The Current State of the European VC Industry
Facts, Anecdotal Evidence and Future Prospects

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Abstract

This research paper sets out to explore what the current situation is for European venture capital seen from the perspective of current and potential investors. The success of this asset class is highly debated, as the VC industry in Europe on the one hand is praised for having all ingredients for success but on the other hand being accused for having returns incommensurate with the high risks involved. By the use of forensic and anecdotal evidence this research paper demonstrates that VC in Europe is an asset class that has grossly disappointed in terms of investor performance. Poor returns have been detrimental to the industry’s ability to attract private capital and today the industry is dependent on investments from public agencies. Public money has enabled the industry to survive the recent post-crisis years but this paper shows how public investors impact the performance of the asset class negatively in two major ways.
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1. Introduction – Setting the Scene

With a European economy slowly starting to emerge from a long-drawn recession and crisis, politicians are gazing all possible directions for ways to boost growth in the region. Entrepreneurial activity is acknowledged among politicians as crucial for long-term growth of the region and there is a common understanding that innovative new businesses can – if they grow – lead to economic growth, jobs and ultimately Europe’s economic recovery (evca.eu, 2013). It deserves to be emphasized that “if they grow” cannot be overlooked in this regard, and it embodies a highly relevant precondition in that surmise. This is why attention is directed not only at the sources of new great ideas, but increasingly also at the ones investing in the growth of them. Venture capital (VC) is known to be an important component of the financial architecture capable of nurturing high-tech and high-potential companies. The high appetite for risk associated with VC makes it one of the few sources of finance that matches the uncertainty that comes with innovative and pioneering ventures (Pierrakis, 2010). In short, VC can be defined as independent, professionally managed, dedicated pools of capital that focus on equity (or equity-linked instruments like convertible securities) investments in privately held, high growth companies (Sahlman, 1990). Acting as a catalyst for entirely new industries and cutting-edge global firms VC has earned its name by backing some of the world’s biggest and most innovative companies. Since 1950 when VC developed in the US, it has attracted interest worldwide from growth-seeking policy-makers, money-driven investors as well as from visionary entrepreneurs.

In Europe, industry promoters like the European Venture Capital and Private Equity Association (EVCA) are praising the industry to the skies and selling hope like never before. In 2013, the EVCA (2013a) published a report with the key message that Europe is now a compelling investment story. Apart from emphasizing that VC boosts economic growth it argues that European VC ecosystem have come of age and that Europe’s VC industry now has become world-class. The bottom line is that the conditions for VC in Europe have never been better, and we have all ingredients for success bar one; private capital. Hence, a fairly neat picture is painted of the European VC industry. But this seems to stand in stark contrast to what the current situation of the European VC industry is. Because whilst researchers and practitioners appear to agree on the importance VC has for societies and economies, the debate over the industry’s success in Europe brings far less clarity. Indubitably, VC activity slowed down during the recent financial crisis, and weakening of both fundraising and
performance has subsequently been observed. But even though the crisis may have exacerbated existing problems, it cannot totally be blamed for it. Poor returns have been reported over the last decade for VC in Europe and indicate that fund managers do not earn their fees and ergo investors do not earn the expected, or promised, returns. Therefore, investors have displayed increasing wariness of taking on added risk without getting the reward for doing so (Cumming and Johan, 2012). Furthermore, the core of the on-going public and literature debates do not seem to concern whether the industry is in crisis or not, but rather if this is because of temporary, cyclical issues from which the industry will recover or deeper structural ones which will require fundamental changes of the industry structure and governance. At the same time, we are celebrating entrepreneurs for their successes and the VC firms having backed them lucratively and the traditional story of VC appears to be a compelling narrative of bold investments and excess returns (Mulcahy, 2013). Yet the reality looks different in Europe for the asset class and the ambiguity surrounding it obstruct the development of a clear understanding of what the current situation of European VC is. The great deal uncertainty and controversy surrounding the VC industry in Europe naturally leads to the question of where the industry stand today and where it will go from here.

1.1 Research Question

The above discussion leads to the immediate impressions that the jury still seems to be out on the question whether European VC as an asset class is living up to its promises of high returns. It is the purpose of this thesis to explore this in greater detail and to see if a verdict can be reached through a careful examination of forensic and anecdotal evidence. More precisely, this thesis aims at answering the overall research question:

**What is the current state of the European VC industry as seen from the perspectives of current and potential VC investors, and what can be done to improve the attractiveness of European VC as an asset class?**

The following sub-questions will also be addressed in order to answer the research question:

- What is VC financing? And how are VCs structured and working?
- How has VC financing developed in Europe relative to the US in terms of performance, fundraising, investments, divestments, entrepreneurship and deal-flow?

- How is the industry performing, and how is it performing relative to the US industry? And what are the barriers for improving performance?

- What can be said about the current capital levels in European VC?

- What is the role of public agencies and what implications may it have on European VC?

- What are the challenges to VC activity in Europe? What can potentially be done to overcome these challenges?

1.2 Relevance and Objectives of the Paper

The thesis was initiated in the context of a VC industry in Europe that is increasingly criticised for being underperforming and having disappointing returns, yet at the same time being praised for having come of age and having all necessary ingredients for success. Hence, a thorough analysis was sought for in order to fully understand the current situation in the European VC industry, from the perspectives of VC investors. Given the invention, early success and maturity of VC in the US, the US market serves a natural and common choice of benchmark for the European VC industry. The general view is that the American VC industry is significantly better at picking the winners and generating good returns to their investors than their European counterparts are.

The research for this paper was mainly triggered by the great ambiguity and uncertainty surrounding the European VC industry and the main purposes of this paper are two-fold; Firstly, the paper aims to build an understanding and ascertain the current state of the VC industry. By doing so, this paper will contribute academically to the characterisation of the still relatively young industry, by providing an overview and up-to-date status of where the European VC industry in fact stands today. In addition, the paper will provide a detailed overview of the industry’s recent development and emergence. The analysis also aims to capture the most contemporary and critical barriers for the development and success of the industry. This part will comprise the key contribution of this paper and is what the analysis focuses on. Secondly, and throughout the analysis, this paper aims to draw upon the findings and observations to provide understanding and explanation to why the European VC industry has not been able to generate satisfying returns.
1.3 Organisation of the Paper

The paper is organised as follows. The second chapter will introduce the methodology and research strategy that have guided the work, as well as introducing the data used for the analyses. The third chapter provides a brief overview of the underpinning theory and a conceptual framework of what VC is, how it works and is structured and how performance is measured. The analysis is presented in chapter four and is structured into five key elements of VC; Performance, Fundraising, Investment, Divestments and Entrepreneurship and Deal-flow activity in European VC. Following that, chapter five sums up the paper with some concluding remarks. Lastly, chapter six will provide a short discussion on two recommended areas that need to be focused on in order to improve the situation in European VC, as well as provide suggestions for future research.
2. Methodology

The purpose of this chapter is to present the philosophical assumptions underpinning this research, as well as to introduce the research strategy and the empirical data collection techniques applied. Data samples, both quantitative and qualitative, are introduced and, lastly, the limitations of the research paper are outlined.

2.1 Research Philosophy

The importance of epistemological considerations in research lies in the reflection of what acceptable knowledge is for the undertaken field of study and how this knowledge is obtained (Saunders, Lewis and Thornhill, 2012). The adopted research philosophy provides important assumptions on this, and therefore also guides and supports the choice of research approach, strategy, design and the methods of obtaining knowledge (Ibid.). The adopted epistemological stance for this research projects follow the pragmatism view, where either or both observable phenomena and subjective meanings can provide acceptable knowledge, depending on the research question. Research conducted under the pragmatism philosophy focuses on practical applied research where different perspectives are integrated in order to help interpret the data. As opposed to the positivistic strand of social science, where research and knowledge is conducted and obtained completely value-free, values do play a large role in interpreting results in pragmatism. The particular advantage of the pragmatic view when analysing an industry like VC in Europe, is that it allows for the researcher to adopt both objective and subjective point of views. The majority of research on VC is conducted objectively by analysing statistical data sets, most often only measuring performance and activity levels. In addition to carrying out a quantitative objective analysis of the VC industry in Europe, this study will complement that with a more subjective point of view by a small sample, primary qualitative study.

2.2 Research Approach

The selected research approach is closely linked to research philosophy and raises important implications on how data and theory is used, applied and generalised from. The two main forms of reasoning is a deductive or inductive approach. But instead of moving from theory to data and relying on general premises to reach specific conclusions (as in deduction) or conversely from data to building a theory, seeking general conclusions based on specific premises (as in induction), pragmatism allows for a more flexible abductive approach (e.g.
Wheeldon, 2010; Saunders et al., 2012), which is used in this paper. The abductive approach is combining the two main approaches, in that it allows reasoning to move back and forth between theories and empirical evidence. Saunders et al. (2012) specifies this abductive approach: “Data collection is used to explore a phenomenon, identify themes and patterns and locate this in a conceptual framework and test this with subsequent data and so forth” (p. 144). Furthermore, existing theory is incorporated where appropriate and the end goal is either to build new or to modify existing theory. Thus, abductive method is distinguished by the importance it attaches to the task of detecting empirical phenomena, where empirical data are explored, analysed and explained in a comprehensive manner within in the context of the phenomena studied (Sappleton, 2013).

2.3 Research Design, Strategy and Data Collection

This section will go into greater depth with the design and strategy of the research. Given that this paper was initiated against the backdrop of an ambiguous general understanding of the current state of the European VC industry, a research design of exploratory nature appeared to be a natural choice. An exploratory study allows the researcher to ask open and broad questions in order to explore and discover what is going on in the industry and to gain insight about the topic of interest. Exploratory studies are particularly useful if you wish to clarify your understanding of a problem, such as if you are unsure of the precise nature of the problem (Saunders et al., 2012), which makes it a natural approach for this paper. Another advantage of exploratory research is that it is flexible to change. It allows the researcher to change the directions as new data and insights are made apparent.

A research strategy often used in exploratory research is the case study. A case study explores a research topic or phenomena within its context (Saunders et al., 2012), in this case VC in Europe. Given the objective of providing new and rich insight to the understanding of this industry, the case study is especially relevant. The use of a case study also enables the researcher to explore and challenge existing theory on VC. Consequently, when applying a case study strategy you are likely to need to use and triangulate multiple sources of data, which is an important feature of this research and will now be elaborated upon further.

2.3.1 Triangulation of Data

Broadly speaking, triangulation of data refers to the use of more than one approach to the investigation of a research question in order to enhance confidence in the subsequent
findings. This plays a central role in this research paper and is used to question whether the data from various types of sources and of different formats leads to the same conclusions, or if they present any major inconsistencies. If similar conclusions can be drawn from the different types of data, we can have more confidence in the argumentation. For the purpose of this paper, the major types of data used for triangulation are the secondary quantitative data, the primary qualitative data collection and secondary qualitative data. In particular, the valuable insights and knowledge obtained from the in-depth interviews conducted have been useful to triangulate the quantitative data. Triangulation is also applied to minimise various biases encountered in VC research.

2.4 Data Collection and Sample

In line with the pragmatic research philosophy undertaken, and appropriate for a case study strategy, the data collection for this paper involves mixed methods, i.e. using both qualitative and quantitative data, from primary and secondary sources. This data collection method is useful when exploring a research area that previously has not been widely researched. In this sense, the mixed methods are used to provide a contextual background and to better understand the research problem (Creswell and Plano Clark, 2011). Mixed methods are practical and intuitive as they offer multiple ways of viewing problems (Ibid.). For the specified research question in this paper, using solely one quantitative/qualitative data set without the other would most likely provide an incomplete understanding of what is going on. When analysing a VC industry, this cannot be stressed enough given the poor and limited quality of quantitative data available. Many questions would be left unanswered if only quantitative data were used.

In line with the explorative nature and broad initial focus of the research, a secondary data collection was carried out as a first step in order to gain a broad understanding of the VC industry. This data was mainly of quantitative nature, but also supplemented by a thorough literature review. This data served a crucial purpose, especially in the initial phases of the research period, of gaining the solid and comprehensive background information necessary for the topic and this paper. Hence, the secondary data collected for this paper is both of qualitative and quantitative nature and both of academic and non-academic origin. The quantitative secondary data collected for the analysis of this paper was mainly used to analyse the VC industry’s performance, fundraising, investment and divestment levels, and will be discussed more in detail in section 2.4.1. Subsequently, observations made in the quantitative analysis were underpinned by the anecdotal evidence obtained through the
primary qualitative data collections with the purpose of understanding and potentially explaining those observations. This method was selected and guided by the research question that is posed in a way that requires both exploration and explanation to some extent, drawing from different data sources.

Hence, the phenomenon was initially explored quantitatively. Key statistics available on the industry provided us with “hard” background information and laid down the foundation upon which the further analysis was built. Subsequently, the qualitative research was carried out to build an overall understanding of the problem. In this way quantitative and qualitative research is combined to triangulate findings, as mentioned above, in order that they may be mutually corroborated (Ibid.). In addition, as the primary qualitative research followed, secondary data continued to play an important role by being used to constantly supplement the topics and data covered and helping to cross-check publicly available information with the information obtained during the interviews.

2.4.1 Secondary Data Sample
The aggregate statistics used in the analyses are published by the EVCA for Europe and by the National Venture Capital Association (NVCA) for the US. These data come from extensive surveys of VC funds and are carried out together with the commercial data provider ThomsonOne. The data is compiled by combining self-reported data provided by investors as well as from VCs, and reporting is thus of voluntary nature. The database contains the amount and dates of all cash flows to/from investors, as well as quarterly net asset values (NAVs). There are various reasons for why this data set was used. Firstly, it is the basis of the industry standard performance benchmark published by ThomsonOne and various central industry associations. Secondly, this cash flow data is considered, to the author’s best knowledge, to be the most comprehensive source of performance information on PE and VC funds (see e.g. Phalippou and Gottschalg, 2009). Thirdly, earlier versions of this dataset have also been used by prominent researchers in the field (Jones and Rhodes-Kropf, 2002; Kaplan and Schoar, 2005; Phalippou and Gottschalg, 2009). Yet, an evaluation of the data quality and choice of data source is critical.

2.4.1.1 Data Quality Discussion and Critique
The quantitative secondary data collected for this paper mainly serves as the more “facts-
based” contributions to the analysis. However, when it comes to VC research the most important challenge and constraint is the limited availability and quality of data (Da Rin, Hellmann, and Puri, 2012). Hence, the ‘factual’ nature of much of VC statistics must be questioned and scrutinised in detail. When attempting to explore trends in the VC industry, aggregate data on VC provides useful information. However, the lack of a standard international definition of VC and diverse methodologies employed by data compilers complicates international comparisons of VC industries. The most critical secondary dataset is the data on VC performance in Europe. Due to an increasing public interest in the performance of VCs, many academics, researchers and institutions have attempted to measure the returns using numerous methods. However, most (if not all) of these efforts have come up with different results and the key explanation to this is the lack of reliable and comprehensive databases. Unfortunately, when it comes to data covering the performance of PE/VC funds both the quality and availability of data is at best limited, but most likely very poor. These data sources are incomplete, inconsistent, non-transparent and suffers from various potential selection biases. Most of the issues are rooted in the key characteristic of these funds; because of the private nature of VC funds, the very “real” data remains a secret. Thus, detailed information about VC fund performance and structures must be considered as nearly impossible to obtain given the confidentiality terms in the typical agreements (Mulcahy, Weeks, and Bradley, 2012).

2.4.1.2 Problems with Available VC Data

The main problem with existing VC datasets is reporting biases, i.e. assumptions that willingness to report data is likely to be (positively) correlated with performance (Da Rin et al., 2012). It is thus likely that the “real” industry performance levels are most likely much lower than the ones presented in the data available. In fact, Phalippou and Gottschalg (2009), find that funds that do not report cash flow data in ThomsonOne have a success rate in terms of exiting portfolio companies that is five percentage points (pp) lower than for funds that report the data. To circumvent this biased reporting problem, the author attempted to gain access to the European Investment Fund’s (EIF) collection of data, received from VCs they are invested in. This method, to obtain data from a large LP investing in VC funds is according to Da Rin et al. (2012) avoiding selective reporting within an LP portfolio. However, they insist that the question of how representative these LPs are within the universe of LPs still remains. However, the author argues that for a VC industry analysis undertaken at the European level, the EIF is the most representative LP there is. However, the author was
denied access to this data based on the argument that this is highly confidential. While there are a number of recently developed US databases using primarily LP records, there are no comparable ones in Europe with strong data for the market. The other key problem when estimating performance of VC funds using ThomsonOne data is that the results depend critically on the valuation of non-exited investments at the end of the sample period (Jegadeesh, Kräussl, and Pollet, 2009). Using self-reported values of such non-exited investments is indeed representing another reporting bias for VC performance data.

This opacity of VC research might be one explanation to why the understanding of VC performance is a somewhat broken process, and to quote Söderblom and Wiklund (2006, p.15) “...the true performance of VC firms remains largely concealed”. The inference of this discussion on the data quality of PE/VC performance is that it is crucial to be critical to this data and one must be careful of drawing conclusions solely based on this. This further justifies the chosen approach to triangulate the quantitative data with the qualitative, ‘anecdotal’ evidences.

2.4.2 Primary Data Sample

The primary data sample is comprised by 11 interviews conducted in the period of October 2013 to January 2014, with VC practitioners, academics, industry experts and associations currently operational on the European VC market. In line with the exploratory research nature adopted, the interviews were also done in order to identify contemporary and particularly interesting themes and trends in the industry that needed closer examination in light of the research question. Additionally, the purpose of the interviews was to obtain a more holistic and nuanced overview of the research field than what is possible from quantitative data alone. Due to the relatively opaque and secretive nature of the VC industry, the primary data provided unique and crucial knowledge to help answering the research question. The decision to select interviewees from various parts of the industry was justified by the objective of obtaining a broad and multifaceted picture of the industry and of gaining insights from a range of experts within their particular positioning in the industry.

2.4.2.1 How Were Interviewees Selected?

In order to select the interviewees, a mapping of the significant stakeholders in the VC industry was initially carried out. A ranked list of preferred interview objects within each stakeholder group was then written down. In the cases where the interviewees were unavailable or inaccessible, the next one on the list was contacted. The stakeholder groups
included; VCs, angel-investors, incubators/accelerators, private investors (e.g. pension funds and banks), public funds, governmental agencies, industry associations, industry experts and professors within this field. All the chosen interviewees are highly recognised in the European VC industry and/or represent highly recognised firms, companies or universities. Figure 1 below provides an overview of the interviewees. A more detailed overview of the interviews conducted is found in Appendix I. All interviews were audio recorded and subsequently transcribed.

