ECONSTOR
Make Your Publications Visible.

A Service of
ZBW
Leibniz-Informationszentrum Wirtschaft
Leibniz Information Centre for Economics

Kelly, Roger

Working Paper

The performance and prospects of European Venture Capital

EIF Working Paper, No. 2011/09

Provided in Cooperation with:
European Investment Fund (EIF), Luxembourg

Suggested Citation: Kelly, Roger (2011) : The performance and prospects of European Venture Capital, EIF Working Paper, No. 2011/09, European Investment Fund (EIF), Luxembourg, http://www.eif.org/news_centre/publications/EIF_Working_Paper_2011_009.htm

This Version is available at:
https://hdl.handle.net/10419/176639

Standard-Nutzungsbedingungen:

Die Dokumente auf EconStor dürfen zu eigenen wissenschaftlichen Zwecken und zum Privatgebrauch gespeichert und kopiert werden.

Sie dürfen die Dokumente nicht für öffentliche oder kommerzielle Zwecke vervielfältigen, öffentlich ausstellen, öffentlich zugänglich machen, vertreiben oder anderweitig nutzen.

Sofern die Verfasser die Dokumente unter Open-Content-Lizenzen (insbesondere CC-Lizenzen) zur Verfügung gestellt haben sollten, gelten abweichend von diesen Nutzungsbedingungen die in der dort genannten Lizenz gewährten Nutzungsrechte.

Terms of use:

Documents in EconStor may be saved and copied for your personal and scholarly purposes.

You are not to copy documents for public or commercial purposes, to exhibit the documents publicly, to make them publicly available on the internet, or to distribute or otherwise use the documents in public.

If the documents have been made available under an Open Content Licence (especially Creative Commons Licences), you may exercise further usage rights as specified in the indicated licence.

WWW.ECONSTOR.EU

Mitglied der Leibniz-Gemeinschaft

EUROPEAN
INVESTMENT
FUND

The Performance and Prospects of European Venture Capital

Roger Kelly

Working Paper 2011/09
EIF Research & Market Analysis

Author

Roger Kelly, Research and Market Analysis, EIF.

Contact: r.kelly@eif.org
Tel.: +352 42 66 88 396

Editor

Helmut Kraemer-Eis, Head of EIF's Research & Market Analysis

Contact:
European Investment Fund
96, Blvd Konrad Adenauer, L-2968 Luxembourg
Tel.: +352 42 66 88 1
Fax: +352 42 66 88 280
www.eif.org

Luxembourg, May 2011

Disclaimer:

The information in this working paper does not constitute the provision of investment, legal, or tax advice. Any views expressed reflect the current views of the author(s), which do not necessarily correspond to the opinions of the European Investment Fund or the European Investment Bank Group. Opinions expressed may change without notice. Opinions expressed may differ from views set out in other documents, including other research published by the EIF. The information in this working paper is provided for informational purposes only and without any obligation. No warranty or representation is made as to the correctness, completeness and accuracy of the information given or the assessments made.

Reproduction is authorized, except for commercial purposes, provided the source is acknowledged.

Abstract

This paper takes a critical look at possible explanations for poor European venture capital performance over the past two decades. Various supply-side hypotheses are discussed, including arguments relating to insufficient investment, investment in the wrong markets, exit difficulties due to fragmented exit markets, and fundraising difficulties arising due to differing regulatory regimes. In addition, a number of demand side issues, which have been used to suggest that Europe has a weaker entrepreneurial culture than the US, are scrutinized. The paper concludes that a number of these factors are likely to be responsible for the poor performance, and these factors can be summarised by the argument that within Europe, venture capital has not reached a critical mass, which is required for the industry to be self-sustaining and experience healthy returns. However, there is something of a catch-22 situation in this regard, as in order to achieve critical mass the industry needs to be positioned within an enabling venture capital ecosystem, which needs to evolve over time. On this basis, government interventions alone can only be of limited use in developing the venture capital industry. That said, there are some signs of venture capital ecosystems emerging in certain European regions.

