talents and information in the US, particularly in the unique environment of Silicon Valley, compared with more of a proprietary system in Europe (Chapter 6.3). Such information sharing is based on mutual trust earned through long standing personal contacts (Florida and Kenney, 1988) which US VCs are more effective in generating and nurturing. The more open networks established between VCs, entrepreneurs, large technology companies and other stakeholders present in ecosystems such as Silicon Valley encourage the sharing of information and hence better knowledge in such areas as new technology developments, potential markets for new products and service, access to talent and lucrative exit routes to trade buyers. The more open ecosystem in the US and the close networking and information sharing between VCs and entrepreneurs leads to improved performance.

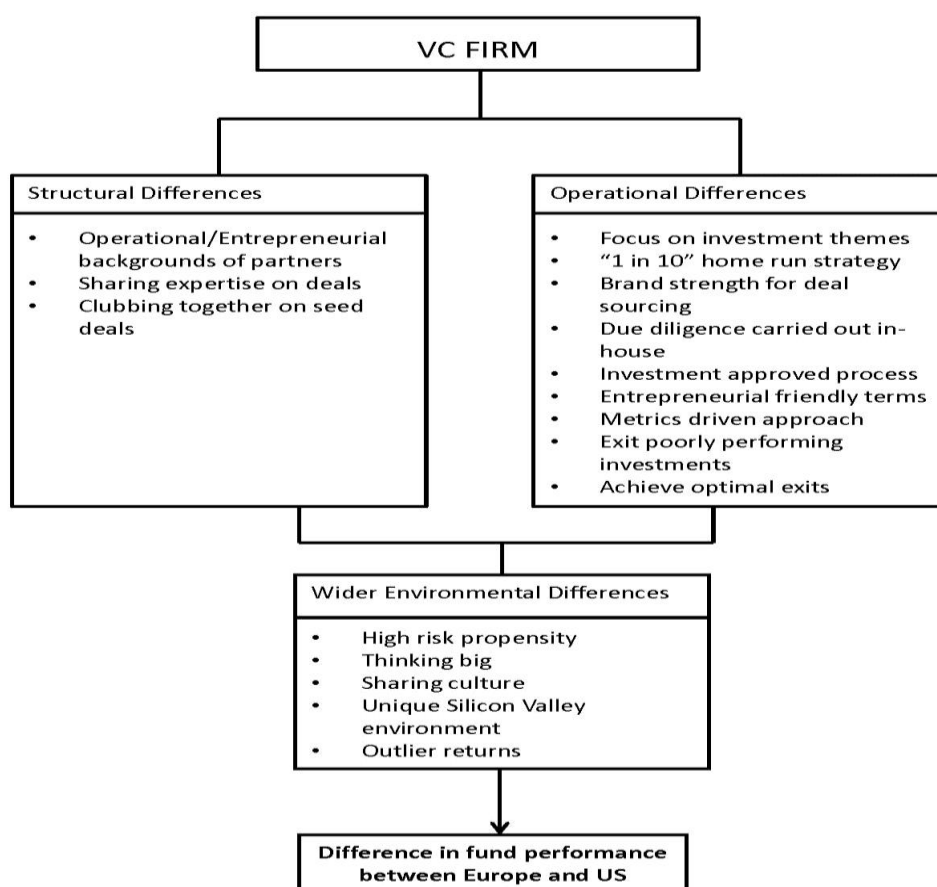
Some interviewees believed that luck plays a role in VC investing with both European and US investments (Chapter 6.7). The outlier returns achieved by US VCs referred to above are more likely to be a result of the investment practices adopted by US VCs rather than pure random luck at investing. If VCs are consistently “lucky”

then this is due to their skill in recognising serendipitous opportunities and capitalising on them.

8.3.4 Summary

The different structural aspects of European and US VC firms and the differences in their operational investment practices may well contribute to the difference in performance between European and US VC funds, along with various cultural and economic differences (of these the more open ecosystem in the US and a willingness to share talents and information, in contrast to a more proprietary culture in Europe, are particularly noteworthy) (Figure 8.1).

Figure 8.1: Differentiating features of US VCs impacting on fund performance gap



The differences in structural, operational and wider environmental areas that have been identified in this study make an important contribution to explaining some of the “unmeasured” or “unmeasurable” difference in performance between UK and US VCs referred to by Lerner et al. (2011).

8.3.5 Characteristics of firms with better performing funds

This study has also shown that there are notable differences between firms with better performing funds and those with lesser performing funds (Chapter 7) for both Europe and US as a whole. Firms with better performing funds were defined as those where their most recent fund had top-quartile performance as distinct from firms whose most recent fund did not have top quartile performance. These differences include the use of a home run, high risk, “1 in 10” approach to making investments by the top performing firms and engaging a theme based approach to spotting future investment trends. Some better performing firms have more than one partner working on deals and they benefit from the high profile and track record for sourcing deals that results from high performance. These differences are additional to those identified by Lerner et al (2011).

There are differences in the investment practices of the top performing firms in Europe with those in US, notably the theme approach to researching future investment areas which was used by all US VCs who commented on themes and investment approvals being forced in some cases by a senior partner which encourages outlier deals. For the sample of VCs investigated US firms exhibited a clear supremacy of performance overall than did the European VCs. Where European firms did perform towards US levels, but not with the outlier performance of some US VCs, they had partners who came from operational and / or entrepreneurial backgrounds and used a “1 in 10”, home run approach to investing.

Only US VCs had funds which exhibited outlier performance in terms of achieving a return of greater than 50% IRR. No UK or continental European firms in the sample of VC firms studied for which independent performance data were available had funds with outlier returns. These “outlier” VCs exhibited the characteristics of the overall better performing funds in the sample in terms of a theme approach for new investment areas, “1 in 10”, home run approach to investing, high profile for sourcing deals, “railroading” of deal approvals by senior partners and a collaborative approach to working together on deals. Outlier performance is often due to the outstanding performance of one or two investments in the fund which provide the stellar return for the fund as a whole. Investee companies of the outlier funds included such highly successful companies as Facebook. It could be argued that the

difference in performance between funds is due, at least in part, to the outlier performance of certain very successful investments. An outlier investment may result from a diversion away from the usual consensus approach to investment approval, it may be due to the investee company's management team capabilities in rapidly growing the business and / or it may be due to the guidance and value add provided by the VC.

It is notable that the newer UK firms, those formed in the last 10 years, exhibit many of the characteristics of the better performing US funds with the exception of the theme approach to spotting new investment trends which was more prevalent amongst US firms. Performance data were not yet available for many of these newer funds. However, other VCs commented favourably on these firms and rated their partners highly. These newer UK firms do however have smaller fund sizes (£10m to £70m) than US firms and so may not have the ability to follow through with further rounds of finance on their investments. Lerner et al. (2011) show that it is the mid-sized funds that achieve the best performance (\$84m - \$365m).