**Figure 1 List of selected interviewees**

<table>
<thead>
<tr>
<th>Interviewee</th>
<th>Representing</th>
<th>Position</th>
<th>Stakeholder Group</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gorm Boe Petersen</td>
<td>DVCA</td>
<td>Head of Department</td>
<td>Industry Association</td>
</tr>
<tr>
<td>Anna Söderblom</td>
<td>Stockholm School of Economics (SSE), Entreprenörskapforum</td>
<td>Professor</td>
<td>Academic</td>
</tr>
<tr>
<td>Søren Hougaard</td>
<td>Copenhagen Business School (CBS)</td>
<td>Adjunct Professor, VC/Angel investor</td>
<td>Academic and VC/Angel Investor</td>
</tr>
<tr>
<td>Bjorn Tremmerie</td>
<td>European Investment Fund (EIF)</td>
<td>Principal, VC and PE</td>
<td>Public agency</td>
</tr>
<tr>
<td>Cornelius Müller</td>
<td>EVCA</td>
<td>Head of Research</td>
<td>Industry Association</td>
</tr>
<tr>
<td>Joel Enquist</td>
<td>Creandum</td>
<td>Investment Manager</td>
<td>VC (and Former entrepreneur)</td>
</tr>
<tr>
<td>Christian Knott</td>
<td>High-tech Gründerfonds (HTGF)</td>
<td>Investment Team</td>
<td>VC</td>
</tr>
<tr>
<td>Søren Thinggaard Hansen</td>
<td>Industriens Pension</td>
<td>Head of Private Equity</td>
<td>Institutional Investor (Pension fund)</td>
</tr>
<tr>
<td>Lars Nordal Jensen</td>
<td>Vækstfonden</td>
<td>Executive Assistant</td>
<td>Public agency</td>
</tr>
<tr>
<td>Kirsten Connell</td>
<td>Seedcamp</td>
<td>General Manager</td>
<td>Incubator</td>
</tr>
<tr>
<td>Jimmy Fussing Nielsen</td>
<td>Sunstone Capital</td>
<td>Managing Director</td>
<td>VC</td>
</tr>
</tbody>
</table>

**2.4.2.2 The Interview Approach**

The interviews conducted were all semi-structured with duration of 0.5-1.5h. It was decided to use the semi-structured interview format to allow for differences among interviewees but still allowing for a clear agenda to be kept of what to cover in each interview (Saunders et al., 2012). The interviews were to great extent non-standardised, as the interviewees’ particular expertise and in-depth insight differed. Nevertheless, some generic and broader questions

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2 Disclaimer: The author has done her best effort to reproduce exactly what has been quoted by interviewees, but cannot guarantee that what they are saying is correct. Quotes have not been sent for approval and two interviews were translated into English by the author. None has requested anonymity.
were included for all participants in addition to a more tailored part. Hence, the interview approach ensured that critical, generic topics and questions that were identified during the initial secondary research phase were covered satisfactorily. The interviewees were also allowed to freely express novel and intriguing thoughts on the issue, but the author was still able to maintain the control of the interview by introducing new topics and following up with in-depth, probing or critical questions if more elaboration on a question was sought by the researcher.

Before the interviews were carried out, a list of topics and general questions was created but there was no strict order for the topics to be discussed. Depending on the type of interviewee at hand and the direction that interviews were heading, some topics were almost always left out. Topics and questions were selected to reflect the controversies and ambiguities discovered during the literature review and the analysis of the secondary data sources on the European VC market. In Figure 2 below is a list of the key topics of questions asked.

**Figure 2 Key generic topics covered in the interviews**

| Challenges for the European VC industry |
| Trends in the European VC industry |
| The performance of the European VC industry and to some extent the US industry performance |
| Differences between the European and American VC industries |
| The current fundraising/capital levels in the industry |
| The role of governments and public support |
| The investments structures in the industry |
| The opportunities on European exit markets |
| The quality, characteristics and trends in the European deal-flow |
| Institutional frameworks embedding the European VC industry |
| The future of European VC |

**2.4.2.3 Data quality discussion**

This section will discuss methods to remedy potential data quality issues and biases arising from semi-structured interviews. *Reliability* in research concerns the extent to which results are consistent over time and portrays an accurate representation of the total population under study (Saunders et al., 2012). The term *validity* regards whether the means of measurement are accurate and if they are actually measuring what they are intended to measure (Golafshani, 2003). In quantitative, positivistic studies the research is undertaken value-free and involvement of the researcher in the research process would reduce the validity of a test greatly (Ibid.). However, in qualitative studies the researcher is in fact the instrument and
thus a critical component in the research process. In this sense, the term reliability has been referred to as irrelevant in qualitative research. To ensure reliability in qualitative research, the examination of ‘trustworthiness’ is instead crucial (Ibid.). To enhance the validity of the findings, the interviews were conducted in a non-standardised approach, as previously mentioned. Questions could be clarified to avoid any misunderstanding and topics could be examined in depth. Before every interview thorough secondary research was undertaken which enabled the interviewer to pose more informed questions. Non-standardised interviews are, however, expected to decrease reliability, as it would be more difficult for other researchers to duplicate it and reach the same conclusions.

It is also important to note that biases may be found in the interviewees and their opinions and perspectives, depending on their background, position and interest in the industry. One way to handle such biases was to draw up on various industry stakeholders with different roles and interests and in particular to include ‘independent’ stakeholders, e.g. professors. This made the final data set more nuanced and facilitated the detection of biases between interviewees and allowed for challenging and controversial concerns towards the industry to be voiced as well. The potential interviewer bias that may arise must also be acknowledged. Framed questions or expressed preconceptions and beliefs of the researcher were avoided and questions were asked in a more objective and open manner. Yet, biases may still prevail given that the interviewer selects the questions and guides the conversations.

### 2.5 Delimitations

Firstly, it is important to highlight that the unit of analysis for this paper is European VC as an asset class and thus taking the perspective of investors. Hence, perspectives linking VC to the economy and society at macro levels is not analysed in this paper. Neither are the perspectives of the industry from an entrepreneur’s view, e.g. start-ups looking to raise capital. The chosen unit of analysis had an implication for the chosen interviewees, where for example neither entrepreneurs nor politicians were targeted for this purpose. Secondly, this paper is not aiming to analyse the institutional and regulatory framework embedding the VC industry, even though this is of great importance and impact to the industry. Yet, the role of the public is included but focuses on government agencies’ role as investors in the European VC industry. Lastly, to limit the scope further, substitutes and alternative financing to VC has deliberately been left out of the analysis.
3. Underpinning Theories and a Conceptual Framework for VC

The VC industry is, like many other industries, generally speaking driven by forces of demand and supply (Gompers and Lerner, 1999; 2004). On the demand side we find entrepreneurs seeking capital to finance their ventures and on the supply-side stand the investors willing to provide risk capital in exchange for high returns in the future.

This part of the paper will look into some key theoretical aspects and underpinnings of VC and provide a conceptual framework of it. It will address questions both with relation to the relevance of the topic as well as the questions to how it functions and is structured. Firstly, section 3.1 looks into the demand for VC and the contributions of VC to the broader economy through financing innovation. Following that, section 3.2 will look into the supply-side of VC and VC as an asset class for investors. Lastly, section 3.3 will take a closer look at the VC as a financial intermediary and provide a conceptual framework for it. This will cover how VCs add value, their organisational structure and compensation, the investment process and VC performance and measurement of it.

3.1 Demand-Side of VC and VC’s Role in the Economy

The idea that entrepreneurial activity is central to long-term economic stability, growth and development has long been an important underlying theme in the fields of business and economics (Alhorr, Moore, and Payne, 2008; Hayek, 1945). The widespread general belief as well as the academic recognition that entrepreneurship is beneficial for economic growth is strongly anchored in the theory of Joseph Schumpeter (Schumpeter, 1934). Schumpeterian growth is a particular type of economic growth, based on the process of creative destruction, and Schumpeter famously defined the entrepreneur as an agent of change. In Schumpeter’s model of economic growth, the entrepreneur is central to the process of economic development and they see potential of inventions and undertake risk to innovate. Additional research has demonstrated some key ways in which entrepreneurs affect national economic growth, e.g. through the introduction of new products and processes, by use of innovation, by increasing competition and by the creation of knowledge spill-overs (Alhorr et al., 2008). Given these contributions, discussions on the relationship between entrepreneurship and economic growth have gained particular interest politically, inducing governments to seek new ways of economic revitalisation. But despite these studies validating the relationship
between entrepreneurial activity and economic growth, it still seems unclear how countries and government policies best can stimulate entrepreneurial activity (Ibid.)

3.1.1 VC’s Role in Financing Innovation

Innovation and entrepreneurship is, however, not a solo sport – it requires a surrounding ecosystem that provides the entrepreneurs with the essential support to develop their firms. In this ecosystem, VC have come to play a critical role in the provision of capital to young, innovative, high-risk and high-growth entrepreneurial firms, i.e. risky ventures (see e.g. Timmons and Bygrave, 1986). Every company needs financing to operate their business and pursue optimal investment and growth opportunities. Accessing and obtaining finance for risky ventures, operating with low or no revenues during the early stages and struggling to survive, is particularly problematic for the entrepreneur. Young, innovative entrepreneurial firms develop ideas for new business models, services and products – often in highly dynamic and changing industries – that they seek to find finance for in order to develop and commercialise the idea. However, innovation and ideas are, by their very nature, tricky to finance. New ventures lack track records of historical performance, there is high risk involved with their venture, they have few or no tangible assets to use as collateral for loans, and they suffer from major asymmetrical information problems. All of this makes funding of their ideas difficult if not outright unobtainable. In fact, access to finance is often believed to be the most critical barrier for entrepreneurial activity (see e.g. EY, 2012). This belief is not new, but it has been amplified by the recent global economic crisis, which also affected business prospects in Europe adversely.

Start-up firms’ rather niched demand for finance is met relatively well by VC funds who raise money from institutions and high net worth individuals. Funds from these providers are invested in the form of equity into early stage businesses that in return offer high growth and return potentials, but also high risk. Simply speaking, the very existence of VC can be explained as a way of meeting this particular demand for equity from young, high-risk and potentially high-rewarding growth companies. VC is one of the few sources of finance with an appetite for risk that matches the uncertainty that comes with innovative, pioneering ventures. VC plays a unique role in that in not only provides capital in exchange for an equity stake of the firm but also takes the role as an active investor with the ambition to create value for its underlying portfolio firms. Thus, it also serves a unique source of finance in that it has the ability to support the management of young, high-growth firms with commercialising the
initial idea or proof of concept to potential mass-market growth. However, VCs are not the ultimate owner of this capital deployed to start-ups, but merely financial intermediaries between the providers of the capital (investors) and the receivers of it (entrepreneurs). This will be explained further in section 3.3.

Furthermore, given the contributions of VC and the extent to which it helps spur and nurture innovative, entrepreneurial companies has been widely researched in the academic literature. VC is proven to have a positive impact on for example technological innovation and patenting rates, on the speed with which innovations are brought to market and above all on economic growth and job creation (Bottazzi and Da Rin, 2002; Jeng and Wells, 2000; Kortum and Lerner, 2000). More recent studies confirm the importance of VC’s contribution to economic growth. A widespread Deutsche Bank Research report (Meyer, 2010) documents that a vibrant VC market boosts aggregate productivity and thus economic growth. More specifically, they show that an increase in VC investments of 0.1% of GDP is statistically associated with an increase in real GDP growth of 0.30 pp, and the effect is even stronger for seed and start-up investments, where a similar increase in investments is associated with an increase in real GDP growth of 0.96 pp (Meyer, 2010). The report documents how countries with high VC activity typically have stronger economic growth rates. There is more than a 9x return for society which of makes governments strongly committed to boosting VC investments. While a more detailed breakdown of the contributions of VC to economies seems relatively unexplored, there persists a generally accepted view that VC is vital in fortifying innovative activity and entrepreneurial talent today (e.g. Andersson and Napier, 2007). A key concern in order to stimulate the economies has been to reduce the financial constraints on the entrepreneurs and thus increase entrepreneurial activity. Yet, financing early-stage companies remains a key challenge for Europe today (Ibid.).

3.2 The Supply-Side of VC and VC as an Asset Class

On the supply-side in the VC industry we find the investors who possess the excess capital, which they seek to invest in high-risk investments in exchange for future returns. The case for VC investing can be theoretically explained, since it is closely rooted in modern portfolio theory. Portfolio theory explains the relationship between risk and return and has laid the foundation for state-of-the art management of investment portfolios. According to this theory, investors are financially driven and they want to achieve a return commensurate with risk and increased risk is only taken on if compensated by higher returns, and vice versa. Thus
investing is a trade-off between risk and expected return, and given the high risks associated with new ventures, investors should expect very high returns from VC investments.

The investors of VC funds can be private, public and institutional. Private investors are high net worth individuals with a strong interest in entrepreneurship, and most often with entrepreneurial background themselves. Family offices, administrating the wealth of rich families, are also a type of private investors. Because of their often-entrepreneurial profiles, private investors tend to do mostly direct investments into the companies they personally want to support. Public investors are often national or regional agencies that have an interest in supporting and stimulating the entrepreneurial ecosystem and the creation of new businesses, such as the European Investment Fund (EIF) in Europe. The vast majority of VC investments traditionally come from institutional investors. There is a broad spectrum of institutional investors ranging from banks and insurance companies, pension funds, endowments, professional listed investment companies etc. Although most of institutional investments remain dedicated to traditional stock and bond assets, an increasing proportion is invested in various forms of alternative investment vehicles, including VC. Alternative asset classes are often of more complex nature than the traditional investments and have limited regulation and relative lack of liquidity, this is also true for VC. Another common feature of alternative asset classes is that it takes long time to gain significant value. Hence, investors in alternative asset classes are generally considered to be long-term investors. This is why normally only the assets of institutional investors and high-net-worth individuals are considered appropriate for this type of investments. These investor types normally have long investment horizons in addition to deep pockets of assets, which allows for a minor share of assets, but still relevant allocation to VC.

3.2.1 Direct vs. Indirect Investments

Investors interested in providing risk capital to the entrepreneurs in young growth companies can do so either through direct or indirect investments. Direct investments entails a strong and close relationship and influence with the company but also requires a lot more than just capital from the investor. The positive aspects should be weighed against the normally very large transaction and management costs that are associated with direct investments. Therefore, the most common avenue to pursue for investors that are unfamiliar or inexperienced with the venture market is to choose to invest indirectly in the start-ups using an intermediary. As a financial intermediary, VC funds offer several advantages in this regard
by directly reducing the transaction costs mentioned. Differences in risk profiles is another aspect that should be considered when choosing how to invest VC. Investing directly involves high levels of undiversified risk, which professionally managed VCs can reduce by pooling investments in their funds, typically among 10-20 portfolio firms (Weidig and Mathonet, 2004). In Appendix II it is illustrated how return distributions for direct investments are highly skewed which appears to diminish as when investments are made at a fund level, or even more apparent in fund-of-funds.

3.3 VC as a Financial Intermediary – A Conceptual Framework

Financial intermediaries in VC are thus the ones that stand in between the flow of capital from investors to entrepreneurs. These are typically differentiated among three types of VC firms from an organisational perspective; independent VCs, corporate VCs (CVCs) and government VCs. Independent VCs (from now on referred to as VCs) will be the focus for this paper and are by far representing the largest part of VC and are, as the name implies, not attached or linked to any of their capital providers. CVCs are typically controlled by a larger industrial company and serve the purpose of a corporate venture arm. Whereas the majority of VC firms are exclusively driven by financial goals, CVCs are expected to make trade-offs in the financial returns in exchange for the strategic value returned from the investments in new ventures. Substantial organisational and incentive structure differences have also been identified, where CVCs are said to have much lower performance-based compensation than independent VCs (see e.g. Gompers and Lerner, 1999). Government VCs are funds set up and managed by the public sector, as opposed to public investors who “only” provide funding for a VC, with various policy objectives also trading off financial goals (Leleux and Surlemont, 2003).

3.3.1 How VCs Add Value – An Agency Theory Perspective

VCs raise money periodically from a group of investors and invest the money directly into a number of carefully chosen start-ups, or portfolio companies. Basically, they pool the money provided by various investors that choose to invest indirectly through the use of VCs. Through this pooling, VCs add value to investors by enabling greater diversification and lower transaction costs, which explains why VCs have emerged as an effective vehicle for

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3 This choice of focus is justified by the fact that according to the EVCA 95 percent of all funds that were raised in Europe 2012 was contributed by independent VCs (EVCA Yearbook, 2013).

4 Examples of strategic goals are access to innovation and new technologies

5 For thorough theory on government VC initiatives see e.g. Lerner (1999) and Armour and Cumming (2006).
this type of investments. The understanding of VC financing and its appropriateness to meet this niched demand for equity is closely linked to agency theory and the problems arising from informational asymmetries. There are two major forms of informational asymmetry relevant in VC; hidden information and hidden action (Amit, Brander, and Zott, 1998).

*Hidden information* occurs when one party in a transaction is aware of relevant information that is not known to the other party. For example, the entrepreneur developing a new product might have much more insight to whether the product will succeed or not on the market, and he is likely to overstate the likelihood of the success (Ibid.). This problem arises because the informed party typically has an incentive to misrepresent the information. *Hidden action* occurs when one party in a transaction cannot observe relevant actions taken by the other party. For example, the VC investor cannot always know whether the entrepreneur is working hard and making sound decisions or if he/she is planning to ‘take the money and run’ (Ibid.).

Agency problems occur at two levels in VC: between investors and VCs and between VCs and their portfolio companies. VCs are structured to reduce these problems as much as possible. Towards this end, different monitoring devices have developed in the VC industry. Gompers’ research (1995) explains how agency theory predicts that the information generated by VCs, e.g. through screening and monitoring, is valuable from this perspective. Using intermediaries like VCs who professionally follow the market closely reduces the high transaction costs imposed through direct investments as well as the agency costs arising in the highly uncertain environments of start-ups. The way information asymmetries and agency problems are handled by VCs has been a major research topic (see e.g. Amit et al., 1998; Cumming, 2006; Sahlman, 1990). In one of the first studies on VC structure and contracts, Sahlman (1990) describes and analyses the structure of VC organisations and emphasises the contracting and operating procedures that have evolved in response to the agency costs in these relationships. Three of the most common monitoring devices and contracting practices that have developed in the industry will now shortly be elaborated upon.

### 3.3.1.1 The Active Nature of VC Investments

VCs are widely considered to be experts at due diligence in screening potential investments and adding value to their investee firms through taking on board positions, professionalising the management team, exercising corporate governance, providing financial, strategic, managerial or marketing advice as well as facilitating a network of valuable contact for the portfolio companies (see e.g. Bottazzi, Da Rin, and Hellmann, 2004; Gompers, 1995; Gompers and Lerner, 1999; 2004; Hellman and Puri, 2002; Kaplan and Strömberg, 2001).
one of the unique characteristics of VC as a financial intermediary is their active ownership style. Thus, the ‘hard’ side or capital contribution is complemented by a ‘soft’ side consisting of mentoring and monitoring. In this way, VCs can help their portfolio companies in many more ways than by simply providing capital. This implies that VCs provide dynamic growth opportunities with financing, but also with support, close monitoring of their management and stringent incentives to perform. Moreover, Amit et al. (1998) proves that VCs emerge because they develop these special abilities in selecting and monitoring entrepreneurial projects which gives them a comparative advantage over other financial intermediaries in environments where informational asymmetries are important.

3.3.1.2 The Staging of Investments

Staging, i.e. the ‘phasing’ of the investment over different stages, rather than giving the whole amount up-front, is another monitoring device and a way to minimise the agency costs related to moral hazard issues between VCs and the entrepreneurs (e.g. Gompers, 1995; Sahlman, 1990; Wang and Zhou, 2004). By providing the capital to the portfolio firm in multiple instalments, with each financing conditional on meeting particular business targets the staging is a strong tool for VCs to control activities of their portfolio companies. In this way, VCs are preserved the option to abandon the project if needed, which can ensure that the money is not wasted on unprofitable projects. Evidence also shows that the staging of capital infusions allows VCs to gather information and monitor the progress of firms (Gompers, 1995) and has been noted as the most compelling control mechanism a VC firm can deploy (Sahlman, 1990).