Table of contents

1 Introduction 5
2 Data 5
3 The VC cycle 6
3.1 Investment 7
3.2 Divestment 12
3.3 Fundraising 14
4 The demand side 15
5 Critical Mass 16
6 Ecosystems 17
7 Conclusion 18

Annex: List of Acronyms 20
References 21

About … 22
… the European Investment Fund 22
… EIF's Research & Market Analysis 22
… this Working Paper series 22

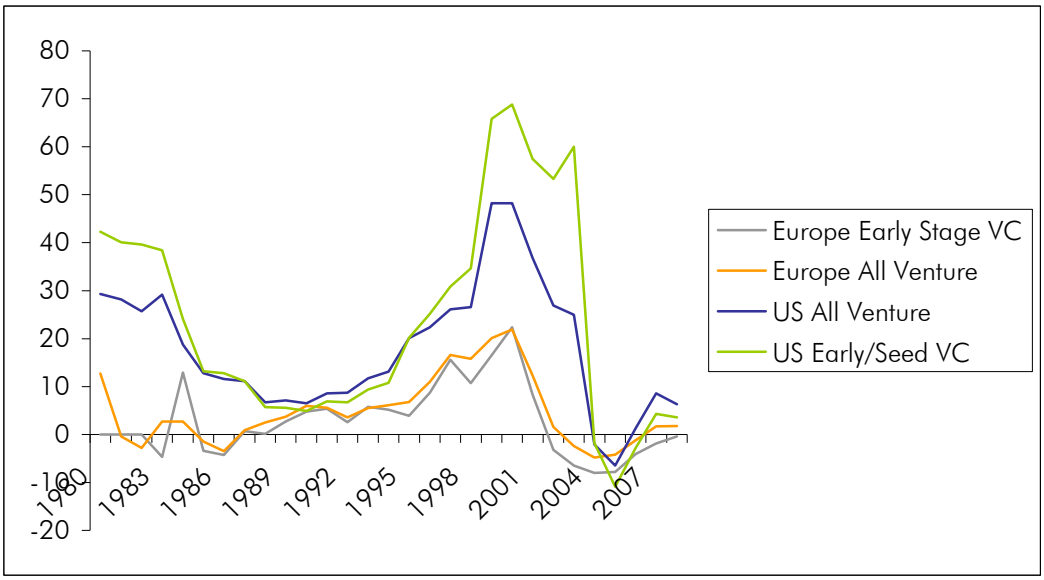
1 Introduction

Most vintages of European venture capital (VC) have performed poorly compared not only to private equity more generally, but also compared to other asset classes, such as listed equity, raising questions as to why people continue to invest in the asset class, and if there are indications that suggest that returns are likely to be more risk-commensurate in future. It is not the purpose of this note to examine investment portfolio decisions that could stray into the field of behavioural economics[1]. Rather this note seeks to examine *why* performance has been poor. In this regard, a number of arguments have been put forward. We compare the performance of European venture to that of venture in the US, which is generally regarded as having been relatively successful over the cycle, in order to examine the plausibility of the various hypotheses that have been suggested to explain poor European venture performance. We start by looking at the pooled internal rates of return (IRR) of VC investments to get an idea of the magnitude of the issue, then look at various hypotheses which have been proposed. We then go on to discuss whether European venture capital has reached a 'critical mass', and furthermore whether an insufficiently developed European VC ecosystem is holding back performance, before concluding.

2 Data

From the chart below it is clear that the returns (pooled internal rate of return (IRR)) to European venture have been significantly weaker than those in the US across the economic cycle:

Figure 1: Europe versus US VC IRRs



Source: EVCA/NVCA

However, we must consider whether this difference is as big as it appears at first glance. We have to be careful when comparing Europe and the US because of definitional differences. The data in

[1] For example, one could analyse the decision to invest in venture capital within the framework of Regret Theory, in which the apparently irrational behaviour of selecting an investment which has a lower expected return can be rationalised on the basis that failing to invest in an opportunity which is subsequently successful incurs a greater disutility, or regret, than not investing in an opportunity that fails.

the above chart comes from the National Venture Capital Association (for the US) and the European Venture Capital Association (for Europe). However, investment is about risk-reward trade offs, and the risk-reward profile of venture capital is not uniform across all sub-categories. Generally speaking, the earlier the stage, the riskier the investment, but the greater the potential payoff in case of success. This means that the tails of the return probability distribution become fatter (in technical terms, they exhibit higher kurtosis compared to the normal distribution; this is similar to saying they have larger standard deviations) the earlier the investment stage, in other words there is a higher probability of extreme (positive and negative) returns. If the European and US venture industries both had the same structure (i.e. both invested in the various stages of venture in equal proportions) they would have the same return probability distribution, and we would be comparing like with like. If not, performance differences should be expected. We refer to this in more depth below.