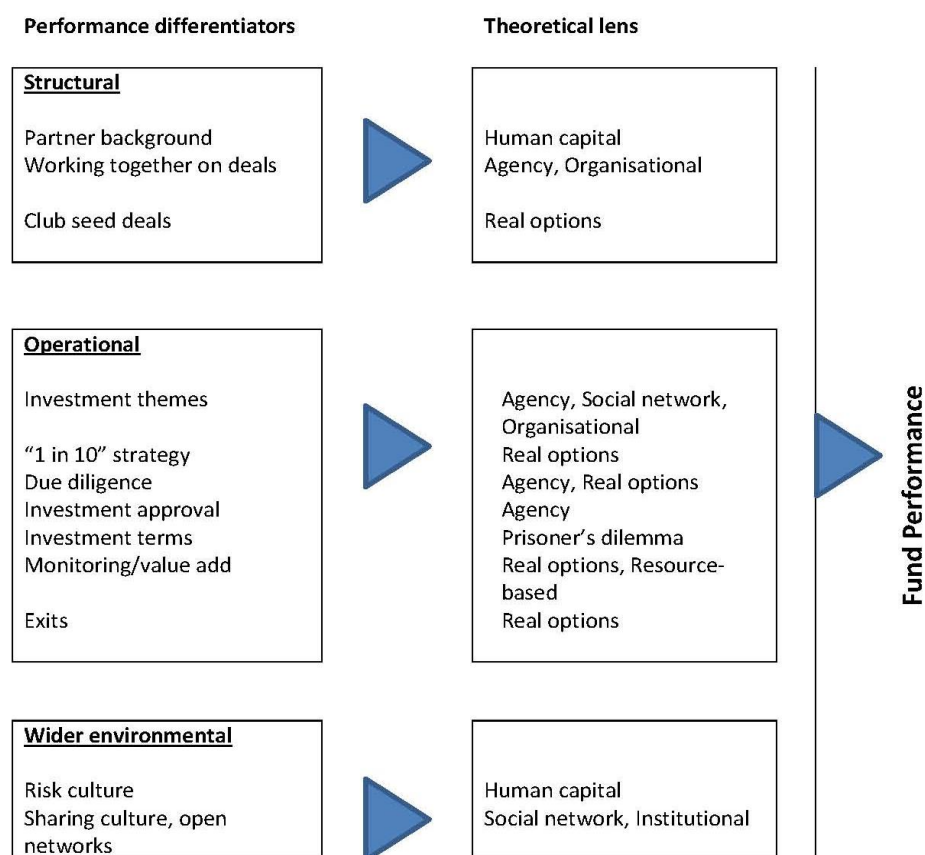
8.4 Theoretical contribution

As discussed in Chapter 2 there is a general lack of theoretical justification provided in previous research studies which investigate the performance difference between European and US VC funds. Previous studies on the investment activities of VC firms tend to be descriptive and atheoretical (Wijbenga et al., 2003). Whilst some research into individual aspects of the VC investment process does include theoretical justification, theoretical discussion on the performance difference between European and US VC funds has largely been limited to commentary on the contractual relationship between the VC and entrepreneur (for example Hege et al., 2009). Studies specifically investigating the performance difference between UK and US VC funds, including Schweinbacher (2008), Lerner et al. (2011) and Marston et al. (2013), do not provide any theoretical perspective for their findings. This research contributes to the development of a theoretical basis for the performance differential between European and US VC funds.

With so many different variables impacting on the performance gap and the complexity of the interrelationships between the various stakeholders involved in the process (individual VCs, syndicates of VCs, entrepreneurs and management teams,

wider networks, limited partner investors) a multi-theoretical framework was proposed for this research (Chapter 2.8). Wijbenga et al. (2003) likewise used a multi-theoretical approach in their research on the influence of VCs on the performance of new ventures. The conceptual framework combines a theoretical and practical approach, embracing the concept of engaged scholarship (Van de Ven, 2007) which focuses on the relationship between theory and practice and involves the participation of various stakeholders in order to understand complex social problems. The principal stakeholders in the current research were the VC firms and their investment executives, the entrepreneurs of VC backed companies and the limited partner investors in VC funds (LPs); the various stakeholders being based in the US, UK and continental Europe. The conceptual framework is structured around the structural, operational and wider environmental factors in which VC funds operate. The following discussion interprets the principal findings of the research via specific theoretical lenses (Figure 8.2).

Figure 8.2: Multi-theoretical framework: theories applicable to performance differentiators



8.4.1 Structural factors

In terms of the structural aspects of VC funds, human capital theory is perhaps the most pertinent. Human capital theory proposes that those individuals who have higher quality human capital are able to achieve a higher performance in the tasks that they carry out, such as VC investment activity. A key component of human capital is the possession of knowledge that is specific to a situation (Barney, 1991), such as a VC investment opportunity. Viewed from a human capital theory perspective, the greater knowledge and expertise of entrepreneurial and operational processes exhibited by US VCs, gained from their backgrounds as entrepreneurs and executives in large technology businesses, enables the US VCs to better use and to share information with their fellow partners in connection with specific investment opportunities. In turn this sharing of information reduces asymmetries in the

investment decision making process, thereby embracing agency theory. Agency theory is relevant as sharing of expertise and skills on deals may help reduce information asymmetry as accumulated knowledge about a sector, or indeed a specific company, from different partners is shared and brought to bear in the due diligence and decision making phases of a deal. The interconnectedness of US VC firms' investment personnel and the social ties between them in the context of organisational theory aids information transfer between partners and other investment executives. The personal networks that individual partners have in the environments in which they operate, for example with technology companies and other VCs, can also be useful in knowledge sharing between partners in connection with an investment (Florida and Kenney, 1988).

A greater propensity to invest at the very early seed stage in order to “test the water” by some US VCs, particularly those based in Silicon Valley, reflects the greater propensity for risk exhibited by these firms. In deciding whether to invest at this very early stage the VCs are engaging real options theory whose drivers are uncertainty and competitive pressures. Following a seed investment, VCs can exercise the option to continue to invest if an early stage company is meeting or exceeding expectations in terms of high growth or to cease further investing if it is not. By investing early VCs will more likely have a significant stake in a high-growth company which could have the potential of becoming an industry leader, such as Facebook.

8.4.2 Operational factors

Several theoretical concepts impact on the operational differences between US and European VC firms. These include agency theory, real options theory, prisoners' dilemma theory, resource based theory, social network theory and organisational theory. These were discussed in the context of specific operational areas (Chapter 5). In the overall context of VC operational differences agency theory is perhaps the most pertinent. Where there are differences between US and European investment practices and other areas in which the funds operate these could lead to greater information asymmetries in the European VC environment as compared to the US VC environment.