3.3.1.3 The Syndication of VC Investments

VC syndication, i.e. the coordinated investment by two or more VCs in the same investment round, is another phenomenon increasingly observed in the industry and a suggested method of reducing problems caused by informational asymmetries (Lerner, 1994; Lockett and Wright, 2001; Wright and Lockett, 2003). The motives for syndication vary, but expected outcomes of it are that it leads to better venture selection, it mitigates information asymmetries between initial investors and later-round-investors, and it amplifies the value-addition of VCs (Das, Jo, and Kim, 2011; Hellman and Puri, 2002; Kaplan and Strömberg, 2004; Lerner, 1994; Sahlman, 1990; Sorenson, Stuart, American, and May, 2001). Das et al. (2011) also find that risk-sharing, portfolio diversification, resources, capital constraints and VC’s skills and core competences are important rationales behind VC syndication. One of the
most cited rationales is the so called selection hypothesis (Brander, Amit, and Antweiler, 2002; Lerner, 1994). This rationale assumes that syndication would lead to improved selection of ventures, because it would be advantageous to have more than one VC to evaluate a project before it is selected for investment. From the lead VC’s perspective in this regard, the benefit of bringing more VCs in is that even more value would be added to the portfolio company, depending on the skills and information of different VCs.

3.3.2 The VC Partnership Structure

The dominant organisational form of VC funds is the limited partnership investment model, which arose in the beginning of the 1970s in the US6. Previous research also proposes that the limited partnership structures provide greater value and quality certification relative to other VC structures (Cumming and Johan, 2008; P. Gompers and Lerner, 2001). According to this structure, a VC firm comprises a management company and one or multiple investment funds. In a limited partnership VC, the VCs serve as general partners (GPs) controlling the activities of the fund, and the investors are the limited partners (LPs). The LPs cannot get involved with the day-to-day activities of the fund, but they monitor the fund’s progress closely and attend annual meetings (Gompers and Lerner, 1999; 2004). The VC partnerships always have predetermined and finite life spans, often ranging from 8-11 years, and the partnership agreement stipulates specific terms that will govern the partnership and the GPs compensation during this period (Bygrave and Timmons, 1992). Hence, VCs are typically closed-end funds with a pre-determined ‘expiry-date’, which do not provide investors with the possibility to subscribe new quotas nor exit from the fund at any prior date (Caselli and Gatti, 2004). GPs usually invest personal assets in the fund as well, typically 1% of the total fund volume (see e.g. Metrick and Yasuda, 2010; Smith, Smith and Bliss, 2011) to align interests between LPs and GPs.

3.3.3 The VC Compensation Model

Considering the organisational set-up of VCs the compensation structure is also important to understand, as it is designed to best align interests between the investors and the VC, and to best incentivise the GPs. The compensation model of limited partnership VCs typically takes a very simple and standardised form and comprises two different components; management fee and carried interest. The GPs receive an annually fixed management fee, which is a

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6 Gompers and Lerner (1999) reveal that limited partnerships accounted for roughly 80% of commitments to the VC industry in the late 1990s already.
percentage, usually between 1.5-3%, of the NAV under management (see e.g. Gompers and Lerner, 2004). A recent study from Metrick and Yasuda (2010) reveals that in recent years funds have adopted different methods for assessing these management fees. E.g. it is increasingly common to adopt a decreasing fee schedule and/or changing the calculation basis for the fee from committed capital (the first five years) to the net invested capital (the last five years). This incentivises VCs to put the committed capital “to work” in a timely manner that is more appropriate for the investors. The remuneration structure also includes a variable compensation component, carried interest, which is a specified fraction (usually around 20%) of the fund’s future realised investment profits (see e.g. Gompers and Lerner, 2004). To align interests, the carried interest is commonly calculated over all investments made and not over returns of single investments. Finally, a hurdle rate (usually around 8%) is often used\(^7\) to guarantee a minimum return to the investors, so that GPs can only benefit from the carried interest once the hurdle rate is achieved and guaranteed to the investors. Metrick and Yasuda (2010) analysed compensation from 93 VC funds raised from 1993-2006 and found that this so-called “2 and 20” model is the market standard; 90% of the funds charged a 2% or more annual management fee, and 95% of funds charged a 20% carried interest.

3.3.4 The VC Investment Process

During a fund’s lifetime different phases and activities are carried out and normally this VC “cycle” can in rough terms be said to include three fundamental phases; fundraising, investment and divestment (see e.g. Gompers and Lerner, 2004).

**Fundraising:** After an investment strategy has been planned, VCs try to collect money from potential investors during this initial phase when capital is acquired. To do this, the unique investment strategy is communicated in order to convince investors to commit capital. When enough capital is acquired, the fund will be closed and the first calls for capital (also known as drawdowns), can begin, i.e. when investors actually pay a share of the capital they have committed (Duffner, 2003; Smith et al., 2011). The drawdowns are only made once a prospective investment object has been identified and selected.

**Investment:** During the investment period the VCs make the portfolio investments and subsequently manage the investments actively to create or increase value. The first 2-3 years are spent on screening, selecting and making the actual investments. A lot of time is spent on analysing the companies, both quantitatively and qualitatively. If both the VC and an

\(^7\) 45% of VCs operate with a hurdle rate according to Metrick and Yasuda (2010).
entrepreneur is interested in a deal, the deal negotiation follows. Complex contracts to shape the conditions of the investment is formed and include the form and amount of finance, covenants, control rights and incentive structures (Duffner, 2003). Once the investment is done, the value creation phase starts, where the VC manages and monitors the portfolio companies. They support them with their expertise and knowledge in order to best develop and commercialise the business of the entrepreneur. This is normally the job that takes up most of the VCs work time. According to Smith et al. (2011) this takes up 70% of an investment manager’s time.

**Divestments:** One of the key purposes of VCs to invest in early stage high-tech entrepreneurial firms is to achieve capital gains upon exiting them. Hence, the potential for exiting from a potential investment is a determining investment criterion for VCs in the screening process. The portfolio companies of VCs in their early stages are rarely capable of distributing any dividends to their owners, which is why the entire return generation for VCs comes from the profits realised when selling their holdings of these companies. Hence, the illiquidity of the market is a key concern for investors in VC. VCs seek to exit the portfolio firms approximately within 10 years after the first closing of the fund, and it normally takes at least 2-3 years to harvest the investments. Exits can be done in various ways, and the five primary types include: IPO (sale to the general public through new listing on a stock exchange), acquisition (sale of the whole firm to a large company), secondary sale (where only the VC sells its share to a financial investor), buyback (the entrepreneur repurchases the shares owned by the VC) and write-off (liquidation of the investment) (Cumming and Johan, 2008; Cumming and MacIntosh, 2003). IPO exits are typically the most difficult to achieve (because of high information asymmetries, administrative costs and requirements for information disclosure) but also said to be the most lucrative exit for investors (Gompers and Lerner, 1998). Because ventures can get a much higher valuation with a floatation compared to a private placement one would expect venture capitalists to bring as many portfolio companies public as possible. Moreover, the full activities of VC in an investment cycle can be summed up to involve; acquiring capital, screening and selecting the portfolio companies, investing in them, providing value-adding services and then ultimately exiting from the companies. This process is graphically illustrated in Appendix III.

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8 This also explains the importance of setting up VC funds as closed-end funds, rather than open-end funds like mutual funds with no definite end.
3.3.5 VC Performance and the Measurement of It

The primary goal of profit-oriented investors like VCs is to maximise the financial returns for the LPs (e.g. Bygrave, Hay and Peeters, 1999; Reiner, 2013). The performance of VC is thus a central topic in research. Yet, calculating VC returns turns out to be a challenging task and there is still a limited understanding of VC returns and performance. This knowledge gap is to a large extent a consequence of the limited and lacking data on VC cash flows. This makes the analysis of the performance of VC as an asset class an extremely difficult task and leaves us with an incomplete knowledge of the dynamics of the returns in the industry.

3.3.5.1 Why it is Difficult to Measure VC Performance?

First of all, given the private nature of this industry, with no mandatory reporting of performance, the industry is to a great extent exempt from the disclosure regulations that apply to public equity markets. Funds are only under a private obligation to report their performance regularly to their investors, no one else. Hence, since fund reporting is done on a voluntary basis, there is both a lack of real data and a potential selection or reporting bias in the available data sets, which complicates the analysis. However, the complications do not end there. There are also problems in measuring the returns per se. It would be straightforward enough to measure performance once all investments have been realised, i.e. after all investments been exited and cash returned to LPs. But given that VC funds have at least a 10-year life all attempts to measure performance before the liquidation must include an estimation of the value of the unrealised investments, i.e. the residual value. This value estimation exercise is performed by the fund itself, and will hence be impacted by the chosen way of measuring this residual value. Moreover, computing financial returns requires both good and high-quality data as well as a solid methodology widely shared by researchers, but as for VC both components are scarce (Da Rin et al., 2012). In the following section the most commonly used performance measures will be introduced.

3.3.5.2 Metrics Used to Measure Performance

On-going academic discussions concerning the various methods to measure VC fund returns exists (see e.g. Kaplan and Schoar, 2005; Kaserer and Diller, 2004; Phalippou and Gottschalg, 2009). Traditionally, the most commonly used metrics among funds and investors to measure performance are the internal rate of return (IRR) and investment

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9 Often attempts are made to mark-to-market these highly illiquid investments, rather than carrying them at book value.
multiples. Official industry associations, like the EVCA, have endorsed these metrics in their reporting guidelines and they are generally accepted as the industry standard.

**IRR:** The IRR is the interim net return earned by the LPs from the fund since inception to a specified date and it is calculated as an annualised effective compounded rate of return\(^\text{10}\). Formally, IRR is the discount rate that makes the net present value (NPV) of a stream of cash flows equal to zero\(^\text{11}\). The IRR is always net of all fees and carried interest paid to the GPs. Unless all the fund’s investments are realized and cash returned to investors, the IRR calculations also includes the estimated value of the unrealized investments which is referred to as the unrealised NAV. These so-called “paper valuations” are estimated as of last reporting date as a final “cash flow” (Harris, Jenkinson, and Kaplan, 2013). Given the length of VC funds, only funds with vintages – i.e. the year of the fund’s first investment in a firm - from around 2000 represent largely realised funds. The proportion of realised funds naturally falls for later vintages. Consequently, the estimation assumptions made for the residual values are increasingly crucial for more recent vintages when making the return calculations\(^\text{12}\) (Harris et al., 2013a). While there do exist data on VC’s IRRs, the vast majority of these calculations have been based on appraisal values. Therefore, this data often does not reflect returns that investors could have realised (Chen, Baierl, and Kaplan, 2002)\(^\text{13}\).

**Multiples:** Performance multiples typically serve as a complementary return measure for VC, considering that many researchers and industry associations provide both IRR and multiples when assessing fund performances. The popularity of multiples among investors is rooted in its provision of a simple and intuitive result for the performance of investments. The investment multiples, in short, compares the sum of all fund contributions by investors to the sum of all fund distributions and the value of unrealised investment, also net of fees and carried interest. The most commonly used multiples are Distributed to Paid-in Capital (DPI), Residual Value to Paid-in Capital (RVPI), and Total Value to Paid-in Capital (TVPI). The

\[^{10}\text{Using daily or monthly cash flows to and from investors, together with the quarter end valuation of the fund’s un-liquidated holdings, or residual value, as a terminal cash flow to investors.}\]

\[^{11}\text{Mathematically, the IRR can be expressed as the solution to equation:}\]

\[^{12}\text{To avoid these estimation, or appraisal, biases some researchers have solely included VC investments that have been liquidated, i.e. end-to-end returns, (see for example Chen et al., 2002).}\]

\[^{13}\text{An alternative to the standard IRR is the so-called modified IRR (MIRR), which does not suffer from the reinvestment assumption of IRR. It has gained increasing importance recently, particular in academic studies but have limited practical relevance in the industry to date (Kierulf, 2008; Reiner, 2013).}\]
TVPI is arguably the most widespread multiple used and it includes both cash returned to investors (the DPI) along with the residual value (the RVPI). TVPI measures the size of the profits for the LPs relative to the initial investments but is – as opposed to IRR – not taking account for the time over which the capital has been employed. Hence, the advantage of multiples is that they represent measures for the entire value increase throughout the investment period (and not annualised). However, they disregard the time value of money.

**Public Market Equivalent (PME):** In 2005 a third performance measurement metric was introduced by Kaplan and Schoar; the PME. This is a market-adjusted multiple, comparing VC fund investments with investments of equal amount in a public market, e.g. S&P 500 or NASDAQ Composite. A fund with a PME greater than 1 outperforms the public index, net of fees, and a PME smaller than 1 underperforms. This measure is practical for LPs as it reflects the return to VC investments relative to public equities and allows for simple comparisons of returns (Da Rin et al., 2012). The PME is not yet widely used in practice and studies, but is expected to gain increasing support and acceptance (Sorensen and Jagannathan, 2013).

### 3.3.5.3 Expected Returns vs. Actual Return Levels

**Ex-ante return requirements:** VCs are, according to conventional wisdom, only considering investing in companies whenever the potential return on investment is commensurate to the investment risk (Reiner, 2013). The risks taken when investing in new ventures are often closely linked to the development stage of the portfolio company. As a company develops from being a newly funded one to an ‘exitable’ firm, the risk is normally decreasing throughout this development. Hence, as the company matures the investors’ risk of losing the money invested shrinks as the likelihood for a successful exit increases (see e.g. Reiner, 2013; Ruhnka and Young, 1987). Consequently, an investor will require much higher financial returns from early-stage companies than from mature companies, given their risk level. Based on Bygrave et al. (1999), Figure 3 illustrates this.

**Figure 3 Expected investor returns on VC investments**

<table>
<thead>
<tr>
<th>Development stage</th>
<th>Expected annual return (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Seed stage</td>
<td>70-80%</td>
</tr>
<tr>
<td>Start-up stage</td>
<td>60-70%</td>
</tr>
<tr>
<td>Early stage</td>
<td>40-50%</td>
</tr>
<tr>
<td>Expansion stage</td>
<td>30-40%</td>
</tr>
<tr>
<td>Later stage</td>
<td>20-30%</td>
</tr>
</tbody>
</table>

*Source: Reiner, 2013 (Based on Bygrave et al. 1999 and Anshuman, Martin and Titman, 2012).*
**Ex-post VC return realisations:** Numerous academics and researchers have taken on the challenge of evaluating PE and VC performance. Yet, relatively little is known about the risk and return characteristics of VC investments (Denis, 2004). In this section, existing literature on returns that have been achieved in PE and VC is reviewed and the most relevant and frequently quoted studies in VC literature is highlighted. The general trend globally seems to be that the earlier literature tends to be optimistic about the returns of this asset class whilst the more recent ones are far more critical. Among previous studies some of the major ones worth highlighting are; Kaplan and Schoar (2005), Phalippou and Gottschalg (2009) and most recently Harris et al. (2013a). An overview of more key fund-level return studies provided by Reiner (2013) can be found in Appendix IV. Kaplan and Schoar (2005) analyse fund performance with a sample of 577 venture funds raised between 1980 and 2001 from the ThomsonOne database. Even though they mainly focus on performance persistence and performance-flow relationship\(^{14}\), they find an average IRR of 17\% (and a median IRR of 13\%) for VC investments (Da Rin et al., 2012; Kaplan and Schoar, 2005). Using the same dataset as Kaplan and Schoar (2005), but a slightly more updated one, Phalippou and Gottschalg (2009) reach similar results for PE and VC funds. According to Da Rin et al. (2012), these returns cannot be considered to be particularly high, given that they do not control for either systematic nor liquidity risk (Da Rin et al., 2012). An important contribution from this study is that there is substantial performance heterogeneity across funds, with extreme differences between the best performing funds and the worst. This skewness in VC returns is supported by other studies as well, e.g. made by Conroy and Harris (2007) and Phalippou and Gottschalg (2009). Also, Kaplan and Schoar (2005) provide some evidence of persistence in performance. Thus, funds that perform well in one period are more likely to do so in subsequent periods as well. The heterogeneity and skewness of VC returns, makes it one of the asset classes with widest disparities in performances between the best and worst performing funds. In one of the most recently acknowledged VC performance studies, Harris et al. (2013a) use a new research dataset of PE and VC fund-level cash flows from Burgiss\(^{15}\) and reassess the performance of US funds both in absolute terms and relative to public markets, using the PME metric. They find that buyout fund returns have outperformed

\(^{14}\) See Harris, Jenkinson, Kaplan and Stucke (2013) and Kaplan and Schoar (2005) for studies on persistence in VC performance.

\(^{15}\) “According to Burgiss, the dataset ‘is sourced exclusively from LPs and includes their complete transactional and valuation history between themselves and their primary fund investments’ (Harris et al., 2013a).
public markets for most vintages since 1984\textsuperscript{16}. For VC funds, however, the results are less promising. They find that between 1986 and 1999 vintages were outperforming the public market index, but after that the pattern reverses. From 1999-2008 (with 2005 as the only exception) none of the vintages had a weighted average PME greater than 1. The 1999-2002 vintages are particularly low with all PMEs at or below 0.90\textsuperscript{17}.

These findings, stating that VC fund returns have underperformed the public markets since 1999, are very consistent with the findings of a recent study made by the Kauffman Foundation (Mulcahy et al., 2012) for their investments in VC as well. In the mind-boggling report, a twenty-year history of venture investing in nearly 100 funds was analysed with the conclusion that the attractiveness of VC investments can not only be questioned in the US as well, but also globally as an asset class in general:

“Venture capital (VC) has delivered poor returns for more than a decade. VC returns haven’t significantly outperformed the public market since the late 1990s, and, since 1997, less cash has been returned to investors than has been invested in VC” (Mulcahy et al., 2012, p.3).

Thus, it is claimed that VC, as a global asset class, has delivered bad returns for more than a decade and that the LP-investment model is considered broken per se. The interesting twist of the Kauffman report’s conclusion is that the investors themselves are partly to blame for this, as too much of their capital has been invested in underperforming VC funds. To sum up, whilst the historical performance of VC remains uncertain, if not controversial, the most recent studies undeniably seem to reveal that the returns of the asset class has been very disappointing. Evidence in literature suggest that the average net returns to investors in VC have not been nearly as attractive on a risk-adjusted basis as one might have assumed – or hoped for (Conroy and Harris, 2007).

\textsuperscript{16} Their results suggest that the buyout funds have outperformed public markets by at least 20\% over the life of the fund, or at least by 3.7\% per year for a long period of time.

\textsuperscript{17} In Appendix V the findings of Harris et al. (2013a) are illustrated graphically relative to other data sources.
4. Analysis of the European VC Industry – The Aggregate Data

The theoretical concepts introduced in the previous section – key characteristics, structure and performance measurements of VC – will now be applied to the European VC industry when analysing the current state of it and what can be done to improve the attractiveness of it as an asset class. The analysis will start digging into the most debated and discussed issue of VC, namely performance. In the sections that follow we shall analyse fundraising, investment, divestment and lastly the quality of European deal flow and entrepreneurship.