The reason for this digression is not to attempt to show that either the US or Europe have a more early or late-stage bias to their venture investing activities, merely to make the point that one has to be cautious in making comparisons; the difference may not be as large as it appears (or indeed it could be larger). However, there is certainly a difference, and so we need to investigate more closely the reasons why venture performance has been weaker in Europe than in the US. This requires one to look into the details of the venture capital cycle.

3 The VC cycle

With this caveat in mind, we can go back to basics and consider the mechanics of what makes a venture capital fund successful. It is quite simple; a VC fund needs to go on the road to raise funds, invest them in a selection of carefully chosen high growth companies, then exit the companies in a timely fashion in order to maximise the IRR. Any differences in performance across countries or regions will be due to differences in one or more of these steps. Of course, along the way the agency problem[2] between the owner of the portfolio company, the general partners (GP) and the limited partners (LP) needs to be managed by an appropriate system of incentivisation, but given that venture capital is a global activity, there should be little opportunity for this incentivisation system to break down, this is evidenced by the remarkably similar reward structures used across the industry.

In this section we examine each of these stages in turn for the two regions, and examine the plausibility of various hypotheses that have been put forward in this area to explain poor European venture performance.

[2] In this context, the agency problem refers to the conflict between the interests of the different parties.

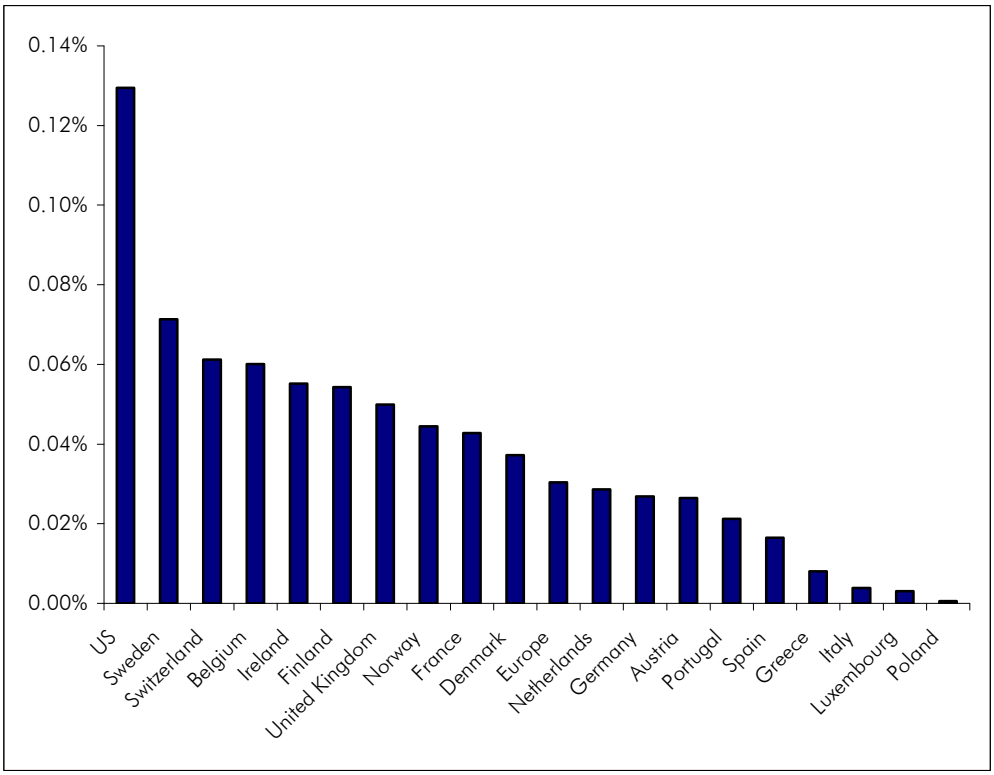
3.1 Investment

We start with the investment stage, as it is here that most arguments explaining the poor performance of European VC seem to be advanced. We examine these arguments in turn.