With US VCs' deep networks and relatively large resources for developing investment themes and predicting future trends, information asymmetries in

connection with the choices they make on new sectors and companies are reduced. Agency theory comes into play due to the asymmetry that VCs firms experience in gathering together all the information from all the various sources that they need to enable them to make an informed decision as to which investment themes to follow. US VCs are better connected to deeper networks and have larger resources than European VCs. This again reduces information asymmetry in connection with the choices they make on investment themes. Social network theory and organisational theory pertain to the networks that VCs establish with the various stakeholders in their local technology ecosystems, permitting the sharing of information on technology trends.

US VCs adoption of a higher risk, home run “1 in 10” strategy compared to more of a growth strategy by European VCs, also links to real options theory with its drivers of uncertainty and competitive pressures. As noted above, this is characterised by their investing at the very early, high risk seed stage of a company’s life, in perhaps relatively small amounts. They then have the option to increase their investment at subsequent rounds of finance if a company performs well or to curtail further investing if the company fails to meet expectations.

US VCs carry out most of their due diligence in house. Agency theory and real options theory are pertinent to the due diligence process. The due diligence process reduces information asymmetries and uncertainty. Once due diligence has been carried out VCs have the options of making the investment, re-negotiating the terms of the investment or aborting the deal. Information gleaned during the due diligence process supports the making of better investment decisions and hence improved performance. Due diligence carried out in-house by knowledgeable investment executives may be more effective, and less costly, than due diligence carried out by external advisers.

Senior partners may force through investment decisions at some US VCs. In contrast, with a consensus or unanimous approach to investment approval, the decision is taken to extend the information gathering and due diligence process and delay investing until additional information becomes available so that all partners become comfortable with an investment decision. However, such an approach may mean that riskier investments are not pursued which may impact on eventual fund returns.

From the perspective of prisoner's dilemma theory, the more entrepreneurially friendly terms, used particularly by Silicon Valley VCs, reflect the better alignment of interests and the degree of trust between VCs and entrepreneurs in the Valley. Prisoner's dilemma theory is an alternative to agency theory and models the social relationships between entrepreneur and VC. This aids cooperation and hence mutual success and gain, i.e. an "upside", entrepreneurially friendly focus, compared to agency theory's more "downside", investor friendly focus.

Viewing the investment monitoring process from the perspective of real options theory, in terms of making a decision to continue funding or to curtail an investment, US VCs appear better at focusing their effort and resources into investee companies that promise the best returns. Resource based theory is applicable particularly to the value added activities of VC firms where the knowledge, experience, networks and contacts of the firms are used to help the growth and development of investee companies (Wijbenga et al., 2003).

US VCs exercise the option to defer exits until more valuable realisations can be achieved. European VCs tend to exit early. This reflects the lower propensity for risk exhibited by European VCs throughout this study; the use of real options processes is closely linked to risk reduction. With US VCs the value of the option is maximised where the downside risk of continuing to invest can be contained whilst the upside potential of a later exit is maximised.

8.4.3 Wider environmental factors

Human capital theory, social network theory and institutional theory are most pertinent to the wider environmental conditions in which VC firms operate (Chapter 6). US VCs have a "think big" culture and a higher propensity for risk than European VCs. Embracing human capital theory, the more entrepreneurial backgrounds of US VCs tend towards a more risk taking approach than the more conservative, risk averse, financial backgrounds of European VCs. Social network theory is pertinent to the more open networks established between VCs, entrepreneurs, large technology companies and other stakeholders in the US, as are present in ecosystems such as Silicon Valley. These networks encourage the sharing of information in such areas as new technologies, deals, syndicates and possible exit routes to trade buyers. Zook (2005) and Hochberg et al. (2007) comment on the strong networks present in the technology

centres which help foster better connections and relationships to help VCs to find the better deals. The open networks can lead to better investments being made and nurtured by VCs. From the perspective of institutional theory, the more sharing culture existing in the US is contrasted with the more proprietary culture in Europe.

8.5 Practical implications and sharing of best practices

This study has shown that there is more that needs to be done to improve the VC ecosystem in Europe in terms of strong and open networks with better sharing of information. This should help to improve VC decision making and investment support and hence investment and fund returns. UK / European VC performance could also potentially be improved by considering the adoption of certain investment practices of US VCs as discussed above: *“There is a big difference between performance and it’s not just in the absolute returns, it’s in what entrepreneurs think the value add has been. US firms are more aggressive, they’re looking at the “Babe Ruth” approach, European firms are far more timid and that comes out in everything the entrepreneurs say.”* (UK CVC*).

It is generally accepted that European VC performance needs to improve; see for example discussions with the BVCA at the commencement of the research (Chapter 1.3; Appendix 1) and at the conclusion of the research as noted below. There are, however, economic and practical issues and constraints to UK / European VC firms adopting the US VC practices as discussed in this research.

“There are quite a few things in there (in the research) that would be nice to think that we could cookie cut but you can’t. I talk a lot to other VCs and US VCs, and it’s not that no-one knows it because we all know instinctively that it needs to shift a gear but, actually, when it comes down to the nuts and bolts of getting the deals done through the partnerships and pleasing LPs and raising another fund, a lot of the high-minded nice intention ends up giving way to pragmatic realism”. (UK VC*)

Nevertheless, in order to help improve European VC performance consideration should be given to a number of areas where practical application of US practices in UK / Europe should be possible. There is a need for the European VC community to adopt best practices such as the adoption of more of a higher risk, “home run” investment strategy where considered practical and rational, the pursuit of outlier

deals championed by senior, experienced partners, the use of “entrepreneurially friendly” terms and less focus on the downside and a “theme” approach to identifying hot areas for investment. Larger funds should be raised, where feasible, for follow-on funding and scaling. More partners with operational and entrepreneurial backgrounds should be hired and investments exited when the most value can be achieved depending on market conditions and scaling potential. Additionally, there needs to be a less proprietary approach to investing with more networking and sharing of information between VCs, including dissemination of best practices and building collegiate syndicates. A focus on data and metrics should drive investment decisions. There is also the need for more receptive public markets for technology companies together with a ready supply of good CEOs and entrepreneurs willing to form serial ventures. However, improving VC practices and markets only goes so far; there is also the need for good investment opportunities. VCs can only do so much. There is also a need to enhance the entrepreneurial ecosystem in Europe.