The first section on performance sets the scene for the rest of the analysis, in the sense that each subsequent section will explore where any potential explanations to the findings from the first section on performance can be found. The focus for the analysis will lie on the first two sections - performance and fundraising - as most interesting and new data came out in these topics from the interviews.

Each section will be structured as follows. Firstly, the available quantitative data on the section’s topic will be presented for the European VC industry and compared to the US one, to the extent that data can be obtained for this purpose. In order to analyse the current state of the European VC industry, each section firstly provides an overview of quantitative data and statistics. But before any conclusions from data can be drawn, the data must be crosschecked with the findings from the primary qualitative research study, i.e. the interviews. This anecdotal data, supported with findings in existing literature, will be presented in the form of quotes and a discussion of the findings from the 11 interviews conducted.

4.1 European and US VC Performance

The first challenge when analysing the European VC industry is in fact to evaluate the performance of VC as an asset class. Because of the unique characteristics of VC as an asset class, analysing the returns from these investments face a number of problems already mentioned in previous sections.

4.1.1 The Quantitative Data Analysis

We will start with a look into the performance of European VCs, using annualised net pooled returns for both ‘all venture funds’ and ‘top-quarter venture funds’ separately. Thereafter we will look at the European VC performance in relation to the US, using horizon and rolling IRRs. These return measures were explained in the theoretical sections above.
4.1.1.1 Pooled Net Returns and Top-Quarter Returns

One way to analyse the long-term performance of VC is to look at the average performance across all funds in Europe, i.e. view it as one single investment pool. In the most recent EVCA Pan-European Performance Benchmarking Study (2013b) annualised net pooled IRRs and pooled TVPI is calculated from the inception of the funds until ultimo 2012, found in Figure 4. Looking at the pooled IRR\textsuperscript{18} for all venture taken together tells us that VC in Europe have only yielded a 1.27 % return annually since the funds were launched and until the end of 2012. Using the TVPI, they only returned 1.07X the money to its investors annually. Considering the high risk associated with these investments and the high investor ex-ante return expectations (see Figure 3) these numbers come across as very weak and non-attractive. What also is worth highlighting is that the seed/early-stage funds, representing the majority of VC funds in Europe in terms of number, comes out as the worst performers. Given the much higher risk associated with ventures in their early stage compared to later-stage, this also might appear counter-intuitive to the theoretical predictions of risk-reward profiles of investments (see Figure 3).

Figure 4 Annualised net pooled IRR and TVPI from inception to 31.12.2012

<table>
<thead>
<tr>
<th>Fund stage</th>
<th># of funds</th>
<th>Pooled IRR</th>
<th>TVPI</th>
<th>DPI as % of TVPI</th>
<th>RVPI as % of TVPI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Seed/early-stage</td>
<td>428</td>
<td>-0.54</td>
<td>0.97</td>
<td>42%</td>
<td>58%</td>
</tr>
<tr>
<td>Later-stage</td>
<td>119</td>
<td>3.02</td>
<td>1.16</td>
<td>58%</td>
<td>42%</td>
</tr>
<tr>
<td>Balanced</td>
<td>192</td>
<td>3.62</td>
<td>1.21</td>
<td>39%</td>
<td>61%</td>
</tr>
<tr>
<td>All venture</td>
<td>739</td>
<td>1.27</td>
<td>1.07</td>
<td>44%</td>
<td>56%</td>
</tr>
</tbody>
</table>

\textit{Source: EVCA, 2013b}

If we look at the top-quarter VC funds in Europe, see Figure 5, the net pooled IRR is 18.49%, i.e. much higher than the total net pooled IRR of 1.27% for VC. Figure 5 also show that the overall upper quartile IRR is 4.41%, which means that funds must equal or exceed this IRR.

\textsuperscript{18} Explanation of pooled IRR as provided by the EVCA 2013a: “This is an IRR obtained by taking cash flows since inception together with the residual value for all funds and aggregating them into a pool as if they were a single fund. This is superior to either the average, which can be skewed by large returns on relatively small investments, or the capital- weighted IRR, which weights each IRR by the capital committed. This latter measure would be accurate only if all investments were made at once at the beginning of the funds’ life.”
to qualify as a top-quarter fund. However, even these higher returns appear weak when compared to theoretical risk-reward predictions (see Figure 3).

**Figure 5 Top-quarter funds (1980-2012): Annualised net pooled IRR since inception**

<table>
<thead>
<tr>
<th>Fund stage</th>
<th># of funds</th>
<th>Top-quarter pooled IRR</th>
<th>*Overall upper quartile IRR</th>
</tr>
</thead>
<tbody>
<tr>
<td>Seed/early-stage</td>
<td>107</td>
<td>12.41</td>
<td>2.16</td>
</tr>
<tr>
<td>Later-stage</td>
<td>27</td>
<td>17.46</td>
<td>7.95</td>
</tr>
<tr>
<td>Balanced</td>
<td>36</td>
<td>17.84</td>
<td>6.11</td>
</tr>
<tr>
<td><strong>All venture</strong></td>
<td>112</td>
<td><strong>18.49</strong></td>
<td><strong>4.41</strong></td>
</tr>
</tbody>
</table>

* Funds must equal or exceed this IRR to qualify as a top-quarter fund.

Source: EVCA, 2013b

**4.1.1.2 Horizon IRRs**

Horizon IRRs allow for an indication of performance trends in the industry and we can compare different geographical areas (EVCA, 2013b). Horizon IRR uses the fund’s NAV at the beginning of the period as its initial cash outflow and the residual value at the end of the period as the terminal cash flow. In Figure 6, the total VC fund performances in Europe are compared to its counterparts in the US by the use of horizon IRRs. It is most relevant to look at the longer horizon IRRs, and both for 5 and 10y horizons the IRR is negative in Europe, and around 3-5 pp higher and positive in the US. Indeed, the US IRRs are still very low compared to ex-ante return expectations.

**Figure 6 VC Performance in Europe and the US – horizon IRRs**

<table>
<thead>
<tr>
<th></th>
<th>2012</th>
<th>1y</th>
<th>3y</th>
<th>5y</th>
<th>10y</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Europe</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Europe</td>
<td>11.1%</td>
<td>2.0%</td>
<td>-1.1%</td>
<td>-0.52%</td>
<td></td>
</tr>
<tr>
<td>US</td>
<td>5.87%</td>
<td>8.56%</td>
<td>3.61%</td>
<td>2.95%</td>
<td></td>
</tr>
</tbody>
</table>

Source: EVCA, 2013b

**4.1.1.3 5y Rolling IRR**

Looking at the 5y rolling IRRs, which show the development of the five year horizon IRR measured at the end of each year, over a longer term in Figure 7, the differences between the US and Europe are portrayed better. Firstly, the US 5y rolling IRRs are more volatile than the
European IRRs, indicating a higher level of risk and the fact that US VC has seen more bust-and-boom cycles than European VC. Secondly, except for a few and short periods (1988-1990 and 2004-2006) the US 5y rolling IRRs are consistently outperforming their European counterparts. The performance gap was greatest in the early years of European VC, around 1980-1986, as well as during the dotcom bubble and its fall, around 1998-2003. Yet, looking at most recent data points, 2004-2013, returns seem to have converged and there is a 6 pp gap in 2013. Although the 2012-2013 development indicates an increasing gap again, the current gap can be considered to be relatively insignificant, especially given the likely unreliability of data.

**Figure 7 5y rolling IRR comparison between Europe and the US, 1980-2013**

![Graph showing 5y rolling IRR comparison between Europe and the US, 1980-2013](image)

*Source: ThomsonOne*

Yet, even though the performance gap to the US has been narrowing lately, European performance levels are still very weak (as are those in the US). Although one has to be careful to draw major conclusions solely based on these numbers, according to Figure 7 European VC has never managed to live up to the theoretical risk-reward predictions for the investments. To get a more nuanced picture of what is going on we will now add the anecdotal evidences from the interviews to the analysis and discuss these in order to gain a better understanding of the performance situation. Is performance really that bad? And if so, can European VC as an asset class be deemed unattractive? Moreover, is there a performance gap to the US? And, how critical and relevant is actually this bad performance for the industry’s future? These are some of the key questions that will be analysed.
4.1.2 Anecdotal Evidence - Qualitative Research Findings

This section provides an analysis and discussion on the findings from the qualitative research related to the industry performance as an asset class. The section is structured accordingly; Firstly, the difficulties of drawing conclusions on performance based on existing data will be brought forward. Secondly, the VC performance in Europe will be compared to the US and possible explanations for any diverging performance will be explored and discussed. Thirdly, a discussion on how attractive VC as an asset class in fact is for investors will follow. Lastly, a short discussion on the importance and appropriateness of industry averages in VC is presented before the sub-conclusion for this section.

4.1.2.1 The Difficulty of Drawing Conclusions Based Upon Available Data

The quality of VC data available was mentioned as a concern throughout the conducted interviews as well as in existing literature. Even the Head of Research at the EVCA, responsible for the publishing of the data referred to above, stressed this issue:

“The jury is out on performance. It is for this kind of asset class, extremely difficult purely statistically and data wise to come to a conclusion on where you are there” (Müller, 2013).

Others would go further and completely disregard this self-reported data collected by the EVCA, and underline that the only ones who have the “real” data is LPs who are broadly enough invested to be able to represent entire markets19. Jimmy Fussing Nielsen, Managing Director at the VC-firm Sunstone Capital in Denmark, points to the long fund cycles that complicate statistics:

“Measuring VC performance is actually really tricky. Because, a fund lives for 10 years and I have data from Harbour West showing that the average VC fund is actually not 10 but 15 years. That means that a fund cycle is 15 years, so even from 2000 until today you don’t even have a fund cycle. So, nobody knows about the true performance - that's my point” (Fussing Nielsen, 2014).

Søren Thinggaard Hansen, Head of Private Equity at Industriens Pension, a big institutional investor in Denmark, also stresses the limited conclusions that can be drawn from looking at the returns numbers today:

“There is way too much noise in those numbers, so it is difficult to draw any conclusions for the coming years today on the basis of the last 10 or 15 y numbers because the explosion, in

19 Examples of these are Adam Street and Harbour West for the US, and the EIF for Europe. Such performance data is unfortunately not publicly available and was not accessible for the author.
terms of when VC really started to grow and more managers popped up, of European VC happened at the worst time possible. And I don't think that is very predictable for what you can expect going forward. Conversely, the returns that were created by the American vintage funds from around 1994-1998, the ones that primarily got to divest their companies during the bubble and before the bubble burst, at fantasy prices, are not a good source of information either on what you can expect going forward” (Thinggaard Hansen, 2013).

Even though the true return figures are hard to obtain, if possible at all, the general view in the industry on European performance is aligned with trends observed quantitatively. In December 2013, the EVCA held their 30th anniversary VC Forum in Berlin with a participant list covering the most active VCs, LPs and critical stakeholders to the industry. Lars Nordal Jensen, Executive Assistant at Vækstfonden, a government backed investment fund, participated at the event, and commented on the graph in Figure 7:

“Everybody knows about this graph. I was in Berlin last month to EVCAs yearly VC forum – and this graph worries everyone and everyone knows about it. This worries – and should worry – everyone” (Nordal Jensen, 2013).

Subsequently, he pointed to performance as being the one significant problem for the industry and its main challenge. Søren Hougaard, an adjunct professor at Copenhagen Business School and a VC/ angel investor himself, is currently writing a book on why VC returns are so miserable and he follows the same line of argumentation, that VCs are fighting a gigantic profitability challenge:

“The overall VC industry is losing money, and it has done so since the beginning. Only a few VC teams have succeeded in returning positive IRR to investors, and the vast majority has failed to deliver performance. The industry still has to prove that they can make money. The overall picture that statistics are showing is that results are very, very miserable” (Hougaard, 2013).

4.1.2.2 Comparing VC Performance in Europe to the US

One of the sub-questions to this research paper is to explore how the European VC is performing relative to the US VC industry. Drawing upon both the quantitative performance numbers and the anecdotal evidence from the interviews it is clear that the traditional opinion is that the US has performed better than VCs in Europe and is still doing so. 64% of the interviewees, when asked, insisted that the US industry generally is performing better.
4.1.2.3 What Can Explain the European Underperformance to the US?

Firstly, an interesting issue about reporting bias was raised during the interviews as a potential and partial explanation to this performance gap. The reporting bias reflects an under-representation in statistics of poorly performing funds which potentially is more common in the US than in Europe. Boe Petersen from the DVCA and Hougaard voiced that there is an on-going discussion on whether there is a bigger skewness in reporting in the US towards the better performing funds. I.e. it is presumed that more bad performing funds in the US deliberately refrain from reporting their numbers than in Europe. Hougaard similarly argues that one has to be careful with the industry statistics provided:

“There are probably a disproportionate amount of VC companies in the States that never report their data to the authorities and industry associations. And because this is probably more common in the US than here, there might be a bias in this way” (Hougaard, 2013).

The second reason that was raised during the interviews was the disproportionate occurrences of extreme outliers, or so-called VC ‘homeruns’ in the US. Söderblom, holding a PhD in Entrepreneurial Finance and is an acknowledged academic researcher and teacher at Stockholm School of Economics within the same field, expresses her view:

“I do not believe at all that the US VC market has done better than the European one in general, it is not true. But in the US you have a few extreme outliers, like Sequoia, where a
few cases (not even all of them) have done really well. And if you exclude these outliers, you get a relatively similar performance in the US as in Europe. So it is not at all the case that the VCs in the US have found ‘the model’, they are in the same situation as us. But these really few successful funds, THEY have found a model that works for them; where they get the best entrepreneurs, the best CEOs, the best valuations etc. But if you look at the total US VC market, it is not better now than ours” (Söderblom, 2013).

And in Europe, we do not yet have as many extreme outliers in terms of exits. Müller emphasised this, arguing that the US has always managed, every now and then, to make a massive IPO creating a lot of attention for companies and the industry. And he underlines that these are undeniably amazing stories that need to be there. Even though he does not want to portray Europe as not having any success stories, he believes they are a little like the companies we have in Europe, a bit like hidden champions. He concludes:

“But of course, how many one billion valuation exits do we have compared to the US? Not that many” (Müller, 2013).

On the contrary, Tremmerie from the EIF calls it a myth that US VCs significantly outperform European VCs and he argues that regarding performance we should instead tell a story that Europe has actually caught up with the US now, maybe because the very high returns historically seen in the US are no longer maintainable. He points out that in some industries Europe is actually “leading” over the US, e.g. in music, gaming, finance and clean-tech20. Hougaard also makes a point saying that we must not forget to ask ourselves during which periods in history the VC industry in the US in fact created the best results:

“...it was in the 90s actually. US VC investments made in the period from 1992-1996 have by far outperformed what we have seen in later on. And that is because of the dotcom, 1997-2001, where the exit climate was more than fantastic. But since then the US VC performance has decreased actually“ (Hougaard, 2013).

Thirdly, the argument that is perhaps most frequently brought forward is that US VC industry is much older and mature than the European one, and that it thereby naturally enjoys higher industry returns. In this light, Boe Petersen, says that it is hard to answer the question of what the current state of the European VC is without taking a historical perspective. The American VC industry has existed since the 1950s and has since then received a lot of government support in order for it to grow and flourish by taking away some of the risks on the downside of VC. In Europe VC is much younger. In countries like the UK and Sweden, VC has existed

20 Companies worth mentioning in these industries are Spotify, Shazam, Soundcloud, Rovio, Supercell, King, Klarna, Wonga.
for roughly 20 years, whilst in countries like Denmark only for 10-12 years, and there are some countries in Europe when VC has only recently been born. Boe Petersen elaborates:

“In Europe, we see an industry that is still very young, and it is SUCH a hard job to build up a VC industry. First of all it is very expensive - both for the government and for the investors. There is a saying that it costs around 10 million USD to educate one VC partner, that is the amount of failure and defaults he does before he starts making money. He will start with digging a hole of 10 million USD, even though he is very qualified. When you start a VC, and all partners make “holes” like that, your first fund is almost bound to be a failure. So you need a lot of persistence and patience to build up the ecosystem” (Boe Petersen, 2013).

Similarly, Hougaard puts forward as a hypothesis that the industry is in a learning mode and that it takes several generations and a lot of bad experiences to reach a level where VCs are professional enough to make money. Keeping this in mind, and recalling that the average life of a fund is around or above 10 years, it becomes easier to see why most funds have been unable to deliver the expected returns from VC, considering that we in Europe are perhaps just entering a second or third round of funds. Fussing adds to this and says that the good funds in Europe are maturing and you do not make the same mistakes in your third fund as in your first. Boe Petersen also talks about the US VC industry as first movers and sees two trends corresponding to this; (1) The first movers will tend to have a higher return, because they are more experienced, and being a first mover you have persistently shown that you are very good if you have survived 3-4 business cycles. And (2) these funds will also be the target of the best entrepreneurs worldwide, which subsequently will lead them to sit on portfolios with presumable the highest quality start-ups in the world. In other words, success breeds success! The view that the US simply has better fund managers – or at least more experienced ones – was brought up by various interviewees, and is arguably also consistent with the natural learning curve for VCs.

However, whilst some argue for this natural evolution and maturing of the industry, where time is needed before VC start to perform, others take a more critical perspective. Nordal Jensen at Vækstfonden, acknowledges that the natural learning curve is a valid argument, and that US has had a head start but he still claims that European VCs need to start delivering returns now:

“It is about to be time now. After 10 years, you should be able to see something. And this [low performance levels] is the number one challenge for Danish and European VC funds. There is no Danish venture fund that until today has given back the money to its investors. That's pretty unbelievable” (Nordal Jensen, 2013).
An additional, and often cited argument for why European VC is different from its US counterpart is the cultural aspect. This will be explored and analysed in section 4.5 as one key determinant to VC deal-flow. In contrast to the evolutionary arguments, Söderblom holds the strong view that VC performances in general, not only in Europe, have been low because the current VC model is broken and not appropriate for the reality facing European VCs today:

“Returns have simply been too bad because the current VC model is not working. It takes longer than 10 years to develop companies” (Söderblom, 2013).

VC is acknowledged to be an asset class with long time horizons, but Söderblom argues that the time to liquidity, i.e. the time from the initial investment to the time when the firm is exited, has been too long to fit the closed-end VC fund structure. VC funds are said to be on average 10 years, but Söderblom means it is longer. As mentioned, Fussing Nielsen also refers to data supporting the average fund cycle being 15 years and not 10. And when VCs have to extend the life of a fund beyond the 10 years, this has severe negative impacts on IRR (Söderblom, 2012).

An interesting remark made by e.g. Söderblom is that although performance levels are low today in for VC, the aim is not to get back to when returns were peaking:

“I think that from the very ‘wild’ days in the 2000s, when VC was culminating, it was an extreme situation that not at all was based on that it was a good industry back then. It wasn’t good then either because there was someone who got cheated in the end” (Söderblom, 2013).

4.1.2.4 Is VC An Attractive Asset Class?

The previous discussion inevitably leads us to ask ourselves if VC can be considered an attractive asset class today. The interviewees were rather split on whether VC as an asset class was financially attractive. 60% believe this is an attractive asset class for investors to invest in whilst 30% firmly argued that it indeed is not an attractive asset class on average.

Figure 9 “Is, in your opinion, VC in general as an asset class financially attractive?”