Hypothesis 1: Insufficient VC investment in Europe

It seems strange to think that insufficient investment would be a reason for poor performance, particularly when one considers that at the buyout end of the scale *too much* money chasing too few goods is what causes poor performance as funds end up paying too much for portfolio investments. However, it has been argued that insufficient investment has caused performance to be poor. The following chart shows that VC investment as a share of GDP is lower in Europe than in the US:

Figure 2: Venture capital investment as a share of GDP (2009)



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

The above chart indicates that Europe's investment as a share of GDP is only around 25% of that of the US. And although there is clearly some diversity across European countries, even the European country with the greatest investment as a share of GDP in 2009 (Sweden) manages only half the rate of the US.

Of course, one cannot ignore the fact that investment may be low because fundraising is low. In order for VC-backed firms to reach their potential (and thus provide good returns for the industry more generally) they may need multiple rounds of funding. VC Funds may be put off financing earlier stage ventures if there is a risk that they will not be able to see the investment through the multiple rounds required due to difficulties fundraising. We return to the question of fundraising below.

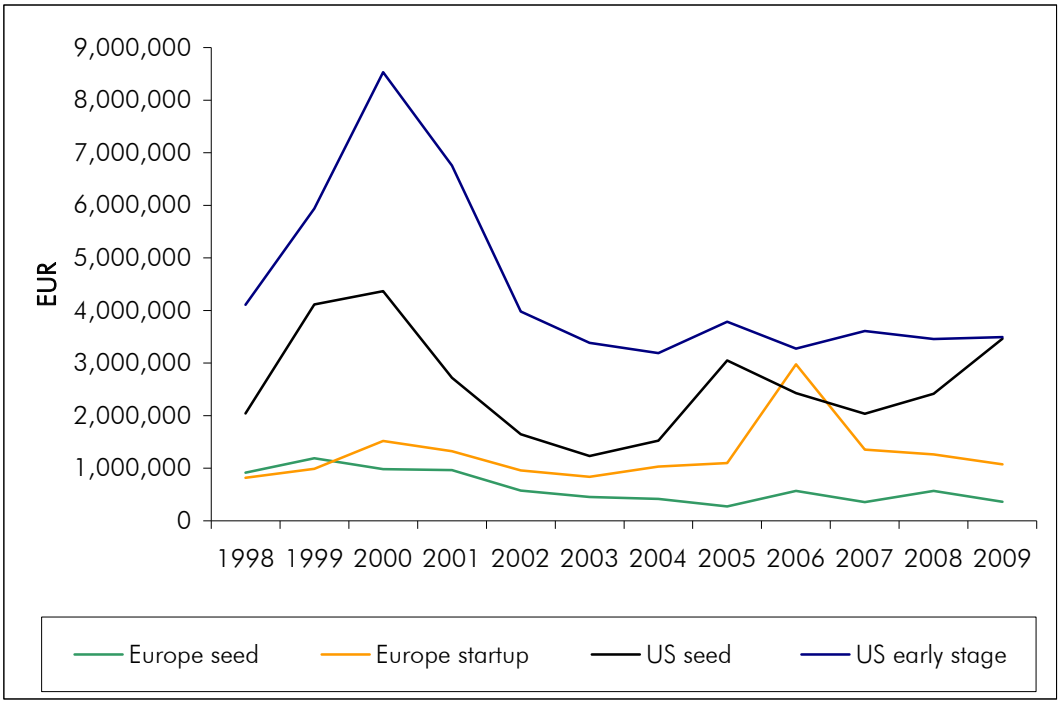
There is a further possible explanation for low investment in Europe, and this is the limited syndication possibilities that are available. The term European venture capital is used purely for convenience: in reality, venture capital is not really pan-European, it is organised along country (or sometimes regional) lines. As such venture capital is not particularly mobile in Europe, meaning that the already limited syndication possibilities are reduced still further compared to the US.

Overall, As far as this hypothesis goes, it is clear that there is a correlation between performance and investment as a share of GDP, but we cannot as yet say that there is causality.