Adopting the above practices and environmental conditions for VCs in the technology clusters in Europe might effectively mirror those operating in Silicon Valley. Policy makers have attempted to “clone” Silicon Valley in other geographies (Rosenberg, 2002) with limited success. Creating Silicon Valley type VC environments in Europe will not just require money, though more follow-on and later stage financing for high-growth technology companies will be required. As extolled by one of the VC related interviewees in this study, government support and incentives for clusters will also be required with more technology R&D taking place via government and military sponsored research: *“Government sponsored research is a huge multiple in US compared to Europe. Governments have got to give incentives for creating clusters. Government has to provide incentives for investors to get into early stage. We need a revival of technology R&D here in Europe via the military, EU and government sponsored university research.”* (UK VC related 1). It is however difficult to replicate the unique culture and ecosystem of Silicon Valley elsewhere, including in Europe: *“The European Union, or the countries here in Europe, they look with envy at Silicon Valley and try to recreate it; not always by doing the right things because sometimes they just throw money at anything without thinking too much about the consequences of that.”* (European CVC 3).

The research has already been demonstrated to have had impact on the VC industry in the UK. It has encouraged debate and discussion on the findings of the study by the UK professional association for VC, the British Private Equity & Venture Capital Association (BVCA), and on the constraints to the practical implementation of US best practices: *“I think the value in your effort is if you can begin to emerge with a vision for what needs to be done for early stage in Europe. There is real value if you analyse the past and say “what lessons have we drawn and where do we go from here?””* (UK VCR 1). Embracing the concept of engaged scholarship (Van de Ven, 2007) the research findings and best practice recommendations were discussed with the BVCA. In a similar fashion to the workshop that was organised at the commencement of the research with members of the BVCA VC committee to discuss the study (Chapter 1.3), meetings were held with the Chairman and other members of the BVCA VC committee to discuss the findings of the research and their implications for the European VC sector. The findings were initially presented to the full BVCA VC Committee in June 2016 with all members of the committee receiving a copy of the key findings. A further meeting was held with representatives of the BVCA VC Committee in September 2016; this meeting was convened to consider the practical implications of the findings of the research as summarised above.

In general, the findings from the research were accepted by the VC committee: *“Everything you read out, I see, and we all see. So, clearly there is a problem.”* (UK VC*). *“This is a fundamental piece of work; none of us has done this before and it reaffirms what you probably already thought but with data behind it.”* (UK CVC*). Specific comments on the findings are included in the relevant sections of Chapters 4 to 6 where they refer to structural, operational and wider environmental factors impacting on VC fund performance.

The VC Committee proposed that a briefing or report be prepared with findings, conclusions and recommendations that it is hoped the UK VC industry can discuss and potentially bring on board. It would be a proactive report sharing best practice rather than recommendations per se: *“You can’t make a recommendation to an industry. It doesn’t work like that but you can sort of show this is best practice.”* (UK CVC*). *“We can’t have it like a whine between the US and Europe, it will have to be proactive “these are the building blocks; we are here; US VC there; we want to get there, to this point.””* (UK CVC*) A key purpose of this report would be to

communicate to institutional LPs that the UK / European environment is improving and as VC firms adopt more best practice (some of which is based on US VC firms) the gap in performance between European and US VC funds should improve encouraging increased funding for the sector.

The report was subsequently published as a discussion paper for practitioners (Arundale, 2017b). The BVCA Director General and Director of Communications interviewed the researcher and published an article on the research in the BVCA Journal with a web link to the discussion paper (BVCA 2017c). Discussion by the industry and entrepreneurs is being encouraged through the release of the discussion paper and sharing of best practices and through further follow-up interviews with VCs and entrepreneurs (Section 8.7): *“You can actually go and interview people and say, talk to entrepreneurs who say “no, I’d love that” or VCs who say “yeah we do that, that’s how we see it” and get something going to roll because we need to spread best practice as much as possible in Europe and the UK.”* (UK CVC*). The research findings were disseminated to HM Treasury in connection with the UK government’s consultation on the Patient Capital Review (HM Treasury, 2017).

8.6 Limitations of study

There are several limitations of this research, namely concerning the sampling of firms and other stakeholders included in the study, fund performance data not being available for all VC firms, recall and post hoc rationalisation issues on the part of interviewees and the impact of other factors on the performance gap that have not been investigated in the study. These are discussed below.

Sampling of VCs and other stakeholders

This study has worked with a purposive sample of 64 separate VC firms in Europe and US and a purposive sample of 40 additional stakeholders (Chapter 3.5). The sample size of VC firms utilizes the concept of saturation and also allows for the assessment of variation between the distinct VC groups and other stakeholders in terms of geographical location and, in the case of VCs, between sector and stage focus. A diverse sample of VC firms operating in UK, continental Europe and US, from a cross-section of stage and sector specialisms, was selected and a diverse sample of individuals from different categories of other stakeholders, including limited partner

investors, entrepreneurs, advisors and corporate venture capital firms from Europe and UK, was selected. This resulted in 110 interviews in total as two different individuals were interviewed separately at six of the VC firms. Half the VC firms were focused on early-stage ventures, the others invested across the venture stages. Whilst the sample size is relatively large for qualitative purposes, it cannot be regarded as representative of, and the findings from the study cannot be extrapolated to, the full population of VCs and related stakeholders (Neergaard, 2007). However, triangulation of findings between the VCs and other stakeholders and between different sub categories of interviewees has demonstrated the consistency of the findings between the various groups of interviewees. The groups included VCs, with their different stage and sector foci, and the different classes of other stakeholders, such as LPs and entrepreneurs, and also representatives of the BVCA VC committee with whom the findings were discussed.

As noted above, the relatively large samples, for qualitative purposes, were chosen to represent a diverse cross section of VCs and other stakeholders from UK, continental Europe and US (Chapter 3.5). However, the samples may not necessarily be typical of all VC firms, and indeed other stakeholders, because the samples are self-selected individuals who have indicated their willingness to participate in the research. VC firms selected for interview were judged to be well-performing firms on the basis of their relative high profile and status, including membership of the BVCA VC committee, for example, mentions in the professional press and / or recommendations of industry stakeholders. There were very few refusals to participate in the research from those invited. Two notable high-profile firms from Silicon Valley who did refuse, after repeated attempts to engage them, stated that they do not “disclose this stuff”. Whilst there were interviews with 15 separate VCs from continental Europe, continental Europe was somewhat underrepresented in the other stakeholder interviews with only 4 people interviewed. This could be extended in future investigations. Further work on the areas of potential difference in investment practices of European and US VC, as revealed in this research, could be subject to more extensive sampling and quantitative studies, controlling for factors using regression analysis and this could narrow the range of characteristics that impact on the performance difference.