Source: Primary qualitative research study (the interviews)
Concerns around bias and subjectivity must be kept in mind here; Someone who has a great interest in that the industry keeps thriving as an asset class would likely argue for it being an attractive investment, whilst others able to take a more objective stance to the question are more likely to be more sceptical. When asked on which basis one can argue that European venture is attractive and on the rise (as the more positive interviewees claimed), Nodal Jensen from Vækstfonden said:

“Yes that is a very good question. I mean, they say themselves (e.g. the EVCA) that it has never "bubbled" more than now. And it is of course easier to sell hope - or easiest of all is of course to sell a good track record but if you don't have a good track record to sell, you sell hope. And that has been done, it is possible, it was done after the burst of the IT-bubble, and now you need to sell hope again” (Nordal Jensen, 2013).

We now recall the wide disparities in performance among funds and it has to be underlined that even the interviewees with negative opinions on the attractiveness of VC as an asset class emphasised that indeed, if you manage to selectively get into one of the very top-performing funds it can be a great investment. But in general, as a broad asset class they still mean it is definitely not attractive. Joel Enquist, previous entrepreneur and now Investment Manager at Creandum, a leading Nordic VC, adds:

“It is all about which funds you invest in. VC is a good investment if you can invest in the good funds” (Enquist, 2014).

However, it deserves to be mentioned that the very best funds, i.e. the one that have managed to deliver the best returns in the past, are most likely impossible to get into:

“If you look at the very few, very best American VC funds, you cannot even get in there as an investor. Even if you knock the door saying, hey can I please put my 100 million or billion USD, to invest in your next fund. So the few very best funds can get all the money they want and they have throughout the yeas delivered fantastic IRRs. But only a very few of them exist“ (Hougaard, 2013).

Not only is it important to consider which fund you get into when you talk about whether or not it is an attractive investment, but it is also important to consider who the investor is. Mülér, from the EVCA and Christian Knott, part of the investment controlling team at HTGF, a German-based VC investing in technology companies in the seed stage, underlined this specifically. Knott did not regard VC to be an appropriate investment for private personal savings, pension funds and the like, but he underlines their attractiveness for non-financially driven investors:
“As a corporate or strategic investor, I think VC is a great investment. I don’t think you can measure the success of a fund only by the returns it generates on its investment, but also on what it constantly does for its investors” (Knott, 2013).

What he points at is that strategic corporate investors can accept a trade-off in financial returns for the strategic value of innovations and new technology that investment in start-ups can bring. Müller also draws attention to the spectrum of investors which makes the analysis of VC a little more complex, where corporate and some institutional investors, like family offices for example, are not only interested in the financial gains but e.g. in exploring technology. Different types of investors supplying capital to the VC industry will be analysed in more in depth in the following section on fundraising. But before that, one more interesting trail of thought observed during the interviews will be added to this discussion, namely the importance of VC industry return averages.

4.1.2.5 How Valuable are the VC Industry’s Average Returns?

Given the great disparities in returns among good and bad performing funds, and the poor quality of data for calculating these industry returns - how informative is it actually to look at industry averages for VC? Fussing Nielsen definitely challenges this and rejects the importance of averages when asked whether he believes that there is a Europe-US performance gap:

“VC for me is not an average. Average is not really interesting” (Fussing Nielsen, 2014).

Müller also add to this idea when pointing out that:

“Because nobody invests in the entire asset class, the average return may in a way mean nothing” (Müller, 2013).

Nonetheless, it does tell you something about the industry’s collective ability to build and add value to companies and subsequently divest them in order to distribute money back to its investors. Fussing Nielsen continues and justifies why averages are less relevant to look at:

“If you look at the US performance over the last 10y (referring to data from Adam Smith) of all the performance that has been contributed by US GPs, 20 firms have paid back 80% of the liquidity to investors - 20 firms out of 2000. For Europe, I think the number is probably much more. That's why I'm saying it is not an asset class. Because it doesn't really matter about what the 1980 firms do, it matters what these 20 firms do. And if you look at those 20 firms, it is ~40-45 companies like a Facebook, Google etc. that explains this 80%. So, those 40 companies explain ~60% of the entire VC performance the last 10 years. So, either you are in those companies or you are not” (Fussing Nielsen, 2014).
Nordal Jensen says that when you try to break down the performance in quartiles, Vækstfonden’s opinion is that you get a very encouraging but simultaneously worrisome picture, which might question the importance of averages as well:

"The very top best funds make money also during bad times. The very worst performers are for sure bleeding in bad times but in fact also during good times" (Nordal Jensen, 2013).

4.1.3 Sub-conclusion

When it comes to VC performance it has been pervasive throughout all data sources that one has to be very cautious to draw any conclusions based on data publicly available. Yet, based upon what is presented and analysed until now, evidence points to a slightly underperforming European VC industry. Furthermore, we find that issue of poor performance is not confined solely to the European VC industry, but seems to apply globally for the asset class.

4.2 Fundraising and Capital Levels

The previous section aimed to provide and present some potential general explanations of VC underperformance – both for Europe and globally. In this section, we shall look into some observations that potentially can help explain this further. The two key questions that will be addressed and analysed in this section are (1) how much funds are being allocated to VC in Europe and (2) from where do these funds primarily come from and what are the implications of that.

4.2.1 The Quantitative Data Analysis

Using fundraising data from the EVCA and the NVCA, this section will analyse the levels of funds raised as well as the type of investors from which funds are raised.

4.2.1.1 Fundraising Development in Europe and the US

Looking at Europe, in Figure 10, a modest total of 3.6 billion EUR was raised in 2012\(^{21}\). Over this five year comparison we can see that fundraising have not yet been able to climb back to the levels seen in 2007, and there seems to be a long way up. The funds raised in 2012 are only 40% of the 2007 levels. Fundraising levels have been decreasing in Europe consecutively every year since 2007, with the one exception from 2010-2011. The biggest drop - both in absolute and relative terms - was seen in 2009 where funds raised in the industry dropped more than 40% compared to the previous year. The overall five-year trend

\(^{21}\) Which constituted 15% of the total PE funds raised in Europe (23.6 billion EUR)
observed in Europe is reflected in what we find in the US. The single most remarkable
difference, though, is that VCs in the US are raising a lot more funds than their European
counterparts - by a factor ~3-4 times over the years. In 2012, in absolute values, the VCs in
the US managed to raise a total of 16.1 billion EUR - which is 12.5 billion EUR more than
Europe. There is an apparent VC funding gap to the US and this gap did in fact take a jump
and expand additionally from 2011 to 2012. This was amplified as the US managed to
increase their fundraising levels by 10%, whilst they dropped by 30% in Europe.

**Figure 10 Fundraising levels in Europe and the US, 2007-2012**

![Fundraising levels in Europe and the US, 2007-2012](image)

*Source: EVCA, 2013d; NVCA, 2013*

### 4.2.1.2 Funds raised by type of investor

If we turn to look at the source of these funds, we also find great deal has changed over the
past five years. Figure 11 portrays the percentage of the total incremental amount of VC
funds raised by different types of investors in Europe.

**Figure 11 Incremental amount of funds raised by type of investor in Europe 2007-2012**

![Incremental amount of funds raised by type of investor in Europe 2007-2012](image)

*Source: EVCA 2013d*

Two significant observations should be highlighted from this graph; (1) the increasing
importance of funds supplied by government agencies and (2) the decreasing importance of
funds supplied by pension funds. The relative importance of most private sources of capital has decreased from 2007 to 2012. However, government agencies have increased their percentage of the incremental funds raised yearly significantly. In 2007, government agencies represented around 7% of the total amount of incremental funds raised. In 2012 this proportion has increased to a staggering 35%. Capital from government agencies has increased not only its relative importance, but absolute levels have also risen by an astounding 85%. Corporate investors comprise the second biggest proportion of incremental funds raised in 2012, at 12%. On the other extreme we have banks and pension funds - the group of private investors that represents the greatest drop in supply of incremental funds over the five years, both in relative and absolute terms.

**Figure 12 Absolute levels of funds provided in Europe 2007-2012**

![Graph showing the absolute levels of funds provided in Europe 2007-2012](image.png)

*Source: EVCA 2013d*

### 4.2.2 Anecdotal Evidence - Qualitative Research Findings

This section provides a comprehensive analysis and discussion on the findings related to fundraising. Three main topics will be analysed as follows. Firstly, we will have a look at what can be said about the current capital levels in the industry. Are they too low now, or perhaps more normalised? Secondly, we will look into the distribution of investors providing capital to the European VC industry and discuss which type of investors is appropriate for VC, with a special focus on pension funds and government agencies. Lastly, the discussion will focus on the views of what implications strong reliance on public funding can have on returns and the appropriateness of public agencies as VC investors will be questioned.

#### 4.2.2.1 The Current Capital Levels in European VC

The low capital levels in the industry, in particular in terms of private capital, are highlighted or commented on by the majority of interviewees. With the current performance status of the average European VC fund it is not difficult to understand why private money is avoiding
this asset class. Returns have been too low and in order to convince investors to allocate more funds, the VCs will have to overcome a great lack of trust that the industry is facing from investors.

“Returns are critical to increase capital levels. That is the only reason investors are not investing. It is a lot better to e.g. invest in bonds than in this type of investment” (Söderblom, 2013).

Tremmerie, from the EIF, amongst others emphasised the reputation issue and lack of trust to the industry as a major challenge at the moment:

“The perception is still that you cannot make money with European VC, and that is linked to the challenge funds have with exiting their investments. We still need more proof that we have VC firms making nicely profitable returns, not just single digits” (Tremmerie, 2013).

Even though fundraising are at record low levels, it can be debated whether this is really a bad thing or not. Are capital levels too low, or is it more normalised levels we are seeing now that could lead to a more healthy VC industry in the long run? The question of what the optimal capital levels are is beyond the scope of this paper, but we will now briefly look into the arguments of both sides of that debate.

4.2.2.2 Arguments Supporting that Fundraising Levels are Too Low

Comparing the fundraising levels in Europe to the US (Figure 10), Nordal Jensen from Vækstfonden says that the levels in Europe are way too low and that we need to reach a level of at least 2-3 times more capital than what we have today. Increasing capital levels is critical for the industry to further develop; it needs those amounts of capital to work and “train” with, so that fund managers here can catch up with the experienced American ones. Another argument to why low capital levels are critical and bad for the industry is expressed by Knott (2013). He argues that even the most well-known and reputable funds struggle to find capital and he is worried that the industry might be seeing some chain reactions attached to that:

“Less funds available mean less possibilities to co-invest. You risk ending up with bad performance because you cannot find anyone to co-invest with you” (Knott, 2013).

Along these lines, Müller also says that low capital levels are making it more difficult to find the syndication partners needed to get the required ‘fire-power’. Söderblom also points to the current capital levels in relation to one of the main challenges:

“The challenge is obviously that if there is no money, you cannot invest. But why is that? It is because returns have simply been too bad” (Söderblom, 2013).
4.2.2.3 Arguments Supporting that Capital Levels are More Normalised

While some VC market participants are sincerely hoping that more money is allocated to the industry, others wonder whether this market is roughly as big as it should be. Maybe it is still a little too tiny at the moment they say, but the levels we are seeing now are more normalised. From an investor perspective, the lower capital levels are probably healthy, but for the economic footprint you want to have from the VC industry and for theoretical opportunities for VC in Europe, levels could be higher (Müller, 2013). Yet, the aim is definitely not to go back to the unhealthy and obscure levels of capital flowing into VC that we experienced during the dotcom bubble:

“In 2000 we saw what too much money can do, because everything got funded - from the brightest idea to the stupidest idea. That madness is not any longer there” (Tremmerie, 2013).

Nobody really knows what the right level is, but one could make the simple argument from an economist’s perspective, that if the industry on average is unprofitable, yet still fed by public money, the industry should all else equal be considered to be too big:

“From a theoretical perspective, too many projects still get funded. Because of excess supply of capital, so if there is so much capital available that not only the very best projects get funded, but also the mediocre funds get funded, then the profitability goes down. Thus, from a market efficiency perspective, we can only conclude that the VC industry is too big” (Hougaard, 2013).

From this perspective, we in fact see an over-inflow of capital and the industry should shrink and be reduced even further in order for profitability to increase. The discussion can in turn be changed to focus on whether the market is overcrowded and that we should therefore expect to see a contraction. Looking at it from this perspective, it is not necessarily bad that funding levels are so low. Competition will enable only the best funds to raise money, and only the best portfolio companies to get funded by VCs. DVCA’s Head of Department mentions these potential positive aspects of the low funding levels:

“I think that the low fundraising levels in Europe will increase the chance of us to make the industry better and as an asset class more attractive for investors” (Boe Petersen, 2013).

The idea that a shortage of capital eventually will impact returns positively, is also in line with findings from a recent study demonstrating how VC vintage year performance decreases with the amount of aggregate capital committed to the asset class (Harris et al., 2013a).

Sunstone Capital’s Jimmy Fussing thinks that current levels are much more normalised. He
believes it is probably more sound and healthy that we do not have too much capital, but he also says that we do need more private capital instead of public. This leads us into the next section - a discussion on different types of investors and their appropriateness for VC.

4.2.2.4 Who Are Appropriate Investors for VC?

Theoretically, pension funds are expected to be a great source of capital suitable for VC investments, given its long-term investment horizons, big funds and return-driven investments. This has been reflected in the US, where pension funds historically have been the largest source of venture funds. In Europe, however, the industry has been – and obviously still is – struggling to attract this type of capital. Looking at the changes in the composition of VC investors over the years, Müller from the EVCA highlights the increasing relative absence of pension funds and the need for Europe to attract more of that capital. Nordal Jensen from Vækstfonden holds a similar view:

“Getting pension funds interested in allocating capital to VC is a huge and important source of capital for Europe” (Nordal Jensen, 2013).

In spite of this, pension funds in Europe are facing two big problems with venture. Firstly, pension funds invest to maximise returns on behalf of future retirees, and as we have seen, VC as an asset class is not able to deliver attractive returns. Secondly, pension funds sit on extremely large reserves of money, and the relatively small ticket sizes in VC investing are simply not attractive to them. They operate with completely different money sizes (Nordal Jensen, 2013). Hougaard points to the first problem:

“It is not attractive to invest, in general, into VC. That is also why you see (in EVCA statistics) that the majority bulk of capital come from sources like EIF, international public institutions, public funds etc. I.e. LPs have these terrible experiences throughout history, with that they lose money. The big cloud of VC funds, raising new funds have still not delivered any IRRs, and depend heavily on public capital from public sources. So, shortly expressed, it is not attractive for investors to invest in VC at the moment” (Hougaard, 2013).

Fussing Nielsen argues that industry associations with an interest in a growing industry will always make the argument that pension funds should invest in VC, but he claims:

“Pension funds will start to deploy more money to this category when the industry demonstrates a bigger IRR. End of story. The rest will be political pressure” (Fussing Nielsen, 2014).

Müller and Söderblom were both directing focus to the second problem:
"The information and transaction costs for them to actually choose a fund manager given the ticket size and the proportion of the overall portfolio is absolutely disproportionate. And on top of that, they are increasingly regulated on doing such investments" (Müller, 2013).

Söderblom takes an even more critical stance to it:

"A broad general institutional investor, should not put time, effort and resources on these long-term investments – even if this could happen to turn out to be good. You should not only look at the returns, but also the knowledge it takes to invest in this asset class. So you have to be either very large or very niched, in order for it to pay off to invest in VC as an institutional investor. Investors have left this asset class primarily for bad returns, but some have also left because they say it costs too much to manage. The opportunity cost is too big for investing in VC, so other asset classes becomes more attractive" (Söderblom, 2013).

4.2.2.5 Why, Then, Do We Still See Some Pension Funds Allocating Money to VC?

If it is so problematic and unattractive for pension funds and other private actors to be in VC, why are we still seeing some in there? Can they access the best funds? Do pension funds have other than purely financial objectives for engaging in VC? Or do they possess superior selection and investment management skills in VC relative to other investors?

Thinggaard Hansen from Industriens Pension, is one of the pension funds in Denmark that allocate money to VC, and one of the few who themselves closely follow the market and picks the fund managers they believe are best positioned to generate good returns.22 He advocates for VC investments but acknowledges the difficulties with it:

"VC is an asset class that in my opinion is best suited for institutional investors with a long term investment horizon, like a pension fund. But it is difficult, because there are so many other investment opportunities where your returns are more predictable and less risky. But conversely I also want to say that it is an area that can create some – I don’t want to say fantasy but – fantastic returns that you would not be able to achieve elsewhere. But it is of course where you have the great risk for loss too" (Thinggaard Hansen, 2013).

He stresses that it is a very costly investment in terms of the time and resources you need to invest to be able to make some good fund manager selections. He also highlights the lack of European historical (good) returns. Nevertheless, he explains that at Industriens Pension they have found a model that they believe can generate better returns from picking the right fund managers that can create some alpha in their portfolio companies. He puts forward another interesting argument as well, pointing to the persistence in VC firm performance:

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22 Industriens Pension allocates money to European VC, but they have a strong tilt towards US VC funds
“You can say, that the problem within VC is that on the one hand you always say that you should pay attention to that the historical returns not necessarily is a guarantee for what you will get in the future, but if you look at what has been the sales argument for even doing investments at all in PE and VC it is because there still is a correlation between managers that have done it well historically showing that they also will do it well going forward” (Thinggaard Hansen, 2013).

This resonates well with what was put forward by the majority of interview subjects, that the industry and capital is driven by success stories and past returns, and as mentioned in section 4.1; success breeds success. Söderblom’s argumentation is an example of this:

“The VCs that have become really good have managed to create this ecosystem where they can create the best returns (e.g. Sequoia and Kliner Perkins). They get the best entrepreneurs, whom perhaps also are willing to accept lower valuations in exchange for getting these top VCs on board. These VCs also get the best co-investors, because everyone wants invest with them, and they get the best CEOs etc.” (Söderblom, 2013).

As highlighted also by Thinggaard Hansen, the problem for Europe is that an estimated 90% of all VC funds that have been started were established during the period of 1999-2001, before the dotcom-bubble burst. Because of the attractive results that were coming out of American VC at that time, these managers invested quite aggressively during this time. And this means that most investors have lost probably around 30-70% of that money, says Thinggaard Hansen. Hence, investors in Europe have some really bad experiences within VC and have not yet experienced the rosy success stories reported from the US. This complicates the fundraising for funds in Europe, especially for new funds without any track record.

Pension funds are expected to be driven by purely financial objectives, not focusing on e.g. supporting job creation or the financing of small companies. For instance, Thinggaard Hansen (2013) says that Industriens Pension legally have an obligation to “create best possible returns for our future retirees and make sure that they have a good pension once they retire”. And as long as the VC industry returns do not show any signs of improvement there is no reason to expect pension funds to start investing more money into this asset class.

However, there seems to be another more cynical belief behind the rationale of the relatively few pension funds that still allocate funds to VC, and we will now return to the quote made above by Fussing Nielsen regarding political pressure. Hougaard brings up the similar argument and explores this:

“Many of the private LPs only invest in order to please the political establishments. They allocate a very tiny share of the assets to VC, and they do it just to please the political
governments, saying ‘Hey - we are good citizens, investing into some small Danish VC’. But they don’t believe they can make any money out of it’ (Hougaard, 2013).