Hypothesis 2: Available funding is spread too thinly

Studies, e.g. Clarysse and Heirman (2007), show that VC backed firms which receive too little money perform much worse than innovative companies that try to develop their business model without VC involvement; thus insufficient availability of funds clearly impacts overall VC performance. Without undertaking a survey it is difficult to establish whether VC backed firms in Europe have received 'too little' money. However, we can examine whether funding is spread more thinly in Europe than in the US by looking at average amounts invested by company. We find that although European funds invest much less in aggregate than in the US, they support nearly twice as many companies. This is clearly demonstrated in the chart below:

Figure 3: Average venture investment per investee company in US and Europe



Source: EVCA/NVCA

It seems that this hypothesis may be grounded in fact: it holds from an empirical perspective, and is theoretically persuasive.

Hypothesis 3: Insufficient diversification in European VC managers' portfolios

One could argue that the portfolios of fund managers in Europe are insufficiently diversified, compared to those of their US counterparts, which may only partly be due to their smaller size. Fund managers need to have sufficient funds and be sufficiently diversified in order that they can allocate further resources to successful investments, and be able to exit bad investments in a timely fashion – to avoid throwing good money after bad. This argument is closely linked to the two previous hypotheses – unfortunately it is difficult to say whether the inadequate diversification comes from a decision by the fund manager, or because the resources available are more limited.

Hypothesis 4: European VC managers have an inappropriate background

This argument relates to the relative origins of venture capitalists in Europe and the US. Again, it is hard to verify, but it is claimed that European venture capitalists more commonly have a background in finance, while US venture capitalists tend to be scientists and ex-entrepreneurs. The implication is that the lack of scientific expertise among European VCs means they are less able to identify investments with high potential, than their counterparts in the US. Bottazzi, Da Rin and Hellman (2004) undertake a survey of European VC and note that '*What may come as a surprise is that less than a third (of VC partners) actually has a science or engineering education*.' They also note that nearly half of all partners in their survey have some professional experience in the financial sector, and about 40% has some experience in the corporate sector.

Hege, Palomino and Schweinbacher (2009) observe that US VCs are often more specialized, and note that there is evidence that US venture capitalists are more sophisticated than their European counterparts, which contributes to the explanation for the difference in performance. Of course, it must be borne in mind that the European VC industry is younger than the US industry, and has yet to reach maturity. Nonetheless, the finding is significant.

There is another reason, which is not commonly stated, why the difference in background may be important. If, in the US, a credible fund manager (meaning one that can successfully raise funds from investors across the economic cycle) needs an entrepreneurial or scientific/engineering background, this acts as a barrier to entry to the industry. Of course, that is not to say that in Europe, there is no barrier to entry, but there are many more individuals with backgrounds in finance than in science or engineering, so the barrier to entry is lower, and raising a fund may be easier because one simply needs to tap one's networks of ex-colleagues for money. Why is this important? Of course, there is the argument that ex-entrepreneurs understand better what it is to be an entrepreneur, and are better placed to advise them. However, there is more to it than this. Barriers to entry help moderate bubbles. In the case of VC, making entry difficult means that funds cannot flow into the industry as quickly in an upturn, which in turn helps prevent the bubble inflating in the classic case of too much money chasing too few goods. So potential returns are not competed away.

We can investigate in a crude manner the extent to which there are barriers to entry by looking at the deviation of investment activity from the mean in each region. A higher coefficient of variation (mean divided by standard deviation) suggests more volatility, which in turn suggests higher entry and exit in the industry, and as such lower barriers to entry. The table below shows that overall the

coefficient of variation is higher in Europe, and only in the case of seed stage is it below that of the US.

Table 1: Barriers to entry - coefficients of variation

	Europe	US
Seed	2.11	2.26
Start Up	2.52	1.98
Later Stage	3.31	2.11
Total	3.17	2.61