Performance data not available for all VC firms

Independent data on performance for the sample were provided specifically on request to the researcher by Preqin, the independent data provider and further independent data were available for one additional firm. Harris et al. (2014) have confirmed Preqin as a reliable data provider (Chapter 2.2). However, the independent data covered just 27 firms of the 64 firms interviewed. VC firms' own views on their performance was used for firms where no independent data were available (23 firms). A limitation of the research is that firm's own views on their performance might be biased or based on unreliable data. However, for firms where independent data subsequently became available, in general firms' own views on performance were comparable with the independent data. No data were available for 14 of the firms interviewed, either from independent sources or internally (this was because VC firms were unable, or unwilling, to predict the quartile performance of their funds, for example in view of the relative early stage of a fund's life in some cases) and so it was not possible to ascertain whether these firms had better performing funds or otherwise. However, the firms were all well-known and well regarded firms as confirmed by other participants in the study or from their profiles and press coverage.

Recall and post hoc rationalisation

Early research on the VC decision making process utilising surveys and interviews has been criticised as being prone to recall and post hoc rationalisation biases by the VCs being interviewed after the event (Zacharakis and Shepherd, 2007). In the attempt to minimise post hoc rationalisation, questions were framed, where possible, in the context of recent, actual investments made by the VC firm executives. Fried and Hisrich (1994) suggest that focusing on an actual investment eliminates problems associated with "hypothetical or non-contingent responses". Nevertheless, there may be remaining biases where discussion was in more general areas such as participants' own views on differences in approach between European and US VC investment practices or wider environmental areas potentially affecting fund performance. Triangulation of responses from a variety of VCs and other stakeholders help to reduce the impact of bias.

Impact of other factors on performance difference

Whilst this study has been extensive in terms of investigating many structural, operational and wider environmental factors impacting on the performance of VC funds in Europe and US there may be other factors that affect investment, and therefore fund performance, that have not been investigated. These include the number and quality of opportunities for investment, the ambition and ability of entrepreneurs and management teams to grow successful companies and barriers to the development of investee companies (Lerner et al., 2011). Such factors could be investigated in further studies in terms of the performance gap between European and US VC funds.

Limitation framework

Despite the limitations described above this study contributes innovative insights into VC research, specifically in connection with the performance differential between European and US VC funds. Yardley (2000) supplied a framework for limitations in qualitative research addressing four principles: sensitivity to context, commitment and rigour, coherence and transparency and impact and importance. These areas have been addressed as follows:

(1) Sensitivity to context: Relevant literature on the variables impacting on the performance differential between European and US VC funds, including methodologies engaged and theories proposed, has been reviewed, interpreted and critiqued in order to fully understand the context of the performance gap and the environments in which funds operate and to elaborate and refine the research question (Chapter 2.9). Furthermore, the sociocultural context of European and US VCs is well understood by the researcher with a background in VC himself and experience of working in UK, continental Europe and US. The semi-structured interview process supports the open sharing of sensitive issues.

(2) Commitment and rigour: Data has been collected, analysed and reported using a rigorous methodology, as detailed in Chapter 3, and embracing engaged scholarship whereby the perspectives of VCs and other stakeholders were obtained. Each step of the process has been described in detail (Chapter 3, sections 3.4 to 3.9) and detailed analyses of the findings prepared (Chapters 4 to 7).

(3) Coherence and transparency: Working papers, including source audio files of the interviews with VCs and other stakeholders, interview transcripts, outline notes of the interviews, Excel spreadsheets summarising the key themes, working papers and other documentation are available to academics wishing to evaluate how the methodology was applied.

(4) Impact and importance: there is a continuing underperformance of VC funds in Europe compared to the US. This has resulted in reduced investment by non-governmental institutions into the European VC sector. The impact of this thesis involves in-depth insight into differences in investment practices between European and US VCs which impact on the performance differential, with focus on a particular industry sector (venture capital) and a three-region comparison of VC processes (UK, continental Europe and US). The findings have been shared with the professional association for VC in the UK and disseminated to the VC sector.

8.7 Proposed further work

The study has revealed a number of areas that impact on the performance differential between European and US VC funds that are worthy of investigation as follows.

The key findings from this research have resulted from an in-depth qualitative study of the structural, operational and wider environmental areas in which VC funds operate. Quantitative studies, employing statistical regression analysis techniques could be applied to complement and build on these findings. In particular such areas as the importance of the theme approach to the fund performance differential between European and US VC funds, the “1 in 10” home run approach to investing in the context of early stage VC funds in Europe and the US and the prevalence of senior partners railroading the investment approval process could be examined on a more extensive basis through the use of questionnaire surveys provided that a high response rate could be achieved which has historically been an issue with the VC sector (Chapter 3.3). The importance of data and metrics used by US VCs to monitor their portfolio companies and control future funding rounds could also be subject to further investigation in the context of fund performance and their applicability to the European environment ascertained.

The outlier performance, particularly of US firms, was referred to by a number of interviewees. Indeed, the research showed that it was only certain of the US VCs in the sample, for which independent fund performance data was available, that had funds which achieved a return of greater than 50% IRR (Chapter 7.5). It could be argued that the difference in performance between funds is due, at least in part, to the outlier performance of certain very successful investments. To what extent is this outlier performance responsible for the performance differential of the full population of VCs? Outlier performance may be solely due to the activities of the investee companies themselves and not to any activities of the investing VC firms. Outlier performance could be subject to further investigation in terms of the proportion of the overall return of a highly successful fund that is due to outlier performance of one or two investments and in terms of the characteristics of the outlier investments themselves. Areas to be investigated could include whether an outlier investment results from a diversion away from the usual consensus approach to investment approval, whether the outlier performance was due to the investee company's management team capabilities in rapidly growing the business and / or due to the guidance and value add provided by the VC or whether it is due simply to luck of investing in the right company at the right time. The extent to which outlier investments result from the adoption of real options techniques could also be investigated.

Newer VCs in the UK and one newer continental European VC exhibited many of the characteristics of the better performing funds (Chapter 7.7). For example, the research shows that the newer UK VCs in the sample have adopted more of the US "1 in 10" approach to investing (Chapter 5.2.1). This suggests a possible convergence of the European and US VC industries. An investigation of a further selection of newer VCs in the UK and continental Europe could be carried out as to their style of investing, including their approach to risk. The BVCA has seen some 17 newly-established VC funds join as members, the largest number since the dotcom "boom and bust" period. A high proportion of the founders, according to the BVCA, were not born in the UK, many of them are entrepreneurs by background, or at least have some hands-on entrepreneurial skills, and the majority have a deep sector specialism (BVCA, 2017b). The investigation of these newer VCs could establish whether or not they were adopting more of the investment approach adopted by US VCs as discussed in this study including their use of real options as to whether or not to invest in higher

risk deals. US VCs seek to reduce information asymmetries by thoroughly exploring possible new investment areas and effectively utilising social networks with large technology companies, entrepreneurs, corporate VCs and other stakeholders. Do the newer VCs do likewise? Furthermore, a study could be undertaken of whether, and how, the more established VC firms in the UK, that is those which have been operating for around 15 to 20 years, have changed their approach in the time since the interviews that form the dataset for this study were carried out in 2013 and 2014 and also whether limited partner investor attitudes towards European venture have shifted such that LPs might consider investing in the asset class again (BVCA, 2017b).