This point of view opens up for a discussion on whether some pension funds are investing in VC for political reasons. This might to some extent explain why we still are seeing pension funds in European VC, despite its poor performance. Boe Petersen, points to the bad track record of VCs as the main reason that potential VC investors abstain from deploying more money to the industry. In his opinion, it is the responsibility of governments to fill this gap.

The role of public funding from government agencies will be discussed in the coming section. It comprises an extensive and thorough discussion of the importance of public funding, how appropriate it is and what implications it might have for VC return prospects.

4.2.2.6 The Public Support and Reliance on Public Funds

We have already established that public agencies play a crucial role today for the European VC industry by being the largest provider of capital to VCs raising funds. It is fair to assume that government agencies, as opposed to private investors, have been able to increase its proportion of supply because it can invest with other objectives than maximising returns:

“We have a dual policy objective, it is to (1) support innovation and entrepreneurship at the SME level, and (2) we need to do this in a possible return-driven way. So the only thing that sets us apart from the private players, because we also have policy objectives, we may not have the obligation to our shareholders or mandates to maximise return” (Tremmerie, 2013).

Moreover, Vækstfonden’s executive assistant highlights the importance of public support:

“European funds are not able to stand on their own and be independent today, we are by far not there yet. Without the EIF the industry would be nothing” (Nordal Jensen, 2013).

And Nordal Jensen compares the development to the US VC industry’s early days where public support was critical and says:

“VC can ONLY be made if you have a fundament of public interventions. Policy makers and public funding have to support the industry to keep it alive – at least for 10 more years” (Nordal Jensen, 2013).

Knott is another promoter of the great public funding the industry receives today:

“I think initiatives that have partial involvement of the government are the good way to begin with. Because private investors will not start an ecosystem that shifts just like that. They will only get into the ecosystem when they see that there is a real ecosystem that they can benefit from” (Knott, 2013).
It is probably safe to say that many of the VC funds in Europe would not have survived the recent financial crisis without the support of the governments. Yet, there are many concerned voices questioning the appropriateness of public funding playing such an important role in the industry. The EIF indicates the dysfunctional aspects of the market:

“It might look like a comfortable position to sit in as the EIF but it is not. I wish that we were less important. Because that would mean that the industry is getting funded more easily by the market than what it is today” (Tremmerie, 2013).

Vækstfonden expresses similar views on their organisation’s existence:

“Public agencies need to be present at least for 10 more years, but I hope that in 20 years they will not be necessary or do not have to exist” (Nordal Jensen, 2013).

But can it be argued that the strong reliance on public funding, besides correcting for a market failure, in itself results in further market distortions? We shall now look into two potential arguments for such an implication.

4.2.2.7 The Implications of Strong Public LP Presence in VC

Firstly, VC funds are structured in a way to best align the interests between fund managers and their investors, at least theoretically. But having public agencies who trade-off financial goals for policy goals as the most important group of investors today may compromise that interest alignment and potentially result in a conflict of interests. This argumentation is in line with a few previous studies showing that different type of institutional investors in VC have unique characteristics, business missions and objectives that are expected to impact investment preferences, strategies and performance (Hobohm, 2008; Lerner, Schoar, and Wongsunwai, 2007; Söderblom, 2011). To exemplify the contrasting interests, Fussing Nielsen hypothetically proposes that low average returns may become irrelevant from a public investor perspective:

“If the government is coming with the money, who cares if financial returns are low? If it creates economic growth, who cares about the return if we view it from a macro economic perspective? Nobody! And when the state is funding, the tax-payers are paying anyways – they pay to contribute to their own growth, so there is no problem” (Fussing Nielsen, 2014).

This would make it difficult for the industry to get private actors to leverage funding, he adds, but the idea behind this somewhat controversial argument is that society as a whole is gaining more than the value of the potential investment returns. This is in line with what the
Deutsche Bank Research Report (Meyer, 2010) concluded; that VC injects economic dynamism in terms of increased GDP. Boe Petersen refers to this study:

“In VC we have a societal return that is big and a private return that is bad. And we need to redistribute some of that money from society down to entrepreneurs” (Boe Petersen, 2013).

Once we establish that the public agencies’ incentives for investing in VC are fundamentally different than those of private investors it gives us reason to believe that a conflict of interest occurs. Public funds are supposed to help filling the funding gap VCs cannot get from private investors. And funds receiving this support are funds without a previous track-record for success, since once good returns have been delivered by a fund there are normally no problems raising subsequent funds from private investors. Hougaard says:

“The big cloud of VC teams that are now raising their fund number 2, 3 or 4 still have not delivered any [positive] IRR and they depend heavily on public capital from public sources” (Hougaard, 2013).

The important remark to make here is that funds that never manage to deliver cash back to its investors will nevertheless be funded partially or mostly by public money. VC managers can thus enjoy a good life living of the annual management fees they receive, which for big funds may add up to quite hefty amounts, without returning money to investors. This is perhaps where the greatest conflicts of interests arise. Attractive management fees might incentivise the “wrong” VC funds to seek and receive funding from public agencies, which obviously will impact the average industry returns negatively. Perhaps the mere presence of public investors may divert the attention from, and reduce the pressure to, delivering high returns.

A second key observation here is the influence that public funding has on the actual investments that the VC funds make, which possibly impacts returns negatively. Public funding comes with a lot more restrictions and constrains than funding from private investors who only want to maximise returns. Conversely, public investors have policy interests, like promoting innovation and helping SMEs access finance in order to enable growth. They also have an interest in investing in the geographical area corresponding to their political constituency, where their tax-payers reside. This limits publicly funded VCs to not always invest where they see the greatest potential for value creation and return maximisation. Head of Research at the EVCA also sees it as a problem that in Europe we have so many and “patchy regional and local VC initiatives, and not at a Pan-European levels, which fails to address the issues the industry is facing as a collective asset class” (Müller, 2013). He sees it
as a specific European feature that a lot of the funding schemes are extremely local – even at city-level sometimes – and designed to nurture a local infrastructure or ecosystem for start-ups and VCs. But he adds that if we want to compare ourselves to the US, the greatest challenge for Europe is to overcome the diversity in Europe and start focusing on scale. This requires truly European initiatives, like the ones that EIF provides. Nordal Jensen also takes a critical stance to the many local funding schemes and its impact on European VC success:

“If you should blame anyone, I would blame all the European money - not EIF - but all other attempts to create small regional funds through small initiatives “ (Nordal Jensen, 2013).

So funding through the EIF, at a pan-European level, seems to take some of this risk away. However, it still limits the funds to be invested in Europe. Viewing entrepreneurship as something truly globalised today, it is still an issue if the European VC managers cannot invest on a global basis among the world’s best start-ups. Fussing Nielsen mentions that this is the biggest risk today for VCs in Europe. At the same time he argues that we are seeing many of the absolutely best European start-ups going to the US, which creates a big problem for European venture managers, who are constrained geographically by their investors.

4.2.3 Sub-conclusion

The key take-away from this section is first and foremost that fundraising levels are at all-time lows in European VC. Yet, even though most interviewees agree they would like to see higher fundraising levels, there is an idea that these low levels might actually be good for the future returns. With less money chasing the deals, it is expected that only the best projects get funded, which is of direct importance to returns. The second key take-away is that it is not attractive enough for private investors to deploy capital to the asset class. Instead, we see a dominance of public agencies in the current European VC fundraising scene. Yet, key in this discussion was that the strong reliance on public funding might be controversial in the return maximising VC industry. Two interesting and potential implications for returns were identified. Firstly, it might misalign interests, when the primary objective of governments is not to maximise financial returns as opposed to VCs. Secondly, regional and local public funding schemes limit VC managers to invest in specific geographical areas, which likewise have negative impacts on returns. Entrepreneurship is global and entrepreneurs can move anywhere in their world to set up their company. Unfortunately, public funding makes VCs less so. As can be expected, this results in having a limited pool of potential portfolio firms to invest into, which constrains VCs and may limit the return potential. Hence, this discussion
acknowledges the importance of public funding in European VC, but also questions the appropriateness of public agencies as VC investors and its negative return implications.

4.3 Investments

After having analysed the funds flowing into VC, in this section we shall now analyse the funds flowing out of VC, i.e. the investment activity. The quantitative data analysis section will first cover the amounts invested and subsequently the destination of these investments in Europe and the US respectively; both in terms of venture stage, sectors, geographical representation and syndication of investments. Subsequently, the qualitative data analysis section with anecdotal evidence will concentrate on cross-border VC investments and the fragmented European VC market.

4.3.1 The Quantitative Data Analysis

4.3.1.1 The Amounts Invested

We start by looking at the total amounts invested in VC on a country basis in Europe, compared to the US. The total European VC investments only comprise 0.02% of GDP compared to 0.15% in the US. We can also see that there is some diversity across the European countries, but that none of the European countries reach the same levels as the US.

Figure 13 VC investment as percentage of GDP

Source: EVCA 2013d, NVCA 2013, World Bank Development Indicators (GDP)

Also, it is interesting to look at the total amounts of VC investments made in relation to the levels of funds raised (Figure 14). Not surprisingly, the gap found in fundraising levels is also reflected in the investment levels across the region. The much lower VC investments in Europe may well reflect the fact that fundraising is low too. But it also raises a question of causality: are investments low because fundraising is low or are fundraising low because investment opportunities are fewer? Furthermore, the US has a greater gap between its
fundraising levels and investment levels. In Europe, some years show the reversed pattern, where fundraising levels are higher than the investments made. This may suggest that there are more investment opportunities in the US than in Europe\textsuperscript{23}.

**Figure 14 Investments in relation to fundraising comparison 2007-2012**

Source: EVCA 2013d, NVCA 2013

### 4.3.1.2 Where Are the Funds Invested?

When looking at where the funds are invested, we will break the analysis down into three levels; Investment by Venture Stage, Investments by Sector and Cross-border Investments.

#### 4.3.1.3 Investments by Venture Stage

In Figure 15 we see that the majority of funding in Europe goes to portfolio companies in the start-up stage, both in terms of amount invested and in terms of number of companies. What might be alarming is that firms in the seed stage seem to be relatively underrepresented. Only 3\% of all VC investments are targeted at the seed stage, which corresponds to 12\% of all VC backed companies. Thus, there seems to be a seed-funding gap in Europe. As argued in an earlier section, the risks associated with those investments are also much higher. Looking at similar data for the US VC industry, however, the picture looks much the same, even though direct comparisons are difficult to make because of differently defined categories of stages. Yet, only 3\% is targeted towards seed stage companies in the US as well. If we assume that the combined US early and expansion stages roughly represent the European labelled category of start-ups, we see the similar there as well. Thus, looking at investments by stage is not very useful in identifying or explaining any differences between US and European performance. However, it may give an indication about the risk awareness of investors.

\textsuperscript{23} This reversed gap is referred to as ‘dry powder’, i.e. committed capital that has not been invested. A concern for investors is that abundant dry powder may mean that too much money is chasing too few deals.
4.3.1.4 Investment by Sector

The dominant sector receiving VC investments in the US is software, followed by biotechnology. In Europe, we see a slight dominance by life sciences ventures in terms of amount invested, but an equal number of firms in life science and computer and consumer electronics are being funded by VC in Europe. This indeed reflects the capital intensiveness in life science investments, where much more money is needed to commercialise new research and technology. Kelly (2011) previously proposed the hypothesis in an EIF report that the outperformance by the US VC industry could partially be explained by a lack of, or an insufficient, focus by European VC managers. However, this is not very salient according to Figure 16. Yet, it is reasonable to believe that the observed marginal outperformance by the US VC industry could be explained by its sector focus. The differences in sector focus could, of course, simply just reflect differences in the expertise of VC managers.
4.3.1.5 Cross-border Investments

There are two noteworthy comments to make to the observations from geographic VC investment flows in Europe. Firstly, the geographic investment flows of European VC investments are consistent with the findings in section 4.2.2.4, covering the implications of relying upon public funding. It was found that the presence of public investors might create serious issues for cross-border investments and limit investment opportunities for European VCs, which in turn have an adverse impact on returns. Accordingly, as shown in Figure 17, relatively little money is invested across borders in Europe; only 610 million EUR or 17% of the total. Even less money, only 10%, of European VC investments end up outside of Europe. Assuming that attractive investment opportunities must exist outside Europe, e.g. in the US, the reason behind this low amount flowing out is probably either (1) because funds with public investors, even the EIF, are restricted to invest in firms outside Europe, or (2) reflecting the lacking expertise of European VC managers required to invest in companies in other markets. Secondly, an even smaller amount of money is flowing into European ventures from non-European VC funds. To some extent this most likely reflects the importance of having in-depth, local knowledge of the markets in which you source companies. But a more worryingly perspective of this is that it might signal that non-European investors do not find the European VC industry attractive enough to deploy more capital to its start-ups.

**Figure 17 Amounts of geographic VC investment flows**

<table>
<thead>
<tr>
<th>Amount invested (€)</th>
<th>% of total</th>
<th>Type of Investment Flow</th>
</tr>
</thead>
<tbody>
<tr>
<td>€610 million</td>
<td>17%</td>
<td>Cross-border investments within Europe</td>
</tr>
<tr>
<td>€2.365 billion</td>
<td>67%</td>
<td>Domestic investments in European countries</td>
</tr>
<tr>
<td>€369 million</td>
<td>10%</td>
<td>European VC firms investing in portfolio companies outside Europe</td>
</tr>
<tr>
<td>€210 million</td>
<td>6%</td>
<td>Non-European VCs investing in portfolio companies in Europe</td>
</tr>
</tbody>
</table>

Source: EVCA 2013c

4.3.1.6 Syndication of Investments

Syndication is a widespread phenomenon in the US (see e.g. Lockett and Wright, 2001; Wright and Lockett, 2003). As argued earlier, syndication may e.g. increase the quality of the due diligence process as well as lowering the risk for investors. However, in Europe the use of syndication is limited by the relatively immobile nature of VC. Given barriers to cross-

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24 Because of lacking data and since the term cross-border investments is less interesting to look at in US, where the whole region constitutes the same market, there is no equivalent analysis for the US in this part.
border investments, syndication possibilities can be argued to naturally be lower in Europe as there are less VCs to team up with if you e.g. are mandated to only invest domestically. In Figure 18, we can see that a striking 70% of all VC amounts invested in Europe in 2012 were made with no syndication. Whilst the corresponding data for the US is not published in the NVCA yearbook, Wright and Lockett (2003) showed that in 2000, with roughly 64% of VC deals being syndicated in the US syndication patterns were almost exactly reversed relative to those in Europe. Given the expected benefits of syndication, this data could potentially explain at least in part the relative underperformance of VC funds in Europe. Interestingly though, this can also be seen as a “hen and egg” problem, i.e. a question of causality. In general, when making cross-border investments, the VC firm may be exposed to the liability of foreignness and potential problems of distance to the market of the investee. It is common to alleviate such problems through syndication with local VC partners (Meuleman and Wright, 2011). Therefore, it may well be that because there is a low tendency for syndicating VC financing rounds in Europe cross-border investments are hampered.

**Figure 18 Syndication of VC investments in Europe and the US**

<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>70% (No syndication)</td>
<td>36% (Syndication)</td>
</tr>
<tr>
<td>30% (Syndication)</td>
<td>64% (No syndication)</td>
</tr>
</tbody>
</table>

*Source: EVCA 2013d, Wright and Lockett, 2003*

**4.3.2 Anecdotal Evidence - Qualitative Research Findings**

The anecdotal evidence in this section focus primarily on the importance of cross-border VC investments and how this is hampered in Europe today. And there is no doubt that the quantitative data published by the EVCA strongly reflect the anecdotal evidence on this subject in Europe.

Developing cross-border investment activity in Europe is important for funds...
find syndication partners and obtain economies of scale, or the so-called “fire-power”. But in addition, if funds were able to operate across borders, greater sectorial expertise can be developed and leveraged. According to the European Commission’s website for VC, such possibilities are expected to increase VC investments and investors’ returns (European Commission, 2014). However, the challenges of cross-border investments in Europe are multitude. Speaking of a single European VC market might be misleading in the first place. In reality it can be argued that there is no such thing as a true pan-European market for VC today, but rather a region comprising a number of individual VC markets operating side-by-side. The regulatory environment under which VCs operate varies widely from country to country and the market is fragmented along national lines. Moreover, different national, administrative, regulatory and tax rules make cross-border investments difficult in Europe today. As we found in the previous section, during the discussion on public agencies as investors in VC funds, cross-border investments are hampered even further by the restrictions of local and regional VC funding programs. These restrictions limit the funds to invest the money within certain geographic boundaries, often commensurate to the constituencies of the governmental agency providing the money. Fussing Nielsen points to this as one of the greatest barriers for all for European VC funds:

“The biggest risk, which is also a risk for us honestly, is that most of the funding is governmental. And governments want to make an impact in their home country, whereas the GP wants to make a return on their fund. So that is the problem. That is not the problem with the EIF, because as long as you stay out of Switzerland and Norway, they are all fine. But if you take our local government, they would rather make us invest in DK. And that of course make cross-border investments more difficult, which is a problem” (Fussing Nielsen, 2014).

But what makes cross-border investment so attractive? The principal rationale behind cross-border investments is two-folded. Firstly, and as mentioned by e.g. Fussing Nielsen (2014), the facilitation of cross-border investments can allow for VCs to fund ventures regardless of where they choose to set up their firm, and simply put their money where they see most potential for return maximisation. Secondly, it is expected to have a positive impact on the value creation in portfolio companies. E.g. foreign VC investors are suggested to provide valuable internationalisation support for their firms (Mäkelä and Maula, 2005).

Talking about possible differences in the investment structures in Europe and the US, Fussing Nielsen says that you can make money in two ways in venture:
“You can (1) make the right investments, i.e. make homeruns and (2) you can kill the bad ones fast. And the latter is where Europe has been struggling – we have not killed our babies fast enough” (Fussing Nielsen, 2014).

When asked why he perceived this to be so he said it is a very difficult thing to do. And he believed it is more difficult in Europe than in the US, because in the US you have more VC experience in general and it makes you more cynical about what works and what does not. A recent academic study by Bertoni and Groh (2014) may bring some additional light to this observation. In their study they find that the likelihood of exiting an unsuccessful venture increases with the presence of a foreign investor partner (Bertoni and Groh, 2014). Devigne, Manigart and Wright (2012) also provide evidence supporting the idea that international syndications focus more on professionalism and unsuccessful transactions are abandoned faster.

Consequences of having a fragmented market in Europe are that VCs cannot optimally use their knowledge of the different sectors of the industry and they are impeded today to invest in a wider geographical area across Europe. Knott from HTGF and Müller at the EVCA both point to a fragmented European VC market as a barrier that needs to be overcome for the industry to move forward:

“To me, a crucial aspect in whether or not performance numbers are getting better is whether we are able to integrate further in Europe. Because only if funds understand themselves as an ecosystem in Europe and not as an ecosystem in Germany or Great Britain, only then I think that they will be able to maximise their returns” (Knott, 2013).

Müller elaborates further:

“For me the key is, how do we overcome fragmentation in Europe and make out of it diversity, to put a positive name to fragmentation. To make it an interesting resource, or at least an incentive to be more efficient” (Müller, 2013).