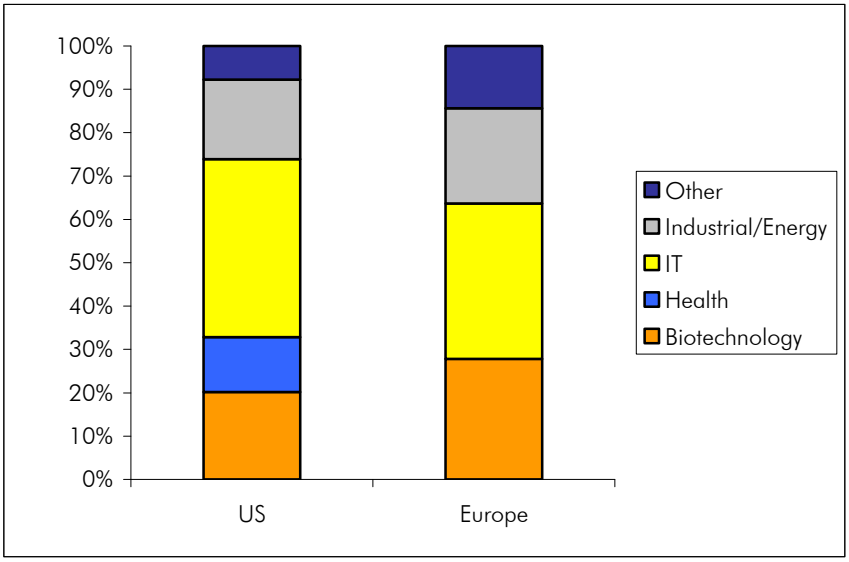
Source: EVCA/NVCA (2009); author's own calculations

The idea that European and US VC managers have different backgrounds, and that this might be a reason for differing performance, has been proposed in the past but never tested. Associating the hypothesis with the idea of barriers to entry gives us a testable assertion, and there seems to be some truth to it. All that said, there are a number of other factors that could be relevant, so it may be something of a leap of faith to directy associate these two factors. Indeed, although hard to measure, most people would question whether bubbles (e.g. internet, cleantech) were any less inflated in the US than in Europe.

Hypothesis 5: European VC managers are targeting the wrong sectors, and have insufficient focus

It is significant that almost 75% of US venture capital is concentrated in two sectors: IT and biotech/health (see chart below). There is much less concentration in European VC, which may reflect the lack of specific industry background among European VC managers, referred to above – the notion in Europe that VC investment is a financial activity, more than an operational activity. A focus on the IT and biotech/health sectors may bring higher performance, but this may only be possible if VC fund managers have expertise in these areas.

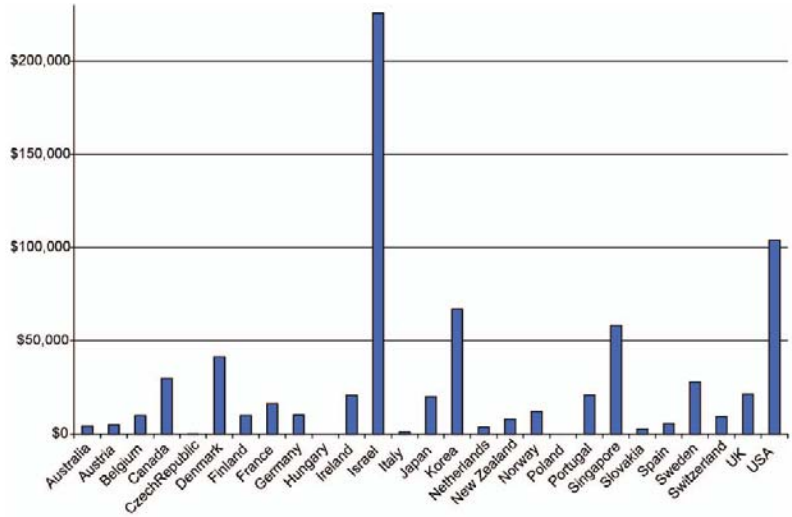
Figure 4: Europe/US VC sector focus (2009)



Source: EVCA/NVCA

The ratio of venture investment to the number of scientific publications can provide an indication of the relative scientific focus of Europe compared to the US. The figure below indicates that Israel is a stand-out leader in this regard, and that the US is far above any European countries. Alone, the empirical verification of this hypothesis does not tell us much as it does not indicate causality, but combined with the findings of hypothesis 4 it seems to provide some further evidence that European VC might perform better if it were to specialize more with regard to market segments and technology sectors.