Interviewees commented on the different approaches to investment in US regions, in particular the difference in investment terms used by West Coast compared to East Coast VCs. However, there were no comments on any geographical variation in investment practices for different regions within European countries. Other than the US and UK the sample sizes of firms were not sufficient to enable in-country investigations to be performed. With the exception of one Scottish based VC, UK VCs firms in the sample were based in London though their investment activities extended across the UK and elsewhere. Performance data on independent VC funds, where these have regional focus, is not publicly available from the BVCA (BVCA, 2017b) and other data providers and so it is not known if there is indeed a variation in performance of VC funds across the UK. In many cases VC funds operate across the UK, though the greatest concentration of VC and expansion stage investment is in London and the South East of England (Jones-Evans and Thompson, 2009). In 2016, some 65% of VC investment was in London and the South East, 9% in East of England, 5% in Scotland and 4% in Wales (BVCA, 2017a). A study of VC firms with regional focus could be carried out to see if there are any in-firm operational and regional economic factors which impact on investment, and hence VC fund, performance.

VC firms with better performing funds were those whose most recent fund had top quartile performance (Chapter 7). Lesser performing firms did not have their most recent fund with top quartile performance; these were still well performing firms as they had one or more previous funds with top quartile performance. These lesser performing firms could be investigated in more details in order to determine the reasons for the fall in performance from earlier funds to more recent funds. Was this due to changes in fund strategy in terms of a shift in stage focus, sector focus or indeed

geographic focus? Or was it due to changes in the structural, operational or wider economic conditions pertaining to those firms? This should provide further insights into the characteristics of better performing firms and funds. Persistence of returns from fund to fund for both private equity and VC funds was investigated by Harris et al. (2014) for US funds only. They showed that US VC funds have persistence in performance from fund to fund. Lerner et al. (2011) also found that funds raised by fund managers whose previous funds had performed well were more likely to exhibit superior performance. This characteristic applied to US funds but not to UK funds, although Lerner et al. did not have the data for many of the UK firms with multiple funds. The reasons for the lack of persistence for some European and US VC funds in the sample is worthy of further investigation.

Interviewees commented on the lack of later stage finance to scale up companies in Europe. Whilst there is now a relatively healthy ecosystem of investors and investment schemes in the UK at the early stages, including equity crowd funding, super business angels and angel networks, at least when compared to the situation earlier this century the issue today in the UK (and Europe) is more with a shortage of later stage finance, from say £5 million upwards, that is needed to scale up companies. This was the subject of the recent review by HM Treasury into “patient capital” (HM Treasury, 2017) and is resulting in the UK Government earmarking some £20 billion over the next 10 years, with private sector support, to finance growth in innovative firms (Section 8.1). This may go some way to addressing the shortage of finance to scale up companies in UK. However, these monies may simply replace funding that might have been available from the European Investment Fund, prior to the European referendum decision. More investment from the traditional, institutional investors is required into UK VC funds. Attitudes of investors to providing finance to create larger funds and the barriers to achieving this could be assessed.

Some of the verbatim comments included in the findings sections of this thesis are quite negative towards European VC, particularly comments from US VCs. For example: *“American CEOs think that European VCs just want to drip-feed them. American CEOs think that European VCs under-capitalise companies. American CEOs think they’re playing long ball and that European VCs are playing the short game.”* (US VC 36). Some advisors also view European VC in a negative manner: *“The history and the track record of the industry in Europe is things go wrong most*

of the time and when it goes right it doesn't go very far." (UK advisor 2). As European VCs start to adopt more of the US approach, particularly with early-stage, higher risk investments, and more finance for scaling investee companies becomes available, returns may improve and sentiments towards the industry may change. A survey of investors and other stakeholders' attitudes towards European VC would be helpful in order to judge the current climate towards the European industry, perhaps in conjunction with Invest Europe and / or the BVCA.

Whilst there currently appears to be a focus on crowdfunding in research on entrepreneurial finance (see for example Drover et al., 2017, and the proceedings of recent ISBE conferences), the field of venture capital performance and VC investment practices continues to present a variety of stimulating and challenging research avenues, including those noted above, which also have potentially significant practical application.

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APPENDICES

Appendix 1: Workshop with BVCA at commencement of research and exploratory discussions

Workshop with BVCA

In order to better understand industry practitioners concerns, to explain the proposed approach to the research and to confirm the relevance of the research questions, a workshop was organised for UK VCs at the planning phase of the research in March 2010, under the auspices of the BVCA. Attendees at the workshop included 5 senior UK VC practitioners including the chairman of the BVCA VC committee, 7 university professors and 3 executives from the BVCA.

Just prior to the commencement of the research, in October 2009, the VC industry in the UK and continental Europe had become concerned about the apparent difference in performance between European and US VC funds that was then being disclosed by data providers. This was one of the rationales for conducting the current study: *“People at EVCA and VC firms in Europe are raging with anger at the performance statistics.”* (European governmental fund investor). There was considerable dissatisfaction with the performance data that was being provided by some of the data providers. Some VCs simply did not accept that there was any difference in performance between European and US VC funds, at least post the dot com / internet bubble period. The initial reaction of some VCs was to question and disbelieve the data: *“EVCA data is wrong!”* (UK VC commenting on EVCA data provided by Thomson Reuters). Lack of full inclusion of data, subjectivity over valuation of unrealized investments and lack of standardization of investment stages and survey methodologies were all cited as reasons for not trusting the accuracy / comparability of the data. Data providers and data issues are discussed in Chapter 2.2 where it is shown that the performance differential was shown to exist by various data providers and was in fact accepted by the industry: *“The BVCA VC committee generally accept the performance figures.”* (BVCA executive in 2010).

The workshop held at the BVCA included a discussion on the variables that can give rise to performance differences amongst UK VC funds. Outputs from the workshop in terms of matters discussed proved valuable for the research and provided some initial

views on possible reasons for the difference in performance. These views included a higher propensity for risk in the US, some US VCs are better at selling portfolio companies to achieve high returns, IPOs are a big contributor to outlier returns in US, more so than trade sales, Europe has a higher percentage of first time funds than US due to the relative age of the industry, with a high mortality of first funds failing, and strong US performance due to a few top quality funds with outlier performance, particularly in Silicon Valley.

The participants at the workshop agreed the main areas of concern as accessing and investing in the right companies in the right sectors and achieving the right exit and timing thereof. Participants were not so concerned about the relative qualities of management teams, both VC and portfolio company teams, in Europe and US and value adding aspects. The above areas are investigated in the current research, along with many other variables potentially impacting on fund performance. The participants also agreed that the proposed research was “worth doing” with the proposed methodology of qualitative semi-structured interviews. The qualitative approach was subsequently also agreed by other stakeholders: *“Data driven model is a dead-end; flogging a dead horse.”* (European LP / EVCA research executive).