4.3.3 Sub-conclusion

The most critical take-away from the discussion on investment structure in European VC is that we observe low levels of syndicated and cross-border VC investments. The quantitative data is supported by the qualitative findings, and the conclusions that can be made from the data are underpinned by theory as well. Primarily, we find that cross-border investments and VC mobility are hampered not only by the natural deficiencies in framework conditions and barriers in Europe, which leaves VC split along national lines. But cross-border investments are further hampered by the restrictions placed by local and regional VC funding programs,
identified and discussed in the section 4.2.2.4. We also find that developments in syndication and cross-border investments can be highly correlated in Europe, because one is often a result of the other. Without the facilitation of cross-border investments it is difficult for VCs to find syndication partners, and vice versa. In this way, low syndication can in itself be hampering cross-border investments too. Thus, the big challenge identified here for the industry is to overcome diversity and focus on pan-European initiatives that can help make VC investments more mobile in order to cross borders.

4.4 Divestments

This section is devoted to divestments, which refers to when funds exit their positions in the portfolio firm and subsequently distribute the proceeds to investors. The quantitative analysis section will start by looking at the different types of exit routes, whereas the qualitative analysis section gives an overview of the exit challenges facing European VCs today.

4.4.1 The Quantitative Data Analysis

As described in section 3.3.5 there are various exit routes to take and the most common ones are IPOs or by selling privately, for example to bigger industrial companies through a trade sale. Figure 19 illustrates an interesting comparison of exit routes in 2007 and 2012, i.e. pre- and post-crisis Europe. Unfortunately, the exit route that increases by far the most over these years are the write-offs, which implies a partial or full loss of the investments to investors. In 2007, 15% of all divestments were write-offs, whereas this number increased to a worrisome 24% in 2012. I.e. almost a fourth of all divested firms in 2012 ended up with a write-off. It is also worth highlighting that divestment by trade sales as well as IPOs have both decreased from comprising 23% and 9%, respectively, to only 16% and 5%. In terms of the amounts divested, the picture changes a little. 36% of all money divested comes from trade-sales in 2012, the corresponding number for 2007 was 31%. Nonetheless, and not surprisingly given the post-crisis situation of stock markets, the amounts coming from IPOs have decreased dramatically and only make up for 5%, compared to 21% in 2007. Unfortunately, comparable data for the US market it not available to the author. Also, data displaying the geographic destination of European exits would be interesting to analyse in order to assess the relative attractiveness of European exit opportunities. Unfortunately, such data is not available.
4.4.2 Anecdotal Evidence - Qualitative Research Findings

Throughout the interviews, exit market and opportunities for European VCs were often mentioned as a main challenge for the industry now. Even though interviewees, in particular the two Nordic VCs interviewed and the EIF, were very positive about the current valuations of European VC portfolio companies, they all commented on the challenge and importance of now being able to exit them successfully. Enquist from Creandum stresses that it is important to recall that the current good performance and valuations that he is seeing in the industry are still unrealised investments, or based on so-called paper valuations and not realised performance. And for VCs it is all about making exits. At the end of the day paper-valuations mean nothing without a successful exit. He says that Creandum have a lot of good companies but it is all about divesting, realising the returns and distributing the money back to their LPs:

“The challenges are that we have to make exits. We can still see a lot of value and nice value increases in the coming 2-3-4 years or even more, whilst at the same time we have pressure on us to make an exit. For us it is a matter of balancing this. We don't want to sell too early. And if you look at the industry in general, this is what it is all about now” (Enquist, 2013).

Tremmerie argues along the same lines:

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27 In Appendix VI an overview of the EVCA’s definitions of the different labelled exit routes is provided.
"The main challenge is to generate exits now out of the current good valuations. I mean it is good to generate billion dollar valuation companies, but first we need to continue exiting some of them. We have some examples already of one billion dollar exit levels, but we need a bit more of that" (Tremmerie, 2013).

Given the importance of making exits for European VCs now, exit opportunities come across as rather challenging in Europe during the interviews. Nordal Jensen points to the fact that the industry needs to “break the glass ceiling” soon, but that it has not been able to do so yet. And to this, he points to exit markets as being the number one barrier for Europe. As for IPOs and opportunities for public offerings in Europe, he compares it to the US and says that stock exchanges in Europe have less favourable conditions than the ones in the US. He says:

“*The number one barrier in Europe is exit markets. The European stock exchanges are not good enough*” (Nordal Jensen, 2013).

He also points to the cyclicity in exit opportunities, which indeed has been evident since the recent financial crisis started in 2008. When it comes to floating the firms on a stock exchange, the general opinion is that stock markets in the US seem more attractive. The opportunity for European ventures then is of course to head to the US to float. This could in the short run be an attractive alternative for “IPO’able” in Europe, but Nordal Jensen from Vækstfonden points to their drawbacks in the long run:

“*In the long run, you will have a situation where our start-ups are fed to the US. And Europe should also be able to be sustainable too. This would mean the companies would be listed on our stock exchanges where we trade and where all the jobs stay in Europe. I'm not saying it is a sign of disease that you float in the US - it definitely is not. But you should be able to do both*” (Nordal Jensen, 2013).

Tremmerie is less concerned about where companies float, as long as there is the possibility of floating somewhere, and he does not see a risk of ‘losing’ the best entrepreneurs to the US:

“*I am indifferent, of course it is politically correct to say that we need better exit markets in Europe as well. But how many do you want to have, I think? So I think if a company is IPO'able, it can float in Europe as well as in the US*” (Tremmerie, 2013).

Müller, at the EVCA, focuses more on the currently challenging exit environment for VCs in general, not only in terms of IPOs, which after all only comprise around 5% of all exits. He means that M&A markets in general are very difficult to make sense of at the moment. In his opinion, the industry is, in this respect, definitely affected by rather unfavourable conditions:
“A key question is how to equip venture funds with capital these days, and how on earth are they going to make returns in the challenging exit environment?” (Müller, 2013).

When comparing the private M&A markets to the public stock markets, an interesting paradox materialises. While exit markets for private equity are difficult, we see public equity markets booming (Müller, 2013).

4.4.3 Sub-conclusion

The absolute key message from the divestment part of the analysis is that even if you hold the positive view that European VCs have more highly valued companies in their portfolios than ever, the challenge to exit them profitably persists. This challenge is and should be at the top of the agenda for the industry players right now, according to both VCs and industry experts. It is crucial for the industry to create some success stories through the exits now, and to prove that they are able to not only add value to portfolio companies, but also to distribute money back to investors. However, the numbers seem to point to some worrisome trends for the exit routes European VCs. Take e.g. the potentially most lucrative exit of them all, the IPOs. They have decreased drastically from 2007 to 2012 in Europe. The qualitative research findings also support that the exit markets and opportunities in Europe for VCs are very challenging.

4.5 Entrepreneurship and Deal-flow in Europe

It is now time to have a look at the demand-side of VC, namely the deal-flow in Europe. Deal-flow typically comprises all investment opportunities that a VC firm has access to. This section will cover the culture and attitudes towards entrepreneurship and towards becoming an entrepreneur. The stigma associated with failure, the importance of serial entrepreneurs and the opinions on the current status of the European deal-flow will also be explored. Given that the data for this section is primarily of qualitative nature, the data analysed in this section is also mainly qualitative.

From this qualitative research study we find that there are different opinions on whether the challenges for VCs in Europe lie within the culture of entrepreneurship today or not. Nordal Jensen states that when trying to understand the European VC industry, external forces, like capital markets and macroeconomic developments, need to be recognised and understood, but deal-flow is key. He underlines that it relevant to assess the quality of deal flow in Europe before ruling out the performance of VC funds:
“What if we have the world’s best VCs, but the ‘material’ coming in is not?” (Nordal Jensen, 2013).

Even though this question was posed more rhetorically than literally, it sheds light on why the demand-side is just as an important cornerstone for the VC industry as is the capital provision. Söderblom, on the other hand, rejects that entrepreneurship in Europe is the problem:

“That has been a big question and problem, but I would not actually think that it is so important today. Rather the opposite. All countries in Europe, since the 1990s, have put extreme efforts in place, and focus on, and have a very positive attitude towards entrepreneurs. I don’t the cultural attitude towards entrepreneurship plays an important role today as it once may have done” (Söderblom, 2013).

4.5.1 Culture of Entrepreneurship

The deal-flow in a certain region is a function of numerous things. Examples are culture and attitude towards entrepreneurship, innovation and R&D capacity, the ease and costs of starting, running and closing a business, the quality of IT infrastructure, and the opportunity costs of starting up a company (see e.g. Groh, Liechtenstein, and Lieser, 2011). The culture and attitudes towards entrepreneurship is particularly interesting to look at when comparing Europe to the US, as it is a commonly cited explanation of the observed differences between developments in the industries across these markets. The US is known to generally have a stronger entrepreneurial spirit and drive to create your own company, probably rooted in the idea of the American dream and the individualistic culture, which may impact the success of their VC industry. The interview findings are divided on how evident this really is, but the majority still points to an entrepreneurial culture in the US that favours the VCs deal-flow.

Boe Petersen from the DVCA, who has lived in the US himself, is convinced that the American culture is much better at making real entrepreneurs:

“The whole system in the US builds on that if you do not make it you break it (as a person) and that creates an enormous kind of entrepreneurial spirit that goes through the whole society. That is a side of the coin that we rarely speak about in Europe. I am not here to say we should dismantle the welfare state, it is just a bi-effect of the American people, that they are very entrepreneurial. The competition is so fierce to make it, which is something we do not see in Europe” (Boe Petersen, 2013).

He also points to the fierce competition among entrepreneurs, fostered by their culture that is not seen in Europe. Hougaard holds a similar opinion:
“The US has a more developed ecosystem where the entrepreneurial tradition is stronger, competition is stronger, relationships between universities and entrepreneurs are better. So, in the hubs as Massachusetts, New York, California, you have a deep concentration of entrepreneurial competences. That may make a difference” (Hougaard, 2013).

Thinggaard Hansen, at Industriens Pension, invests the majority of their allocation to VC in the US, and he therefore has good insight into the two markets and their differences. When he speaks about the challenges facing the European one, he emphasises culture too. He points to another aspect of entrepreneurship culture, namely the opportunity cost of starting a company. With a stronger “employee culture” in Europe, economies and societies are shaped by large corporations, labour unions and relatively stable employee contracts. You simply have more to lose or give up if you cross the barrier, give up this security and economic safety and start your own company. Knott (2013), from HTGF, also says that from his own experience there is definitely a certain reluctance to starting you own business in Europe.

4.5.2 Stigma of Failure and Entrepreneurial Activity

The stigma associated with failure is not only influencing the decision to become an entrepreneur but also the choice of projects and the decision to terminate a project (see e.g. Landier, 2004). The fear of being stigmatised by failure may thus provide yet a potential explanation to why European VCs have been more reluctant to “kill their babies”, which in turn might have a negative impact on performance. Landier (2004) presents the perception of a European stigma of failure expressed both by the European Commission and the Economist below:

“If you start a company in London or Paris and go bust, you have just ruined your future; do it in Silicon Valley and you have simply completed your entrepreneurial training” (The Economist, 1998 cited in Landier, 2004)

“In Europe, a serious social stigma is attached to bankruptcy. In the USA bankruptcy laws allow entrepreneurs who fail to start again relatively quickly and failure is considered to be part of the learning process. In Europe, those who go bankrupt tend to be considered as ‘losers’. They face great difficulty to finance a new venture” (European Commission, 1998 cited in Landier, 2004).

Knott also highlights this mentality of not being able to appreciate trial and failure:

“It is a certain kind of mindset, which I am not a big fan of, and this is something we could learn from the US. I think we should be less negative in terms of if something does not work out the way it could. Because if we instead think it is great that he/she is willing taking this risk to do his own thing then we will see even more entrepreneurial activity“ (Knott, 2013).
On the positive side, however, this is something he sees changing now in Europe, in particular in Berlin, one of the leading start-ups hubs in Europe:

“This changing mentality is something we do see in Berlin. We see that people, especially the younger generation (30-35 years maybe), do not have this old attitude that much anymore. A lot of them just goes out from university and start their own business - no matter what happens. And if they fail they will start another business. And if it works out, they will start another business anyways” (Knott, 2013).

The changing trends and attitudes towards failure and entrepreneurship that HTGF observes in Berlin is also something that the EIF and the EVCA points to:

“More people today want to go into the entrepreneurship career path, as opposed to consulting or banking. It has now become recognised and accepted and almost the preferred career path” (Tremmerie, 2013).

“In general, the level of entrepreneurship in Europe has increased dramatically. Even at university, if you are deep in natural sciences, you will not survive your degree without having been to at least one lecture on entrepreneurship. So I think a lot of work has been done on the ground to make people more open for this” (Müller, 2013).

Why this trend can be seen now is hard to explain, but even the recent Economic crisis may affect entrepreneurship positively:

“If you look at the economic crisis in Europe, how many people that have been fired and maybe do not have great outlooks for the employee jobs, and this might force them to take on other choices. It can make people think differently about starting their own company. So there might come something good out of economic crises like the one we have just experienced. Shifts in the mentalities of society can happen. But it is of course not something you start a financial crisis for to change. But it can create a whole new group of entrepreneurs” (Thinggaard Hansen, 2013).

Tremmerie adds that in some of the countries hardest hit by the crisis, like Spain and Italy, a lot of young people are forced to take the entrepreneurial route, as they cannot find a job elsewhere and thus says: “The European crisis is a blessing for entrepreneurship” (Tremmerie, 2013).

4.5.3 The Value of Serial Entrepreneurs

When discussing the quality of European deal-flow, Boe Petersen brings up an additional aspect where Europe differs from the US and says:
“One of the most valuable things you can have in the ecosystem are serial entrepreneurs, they are the ones who really make it big, and we have very few of those” (Boe Petersen, 2013).

Serial entrepreneurs are people who start a number of new businesses after already having started and exited a previous venture. Boe Petersen’s comment is line with recent academic research which provides evidence that serial entrepreneurs are more likely to be successful than first-time entrepreneurs (Gompers, Kovner, Lerner, and Scharfstein, 2010). The interesting aspect of this so called “performance persistence” in entrepreneurship is that the mere perception of performance persistence, i.e. the belief that successful entrepreneurs are more skilful than unsuccessful ones or first-time entrepreneurs, can in fact induce real performance persistence (Ibid.). In this way, success breeds success not only for VCs but also entrepreneurs. Söderblom supports the same argument:

“The US have a much longer tradition for entrepreneurs. And this might explain why we do not have so many serial entrepreneurs yet. But it is coming. And serial entrepreneurs are in general more successful than others. So in this regard we are lagging the US a little. And it will take time to catch up. The most successful entrepreneurs are 37-38 years old and run their third company. And so far we don’t have lots of these in Europe” (Söderblom, 2013).

In the Figure 20 below, from the British Venture Capital Association (BVCA) the fraction of firms with previous founder experience is illustrated and emphasises the point made by Söderblom. This disadvantage, relative to the US, can mostly be attributed the early invention of VC in the US, and it will naturally take time to breed more serial entrepreneurs in Europe.

**Figure 20 Fraction of firms with founder experience by vintage years**

![Graph showing percentage of firms with founder experience by vintage year](https://example.com/graph.png)

*Source: The graph is taken from the BVCA report “European VC Myths and Facts”, 2013*

Boe Petersen elaborates from his point of view why we see so few serial entrepreneurs in Europe, and says that entrepreneurs are so important for society’s growth that a critical task for Europe is to create an ambitious entrepreneurial policy. He gives three potential reasons
behind the low number of serial entrepreneurs in Europe today; (1) Cultural-wise he sees a
tendency for successful entrepreneurs to settle down and be satisfied after you have made it
in Europe. The “hungriness” to get more is not that big. (2) Serial entrepreneurs are taxed
very hard, and a tax reforms are needed in order to get the entrepreneurial policy he wants.
Potential serial entrepreneurs need to have good incentives, in terms of taxes, before they
decide to invest more of their gains in new ventures. He points to the high capital taxes seen
in Europe, and in particular the Nordics, which needs to be addressed. (3) In Europe, after a
personal bankruptcy, creditors can come after you for a very long time in general, and we
need to make it easier to start up again after a failure. He thinks that we have been too nice
towards lenders compared to the borrowers, whom we often regard as potential crooks. But
he says that actually you get a lot more experience from failure than from success.

4.5.4 Views on the Quality of the European Deal-Flow

When talking about the current situation and the quality of European VC deal-flow, most
findings from the interviews pointed to a sound deal-flow. An EVCA report on the case for
investing in Europe praises it for having “world-leading European companies” and a
“deepened talent-pool of entrepreneurs “(EVCA 2013d). Boe Petersen from the DVCA is
more sceptical to the deal-flow and points out that this is where the main challenge for the
industry lies:

"I think that it is really on the demand side of the VC industry that the big problem lies. We
need to do something for the entrepreneurs, so that there can be a lot more good candidates”
(Boe Petersen, 2013).

He does not necessarily point to the quality of existing companies, but rather to the narrow
pool of candidates available and wish to see more entrepreneurial activity. Hougaard also
indicates that this pool is bigger in the US:

“There are more opportunities on the demand-side in the US, oh yes. I’m not saying it is
easier to pick the winners in the US, but there are probably more winners in the US’
entrepreneurial ecosystem than in Europe “ (Hougaard, 2013).

Tremmerie at the EIF holds a contrasting, more positive, view of Europe:

"There is a talent pool of entrepreneurs which is growing. This is not something that has
happened recently, it has been going on for 10 years, but what has happened is that some of
these entrepreneurs have been highly successful which means that there is entrepreneurial
experience coming to the market that can be shared with others ” (Tremmerie, 2013).
4.5.5 Sub-conclusion

Deal-flow is a crucial component in the European VC ecosystem and when analysing the deal-flow, and some key determinants of it, it appears that some cultural and mentality differences of entrepreneurship still persist between Europe and the US. However, the most important difference to point to is the relative absence of serial entrepreneurs in Europe. Serial entrepreneurs are key to the deal-flow, and given that Europe time-wise lags the US in its adoption of VC, we have not experienced as many waves of entrepreneurship here, which is from what serial entrepreneurs emerge. Thus, the key take-away is that Europe needs to make it more attractive to become an entrepreneur, and also to create incentives to continue to invest any potential proceeds from previous companies into new ventures, so that we can create a bigger pool of serial entrepreneurs.
5. Conclusion

This study set out to examine the current state of the European VC industry and to explore possible ways of increasing the attractiveness of VC as an asset class for investors. The research was mainly motivated by the apparent discrepancies between the “promised” benefits and the, at best, mediocre performance that has been observed recently.

In order to answer the research question, a number of sub-questions were identified to guide the research and subsequently addressed in the analysis. In order to cover all questions, the analysis was structured into five key elements of VC: Performance, Fundraising, Investments, Divestments and Entrepreneurship and Deal-Flow in Europe. The main findings from the analysis will now be summarised to answer the initial research question.

As for the Performance section (4.1), the overall conclusion is that European VC has grossly disappointed in terms of investor performance. However, as the analysis shows, the wide-held belief that the US VC industry significantly outperforms the European one does not seem to hold in reality today. Whilst such beliefs may have held true for the early and booming days of VC during the dotcom bubble, such a performance gap seems to have been temporary in nature and likely to be statistically insignificant today, taking the issues of data quality into consideration as well.