Exploratory meetings with VCs and other stakeholders prior to research

A number of VCs and other stakeholders were interviewed both prior to the workshop at the BVCA and immediately thereafter prior to commencing the main research. These preliminary meetings involved 6 UK VCs, one US VC, one UK/US angel investor, 2 BVCA executives, one executive from a US regional VC association, one UK fund of funds, one European limited partner, two advisers, one European technical university professor and one other UK professor and former private equity investor. The meetings confirmed the importance and viability of the research topic. These stakeholders referred to differences between the European and US VC environments, including a more favourable ecosystem in US, less influence with large corporates in Europe, a large number of networks in US to “check things out” (for example with due diligence), too little capital for funding in Europe with fund sizes too small, major defence programmes helped encourage VC investment in US, Europe exits its “winners” too early perhaps as a result of pressure to realise returns from LPs, and a

lack of venture backed IPOs in Europe. These areas are investigated in the current research in Chapters 4 to 6 inclusive.

There was discussion both at the BVCA workshop and with some stakeholders about the impact of outliers on the performance differential between European and US VC funds. There was a view from some stakeholders that US VC returns are driven by a relatively small number of firms with outlier returns and that many of the other firms have returns no better than Europe. Outlier firms and returns are discussed in Chapter 7.

Appendix 2: VC interview aide-memoire

Firm name:

Name of VC firm executive(s) interviewed:

Contact email: Contact phone:

Date and time of interview:

1. Opening discussion about current state of PE&VC industry / economy (warm-up)

2. Tell me about your involvement with VC firm:

When joined

Responsibilities

Previous work

Professional background

Sector focus

3. Tell me more about the firm

Length of involvement of investment executives

Any recent joiners / leavers

No of funds raised

Any fund raising in progress / planned

Use of operating partners

Use of external monitoring directors

Use of advisory board

4. Tell me more about the current (and recent) funds:

How successful was the fund raising process (target fund size, first close, final fund size)?

Who are the LPs / investors?

Status of fund (partially, fully invested)

How is the fund doing generally?

Why is this?

What is its overall performance to date?

Investments realized? How?

Any stellar investments? Why?

Any unrealized investments? Why?

Any non-performing investments? Why?

Any write-offs? Why?

How do you expect the fund to finish up

- all investments realized?

- overall IRR?

5. Tell me about how you conduct the entire investment process from sourcing deals to exiting deals (cover the following areas in the context of the executive's own actual investments and broaden out across firm):

Background of specific investment

Name of company:

Stage of investment (seed, start-up, other early stage, expansion)

Amount of investment £

What does the company do?

What is its USP?

Could its product be described as disruptive?

Deal sourcing

How was the deal sourced?

- active sourcing/ how?

- reactive sourcing: cold approaches / referrals / from whom?

Was there much competition to do deal?

Other syndicate VCs (if applicable)

What is their role in the investment?

Due diligence

How did you go about initial due-diligence?

Were key investment criteria in place: business model, working product, management team, proof of market?

Had management team run (successful) businesses before?

Had they worked together as a team?

Any weaknesses in management team?

Your views on the management team's ability to grow the business as per the business plan

What external due diligence carried out?

By whom?

Did it reveal any major issues?

Terms of deal

Ask about terms of deal

Any unusual terms included in your investment offer (term sheet)?

What veto powers in place?

Were terms of deal re-negotiated following external due diligence?

In what way?

Involvement of VC firm investment committee in approving investment

Discuss process

Have they turned down any deals recommended by you / others?

Why?

Tell me about how you (or others) go about monitoring the investment:

Seat on board

Monthly accounts

Frequency of calls / visits to company

Hands-on to work out issues

Replacement of CEO, FD, other team members

Degree of trust between CEO and investment executive

How has the company grown since you invested?

Steady growth

Stepped growth

Periodic crises

Internal growth vs. acquisition

Tell me about how you have worked with the company to add value (and how important you regard these areas going forward):

Meet with CEO regularly

Seat on board

Strategy assistance

Act as sounding board

Mentoring CEO

Find additional financing

Open doors (contacts/ network)

Determine composition of board

CEO / FD / other executive recruitment

Negotiate important contracts

Negotiate IP rights

How are the management team of the company incentivised?:

Stock (how much vis a vis VC); stock options

Ratchets

Salaries / bonuses

Have there been any exits (and any distributions) from this investment?

Type of exit (trade sale, IPO)

How were you, or your firm, involved in achieving any exit?

How important were your / your firm's networks to achieving an exit?

Do you regard this as a successful investment and why?

What key factor(s) were critical to the success of this investment?

How important were your firm's networks to achieving the exit?

6. For other investments by the firm:

Which are the better performers?

Why have they performed better (e.g., than your investment)?

What key factor(s) were critical to the success of these investments?

7. Tell me about your own motivations for working with this VC firm:

Do you share in the carried interest of your fund(s)?

8. Tell me in summary what factors account for the success of the fund(s)?

What could have been done better?

9. What factors do you believe account for the difference in performance between European and US VC funds?

Appendix 3: Questionnaire on the importance of certain factors to investment success

At the conclusion of the interviews, using a predesigned questionnaire VC investment executives were asked to rate various factors in terms of their importance to investment success going forward on a Likert scale, from 5 (critically important) to 1 (not important at all). The questionnaires were used in order to provide a structured, standard comparison of factors, such as size of fund and strategic focus of fund, between European and US VCs, as a complement to the semi-structured nature of the interviews and to provide additional triangulation of findings. The executives were asked to rate the factors from the viewpoint of the GP of the VC fund. In total some 52 questionnaires were completed by the VCs (18 US VCs, 24 UK VCs, 10 continental European VCs). Questionnaires were completed in presence of interviewer or, in case of telephone interviews, were returned promptly by email. The questionnaire responses were in general agreement with the findings from the detailed interviews with VCs and other stakeholders. A copy of the questionnaire is included below.