Leading into the Fundraising section (4.2), the low industry returns have been detrimental to the attraction of capital from private investors and European VC is experiencing extremely low fundraising levels. This may not be a bad thing in itself however, as less money will now chase the deals, which should lower valuations and ensure that only high-quality projects get funded. This should in turn have a positive impact on performance of VC funds. Because of low levels of private capital governments in Europe have taken a leading role in providing capital to the industry. Public involvement has been crucial for the industry’s survival and is expected to be so going forward as well. Yet, the analysis shows that the reliance on public funding may in fact contribute to making the situation worse by impacting performance negatively in two ways, identified in the analysis. Firstly, the strong presence of public LPs causes greater concerns for misalignments of incentives between
financially driven GPs and LPs driven by policy and social economic returns. This is expected to be so primarily because the industry’s standard compensation models allows for VC managers to make good money and simply live off management fees without any ties to performance. And without a correction for this, i.e. with better aligned incentives between the new LP base and VCs, public funding may continue to fund underperforming VCs. This affects industry average returns negatively. Secondly, capital provided by government agencies often limits the VC investments to be domestic or even region-specific, which is not return maximising.

Entrepreneurship is global and entrepreneurs can move anywhere in their world to set up their company and VCs must be able to follow. Unfortunately, public funding makes VCs less capable of doing so, which also impacts possibilities for cross-border investments negatively. Hence, the discussion acknowledges the importance of public funding in European VC, but also questions the appropriateness of public agencies as VC investors and the negative implications it seems to have on returns.

Subsequently, the negative implications for cross-border investments are also reflected in data from the Investments section (4.3). Europe has seen low levels of cross-border and syndicated investments, which is expected to affect performance negatively. We also find that developments in syndication and cross-border investments can be highly correlated in Europe, because one is often a result of the other. Without the facilitation of cross-border investments it is difficult for VCs to find syndication partners, and vice versa. The big industry challenge identified in this section is to overcome diversity and focus on pan-European initiatives that can help make VC investments more mobile in order to cross borders.

From the Divestments section (4.4) the key take-away is that the exit markets for European VCs are challenging at the moment, where decreases in IPOs over the past five years are observed. VCs’ main focus at the moment should be to profitably divest portfolio companies in order to distribute money back to investors and create returns. Yet, given the tough exit conditions in Europe, this can also be done in the US or wherever possible. The key is that the industry needs some success exit stories.

Lastly, the analysis of the European Entrepreneurship Culture and Deal-Flow (4.5) highlights the relative absence of serial entrepreneurs in Europe, which is key to the deal-flow. Europe needs to make it more attractive in general to become an
entrepreneur in order to secure a good deal-flow. Incentives for previous entrepreneurs to invest any proceeds into new ventures also need to be in place in order for more serial entrepreneurs to emerge. This section also recognised the differences in entrepreneurial culture between Europe and the US, e.g. the stigma of failure existing in Europe increasing the barriers to become an entrepreneur.

All in all, to answer the research question, this paper demonstrates how VC in Europe as an asset class has grossly disappointed in terms of investor performance. Poor returns have been detrimental to the industry’s ability to attract private capital and today the industry is dependent on investments from public agencies. Public money has enabled the industry to survive the recent post-crisis years but this paper shows how public investors impact the performance of the asset class negatively in two major ways. Thus, the current situation requires that the industry starts to live up to investor expectations in order for the industry not to further deteriorate its reputation and trust among the investor community. In this regard, the next chapter will look into two suggested areas to address for the European VC industry.
6. Outlook and Suggestions for Further Research

In this final section, the author presents two key issues, identified from the analysis, which in her view needs to critically be addressed in order for the industry to have a more positive outlook in the near future. In addition, three routes for future research will be suggested.

6.1 Two Issues that are critical to address for the European VC industry

As a consequence of the disappointing returns to LPs and the lack of successful exit stories, European VC as an asset class is indeed facing some substantial headwinds going forward. Two critical issues in particular should be addressed:

6.1.1 Incentives and Compensation Structures

Disappointing returns almost naturally demands reconsideration - and perhaps a fundamental rethinking - of existing incentives and compensation structures rewarding VCs. In line with the argumentation in the Kauffman Foundation Report (Mulcahy et al., 2012), it is now suggested that this type of “loose governance” by LPs may have reached its limits in the near future. VCs position themselves as instigators of innovation, but very little innovation have been seen in the structure of the VC industry itself, and in this case in the way VCs are paid (Ibid.). Only over the past five years the European VC scene has changed dramatically, primarily in terms of funds raised and by what type of investors. Yet, for more than 20 years, globally, LPs have accepted the standard compensation structure including for example; a 10-year fund, a 5-year investment period, a 2% management fee on committed capital, an 80/20 split of any profits on investments, and 1% GP capital commitment invested in their own fund (Ibid.). It can be expected that the current model may not be sufficiently incentivising the VC managers to actively seek the most profitable portfolio investments. Even though there are considerations to be made on all of the above-mentioned points, a suggested and likely change in particularly two of them will now be brought forward.

Firstly, and perhaps the most criticised element of the compensation model is the annual 2% management fee on committed capital. If a VC fund is big enough, it may be more comfortable and convenient for a fund manager to rely upon these fees than to seek the “winners”. This can in particular be expected for VCs with public LPs, which pursue other objectives than financial ones. In order to better align the incentives here, the possibility to make money solely on management fees is strongly suggested to be limited for the future. This can be done, e.g. by lowering or perhaps abandoning the management fees completely,
or at least reducing them to be based on actual expenses. Instead VCs can be incentivised by being able to reap an even greater percentage of the profits once a fund succeeds, e.g. relative to how much they outperform public indices. This aims to avoid VCs being able to get handsomely paid whilst having funds with appalling performances. Secondly, another element interesting to address is the percentage of capital committed by the GPs. Today, the standard is for LPs to provide 99% of the capital to the fund and GPs have a minimum requirement of providing 1% of that with their own funds. This proportion is arguably also out of line, as VCs who have been able to rely on management fees not have been incentivised enough by the potential of losing this 1% of funds additionally. It is likely that VC managers in the future can expect to be asked to put in more of their own money to the funds, perhaps corresponding to 5% of the total value instead. Changing the terms in this way, would also create stronger alignment of interests between GPs and LPs and serve as a better governance mechanism for LPs. All in all, the industry standard compensation model may not be broken per se, but in order for interests and incentives to be better aligned its terms will most likely be adjusted going forward. The initiation for this change cannot be expected to come from VCs themselves, especially not the bigger funds, but change needs to be spurred by investors. This change should be welcomed by the best performing funds, as it could help shake-out the bad-performers in the industry who would not accept a more performance based compensation structure, and thus better align interests of LPs and GPs.

6.1.2 Need for Improving VC data quality

Perhaps a more utopian quest, but yet entirely justified, is the need to increase the quality of available data on the VC industry. As shown, measuring VC performance remains an utterly complex and difficult task, primarily because of the reluctance and lack of obligation to disclose any information about returns. This makes the publicly available data on the European VC industry, and the global as well, very prone to errors and biases (Söderblom, 2011). The poor data quality causes serious transparency concerns since no one really knows what the true performance of the European VC industry is because of this. The implications of the poor industry data also jeopardises all conclusions that are drawn from VC performance studies, since it is conditional on the data available. The widespread urge and need for more accurate data about VC returns is particularly justified in times when public agencies by far are biggest contributors of capital to the industry, i.e. providing tax-payers’ money to a private industry with great uncertainties around its true performance. A suggested way to circumvent the reluctance of VC firms to disclose information would be to move the
reporting responsibility to investors. This is at best an unrealistic thing to do, and maybe even impossible for the near future. Yet, at least for big public investors like the EIF, this should not be impossible. Apart from sample issues, the other inherent problem is indeed method-wise; IRR, the most commonly used metric, should perhaps be replaced as well. The question, difficult to answer, is of course what it could be replaced with. While this is beyond the scope for this discussion, a move from working purely with IRR-based returns to working with other types of returns could be an interesting idea.

6.2 Suggestions for Future Research

While this paper complement existing research on the European VC industry, there is potential for future research efforts to gain additional insight on the conclusions that can be made from this analysis. Three suggested areas for future research have been identified mainly in relation to the controversy surrounding the strong reliance upon public funding.

Firstly, there seems to be a lack of research in general on VC in Europe as an asset class but while there is a relatively broad part of literature focusing on better understanding performance determinants on a fund-level, significantly less is known about factors affecting performance on a LP level (Söderblom, 2011). Thus, for future research, it would in particular be interesting to better understand to how funds with public LPs manage and perform relative to funds with primarily private LPs. Little is general known about the heterogeneity in investment strategies and successes across different investor types. Hence, a study analysing to what extent returns from VCs varies across investor types. Such insight would provide guidance not only to LPs, but also to VCs themselves. Secondly, and in terms of the findings that capital may be inefficiently allocated today when return maximising interests are not aligned, it would also be beneficial to gain insight to how much capital is allocated to bottom- vs. top-quartile funds for example. In this way we could better understand where most capital is flowing and to what extent “right” funds are being selected for it. We could also understand whether a so-called “un-Darwinian” capital allocation process persists, where consistently underperforming funds continue to get funded by public money for example. Thirdly, further research on the different ways governments’ involvement in the VC industry must be structured would be highly beneficial for this research field. We also need to establish further understanding to whether public-private funding schemes can create a functioning VC industry in Europe and in that case, how this should be set up.
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www.svca.se (viewed from Oct 2013)
8. Appendices

Appendix I.

List of interviews conducted

<table>
<thead>
<tr>
<th>Name</th>
<th>Organisation</th>
<th>Position</th>
<th>Stakeholder Type</th>
<th>Date of Interview</th>
<th>Type</th>
<th>Country</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gorm Boe Petersen</td>
<td>DVCA</td>
<td>Head of Department</td>
<td>Industry association</td>
<td>29.10.2013</td>
<td>Face-to-face</td>
<td>Denmark</td>
</tr>
<tr>
<td>Anna Söderblom</td>
<td>Stockholm School of Economics (SSE), Entreprenörskapsforum</td>
<td>Professor</td>
<td>Academic</td>
<td>07.11.2013</td>
<td>Telephone</td>
<td>Sweden</td>
</tr>
<tr>
<td>Søren Hougaard</td>
<td>Copenhagen Business School (CBS)</td>
<td>Adjunct Professor, VC/Angel investor</td>
<td>Academic, Angel investor</td>
<td>11.11.2013</td>
<td>Telephone</td>
<td>Denmark</td>
</tr>
<tr>
<td>Bjorn Tremmerie</td>
<td>European Investment Fund (EIF)</td>
<td>Principal, VC and PE</td>
<td>Public agency</td>
<td>12.11.2013</td>
<td>Telephone</td>
<td>Luxembourg</td>
</tr>
<tr>
<td>Cornelius Müller</td>
<td>EVCA</td>
<td>Head of Research</td>
<td>Industry Association</td>
<td>12.11.2013</td>
<td>Telephone</td>
<td>Belgium</td>
</tr>
<tr>
<td>Joel Eriksson Enquist</td>
<td>Creandum</td>
<td>Investment Manager</td>
<td>VC fund, Former entrepreneur</td>
<td>18.11.2013</td>
<td>Face-to-face</td>
<td>Sweden</td>
</tr>
<tr>
<td>Christian Knott</td>
<td>High-tech Gründerfonds (HTGF)</td>
<td>Investment Team</td>
<td>VC fund</td>
<td>19.11.2013</td>
<td>Telephone</td>
<td>Germany</td>
</tr>
<tr>
<td>Søren Thinggaard Hansen</td>
<td>Industriens Pension</td>
<td>Head of Private Equity</td>
<td>Private Institutional Investor (Pension fund)</td>
<td>21.11.2013</td>
<td>Face-to-face</td>
<td>Denmark</td>
</tr>
<tr>
<td>Lars Nordal Jensen</td>
<td>Vækstfonden</td>
<td>Executive Assistant</td>
<td>Public agency</td>
<td>16.12.2013</td>
<td>Face-to-face</td>
<td>Denmark</td>
</tr>
<tr>
<td>Kirsten Connell</td>
<td>Seedcamp</td>
<td>General Manager</td>
<td>Incubator</td>
<td>09.01.2014</td>
<td>Telephone</td>
<td>Great Britain</td>
</tr>
<tr>
<td>Jimmy Fussing Nielsen</td>
<td>Sunstone Capital</td>
<td>Managing Director</td>
<td>VC fund</td>
<td>10.01.2014</td>
<td>Face-to-face</td>
<td>Denmark</td>
</tr>
</tbody>
</table>
Appendix II.

Return distributions of Direct, Fund and Fund-of-Funds investments

Appendix III.

The VC Investment Process

Source: Duffner, 2003
Appendix IV: Overview of major quantitative studies on historical VC performance

<table>
<thead>
<tr>
<th>Authors</th>
<th>Year</th>
<th>Primary Data Source</th>
<th>VC Sample Size</th>
<th>Period Covered</th>
<th>Geography</th>
<th>Average IRR</th>
<th>Median IRR</th>
<th>Std. Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Panel A: Fund level focused studies</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Chiampou, Kallett</td>
<td>1989</td>
<td>Proprietary Data</td>
<td>55</td>
<td>1978-1989</td>
<td>USA</td>
<td>17,5%</td>
<td>n/a</td>
<td>37,6%</td>
</tr>
<tr>
<td>Ljungqvist, Richardson</td>
<td>2003</td>
<td>Proprietary Data</td>
<td>19</td>
<td>1981-2001</td>
<td>Global</td>
<td>1,4%</td>
<td>6,6%</td>
<td>90,9%</td>
</tr>
<tr>
<td>Kaserer, Diller</td>
<td>2004</td>
<td>VentureXpert</td>
<td>47</td>
<td>1978-2002</td>
<td>Europe</td>
<td>7,3%</td>
<td>4,8%</td>
<td>17,8%</td>
</tr>
<tr>
<td>Kaplan, Schoar</td>
<td>2005</td>
<td>VentureXpert</td>
<td>577</td>
<td>1980-1997</td>
<td>USA</td>
<td>17,0%</td>
<td>11,0%</td>
<td>30,0%</td>
</tr>
<tr>
<td>Lerner, Schoar, Wongsunwal</td>
<td>2007</td>
<td>Prequin</td>
<td>134</td>
<td>1991-1998</td>
<td>USA</td>
<td>25,6%</td>
<td>14,4%</td>
<td>42,5%</td>
</tr>
<tr>
<td>Robinson, Sensoy</td>
<td>2011</td>
<td>Proprietary Data</td>
<td>192</td>
<td>1984-2006</td>
<td>Global</td>
<td>9,0%</td>
<td>2,0%</td>
<td>47,0%</td>
</tr>
<tr>
<td>Harris, Jenkinson, Kaplan</td>
<td>2011</td>
<td>Burgiss</td>
<td>775</td>
<td>1984-2008</td>
<td>USA</td>
<td>16,8%</td>
<td>11,1%</td>
<td>n/a</td>
</tr>
<tr>
<td>Hochberg, Rauh</td>
<td>2012</td>
<td>Prequin</td>
<td>4,422</td>
<td>1980-2009</td>
<td>USA</td>
<td>11,5%</td>
<td>2,0%</td>
<td>42,9%</td>
</tr>
<tr>
<td><strong>Fund-level Average/Median</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>11,5%</td>
<td>6,3% / 5,7%</td>
<td></td>
</tr>
<tr>
<td><strong>Panel B: Deal-level focused studies</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hege, Palomino, Schwienbacher</td>
<td>2003</td>
<td>VentureXpert</td>
<td>381*</td>
<td>1997-2002</td>
<td>Global</td>
<td>407,6%</td>
<td>21,6%</td>
<td>24920%</td>
</tr>
<tr>
<td>Fleming</td>
<td>2004</td>
<td>Proprietary Data</td>
<td>117</td>
<td>1992-2002</td>
<td>Australia</td>
<td>36,4%</td>
<td>22,0%</td>
<td>153,3%</td>
</tr>
<tr>
<td>Cochrane</td>
<td>2005</td>
<td>VentureSource</td>
<td>1661*</td>
<td>1987-2000</td>
<td>USA</td>
<td>59,0%</td>
<td>n/a</td>
<td>107,0%</td>
</tr>
<tr>
<td>Ick</td>
<td>2006</td>
<td>CEPRES</td>
<td>2685</td>
<td>1975-2003</td>
<td>Global</td>
<td>46,0%</td>
<td>18,1%</td>
<td>335,0%</td>
</tr>
<tr>
<td>Cumming, Walz</td>
<td>2010</td>
<td>CEPRES</td>
<td>2419</td>
<td>1971-2003</td>
<td>Global</td>
<td>68,8%</td>
<td>17,0%</td>
<td>n/a</td>
</tr>
<tr>
<td>Korteweg, Sorensen</td>
<td>2010</td>
<td>VentureSource</td>
<td>5501*</td>
<td>1987-2000</td>
<td>USA</td>
<td>95,0%</td>
<td>21,0%</td>
<td>319,0%</td>
</tr>
<tr>
<td>Jackson, Bates, Bradford</td>
<td>2011</td>
<td>Proprietary Data</td>
<td>315</td>
<td>1989-2006</td>
<td>USA</td>
<td>-19,4%</td>
<td>-0,4%</td>
<td>73,4%</td>
</tr>
<tr>
<td><strong>Deal-level Average/Median</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>109,5%</td>
<td>16,6%</td>
<td>19,6%</td>
</tr>
</tbody>
</table>

* Each observation represents a financing round. IRR is measured as the performance between two consecutive financing rounds.

Source: Reiner, 2013
Appendix V. VC fund performance in the US measured with the PME according to different data bases

Source: Harris et al., 2013a
Appendix VI. EVCA’s Definitions of Exit routes

<table>
<thead>
<tr>
<th>Exit Route</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Public offering</td>
<td>The sale or distribution of a company’s shares to the public for the first time by listing the company on the stock exchange, also includes sale of quoted shares after a lock-up period.</td>
</tr>
<tr>
<td>Repayment of principal loans</td>
<td>If a private equity firm provided loans or purchased preference shares in the company at the time of the investment, then their repayment according to the amortisation schedule represents a decrease of the financial claim of the firm into the company, and hence a divestment.</td>
</tr>
<tr>
<td>Repayment of silent partnership</td>
<td>A silent partnership is a type of mezzanine financing instrument. It is similar to a long-term bank loan but, in contrast to a loan, a silent partnership is subject to a subordination clause, so that in the event of insolvency all other creditors are paid before the silent partner. The company has to repay the partnership and has to pay interest and possibly a profit-related compensation. The subordination clause gives the capital the status of equity despite its loan character. This financing instrument is frequently used in Germany.</td>
</tr>
<tr>
<td>Sale to another private equity firm</td>
<td>The sale of company shares to another direct private equity firm.</td>
</tr>
<tr>
<td>Sale to financial institution</td>
<td>The sale of company shares to banks, insurance companies, pension funds, endowments, foundations and other asset managers other than private equity firms.</td>
</tr>
<tr>
<td>Trade sale</td>
<td>The sale of company shares to industrial investors.</td>
</tr>
<tr>
<td>Write-off</td>
<td>The total or partial write-down of a portfolio company’s value to zero or a symbolic amount (sale for a nominal amount) with the consequent exit from the company or reduction of the shares owned. The value of the investment is eliminated and the return to investors is a full or partial loss.</td>
</tr>
</tbody>
</table>

*Source: EVCA, 2013b*