Questionnaire

Please rate (in your opinion as a VC investment executive) each of the following factors from 5 to 1 in terms of importance to the investment success of your fund going forward

(5 = critically important, 1 = not important at all):	<u>Rating</u>
Adequate size of fund to make initial and follow-on investments	_____
Track record of VC	_____
Strategic focus of fund (investment stage, sector classification and geographic focus)	_____
Timing and amount of VC financing provided	_____
Financing by business angels prior to VC investment	_____
Government financing prior to VC investment	_____
Use of stage financing	_____
Use of ratchets	_____
Investment structure (ords, prefs)	_____
Use of convertible securities	_____
Deal flow	_____
Monitoring and control processes over portfolio companies	_____
Ability of VC to add value	_____
Extent of networks of VC firm for: - sourcing deals	_____

- adding value	_____
- exiting	_____
Syndication	_____
Skills / experience of VC	_____
Management team capabilities and skills	_____
Protection of IP	_____
Attitude to risk by VC	_____
Exits – type of exit (e.g., IPO, trade sale)	_____
Exits – duration from initial investment	_____
Degree of trust between VC exec(s) and entrepreneur/mgt team	_____
General economic environment	_____
Favourable regulatory and tax environment	_____
Business model of investee company	_____
Leading-edge nature of investee company’s product/technology	_____
Investee company located in a technology cluster	_____
Luck	_____

Summary of questionnaire results

As can be seen from Table A3.1 below, factors viewed as highly important to investment success by VCs from all geographies: UK, continental Europe and US (score ≥ 4.0), include the structural areas of the skills and experience of VC executives and the need for an adequate size of fund in order to make initial and follow-on investments, operational areas of adequacy of deal flow to source investments, the degree of trust between VC firm executives and entrepreneur / management team, ability of VC to add value and the extent of networks of VC firms for sourcing deals, syndicating deals, adding value and exiting. The questionnaire also highlighted the role that some participants believe luck plays in the investment process.

In addition, questionnaire responses highlighted the importance of the capabilities and skills of portfolio company management teams to successfully grow their businesses and the need for investee companies to have valid business models. The relative lack of suitably qualified CEOs and serial entrepreneurs in Europe directly impacts on capabilities and skills, and having a realistic and workable business model for a

company is a key ingredient of investment success whether in UK, continental Europe and US.

Factors viewed as not so important by VCs from all geographies (score ≤ 2.0) include government financing prior to VC investment which contrasts with the generally acknowledged view that US small technology companies have historically benefited from government support prior to VC investment particularly in terms of R&D procurement through the Small Business Innovation Research programme. Public procurement for R&D is “largely inaccessible” for SMEs in Europe (EVCA, 2010). The use of ratchets in investment terms were also seen as not important which concurs with the VC interviews where ratchets were generally regarded as demotivational to management.

Financing by business angels prior to investment was also considered as not so important by UK and US VCs. There were some comments on business angels from the interviews with VCs including a UK life sciences VC (VC 17) who does not invest in businesses that have been funded by angels who usually invest via common shares, the VC preferring preference shares: *“A lot of what you need in biotech or medical devices is you need a lot of capital so the notion you can boot-strap you’re way to anywhere particularly significant in this industry (via angel capital and otherwise) is unlike perhaps the tech industry, it’s a pretty tough thing to do.”* UK VC 72 commented that: *“Most VCs in the States don’t have angel networks and, actually, there seems to be some hostility between the angel networks and VCs.”* US East Coast VC 25 commented that angels are critical to the start-up ecosystem: *“Angels are totally unimportant in my VC world. Are they important in the ecosystem creating start-up companies? Critically important.”*

Other factors, such as investment structure, syndication and type of exit were noted as of moderate importance.

Table A3.1: Questionnaire analysis (mean scores)

	USA	UK	cont. Europe
Adequate size of fund	4.3	4.5	4.3
Track record	4.2	4.0	3.7
Strategic focus	3.8	3.6	4.0
Timing / amount of VC	3.4	3.3	3.9
Financing by business angels	1.6	1.6	2.3
Government financing	1.1	1.1	1.8
Stage financing	2.4	2.5	2.7
Ratchets	1.5	1.3	1.9
Investment structure	2.9	2.4	3.2
Convertible securities	2.2	2.0	2.5
Deal flow	4.7	4.7	4.5
Monitoring and control	3.6	4.3	4.3
Adding value by VC	4.0	4.1	4.2
Networks: sourcing deals	4.8	4.5	4.4
Networks: adding value	4.2	4.0	4.3
Networks: exiting	4.1	4.2	4.0
Syndication	3.5	3.4	3.8
Skills / experience of VC	4.4	4.5	4.4
Management team capabilities	4.8	4.8	5.0
Protection of IP	3.2	3.1	3.7
Attitude to risk by VC	3.8	3.5	3.6
Type of exit	3.6	3.6	3.7
Duration of exit from initial investment	3.5	3.6	3.8
Trust	4.7	4.4	4.8
Economic environment	3.4	3.4	3.6
Regulatory and tax environment	3.4	3.2	3.0
Business model	4.2	4.1	4.6
Leading-edge technology	3.8	3.8	4.1
Located in tech cluster	3.1	2.5	2.7
Luck	4.0	4.2	4.1
No of questionnaires completed:	18	24	10

Geographic differences in questionnaire responses

There were differences in the responses of VCs from the separate areas of UK, continental Europe and US to the questionnaires as follows:

(a) “track record of VC” was rated highly important by US and UK VCs (4.2 and 4.0) but less highly rated by continental European VCs (3.7). Track record is an important factor in attracting high quality deals, as is overall branding and reputation where US and some UK VCs tend to lead.

(b) “monitoring and control processes over portfolio companies” was rated highly important by UK and European VCs (4.3 and 4.3) but seen as less important by US VCs (3.6). From the interviews US VCs appear less concerned about taking formal board seats though they use a focused, metrics-driven approach to monitoring their portfolio companies.

(c) “investment structure” (in terms of use of ordinary and/or preference shares) was rated of higher importance by European VCs (3.2) compared to UK (2.4) and US (2.9) VCs

(d) “use of convertible securities” was rated of higher importance by European VCs (2.5) compared to UK (2.0) and US VCs (2.2)

(e) “syndication” (with other VCs) was rated of higher importance by European VCs (3.8) compared to UK (3.4) and US VCs (3.5)

(f) “protection of IP” was rated of higher importance by European VCs (3.7) compared to UK (3.1) and US VCs (3.2)

(g) whilst “ratchets” were rated of low importance by continental European VCs (1.9) they were rated higher than by UK (1.3) and US VCs (1.5)

(c)-(g) indicate a more cautious approach by continental European VCs to which reference has also been made in connection with the terms of investment in the interviews.

(h) “investee company located in a technology cluster” was rated higher by US VCs (3.1) than UK (2.5) and European VCs (2.7). A major proportion of US VCs are located in the tech clusters of Silicon Valley and Boston.

(i) US and UK VCs rated “financing by business angels prior to VC investment” as not so important whereas continental European VCs rated this factor as medium importance. Whilst “government financing” was rated not so important by European VCs it was rated higher than for US and UK VCs. This may correlate to a general shortage of seed/start up finance in continental Europe and the recent trend of US, and some UK, VCs to invest small amounts of seed finance, often in syndication with other VCs, in order to get in on a deal at the earliest stage in case it turns out to be an outlier performer.