Figure 5: Venture investment relative to scientific publications

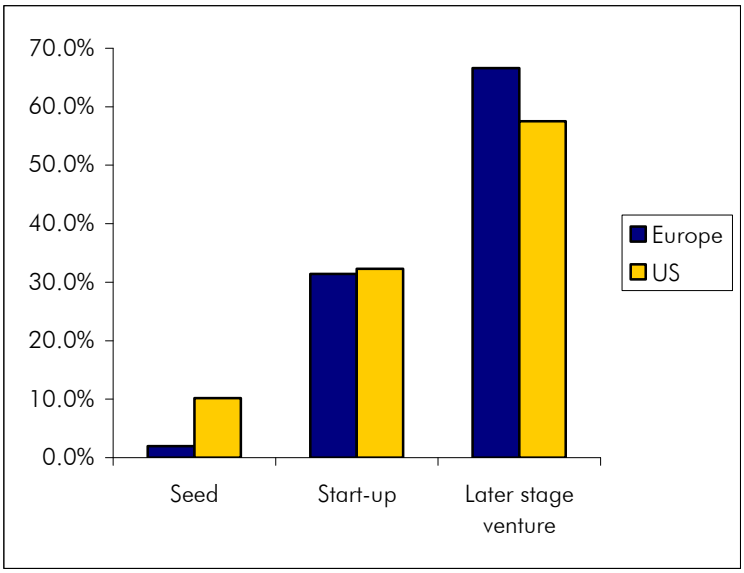


Source: Lerner and Watson (2008).

Hypothesis 6: European VC managers are targeting the wrong investment stages

One final possible difference on the investment side is the investment stage targeted. The chart below takes an average for the past 5 years to show the investment stages targeted by European and US investors.

Figure 6: Investment share at different VC stages, Europe and US (2009)



Source: EVCA, NVCA

At first glance, the differences don't look that significant. However, it's clear that US investors have been more willing to invest in the early stages than their European counterparts. In the first part of this note we discussed the issue of differing risk-return trade-offs among different stages of venture investment, and mentioned that the tails of the return probability distribution become fatter the earlier the investment stage, in other words there is a higher probability of extreme (positive and negative) returns. According to finance theory, higher volatility should translate into higher average returns. So whilst US investors have been more willing to invest in seed stage investments, European investors have preferred later stage, a safer option, but one providing less scope for outperformance. Indeed, this is in line with the performance which was shown in figure 1; the US performance was far more volatile than that in Europe. Furthermore - and this ties in with the higher fund sizes in the US, and the fact that US funds tend to be more diversified - in the US managers can be more selective and disciplined, allowing them the scope to recognise and abandon poor investments early on, and invest more in 'winners'. Is this hypothesis convincing? Perhaps – higher average returns would certainly be expected in the US - but we cannot ignore the fact that even in the downturns, US VC has at worst only done as badly as European, suggesting that there is more at stake here than purely portfolio considerations.

3.2 Divestment

Hypothesis 7: European exit markets are too fragmented

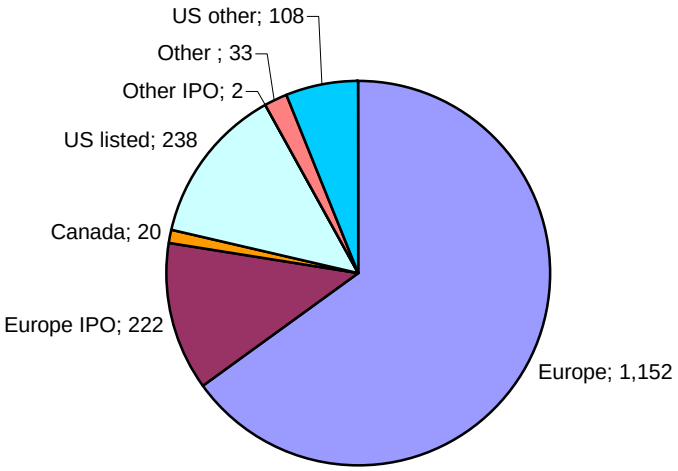
One of the key claims for the weaker performance of the European VC market is that investors are reluctant to invest due to poorly developed exit markets: it is well known that having a viable exit route is a key consideration to an investor. It is claimed that the problem in Europe is that exit markets are too fragmented, there is no single small cap market facilitating exit, along the lines of NASDAQ. While there are several small cap markets in Europe, individually they lack the liquidity that is associated with a unified market, making exit more difficult. Is this an issue? It is useful to look into the nature of European exits in more depth in order to see how important this is. Using data from VentureSource, we examine a sample of VC fund portfolio companies incorporated in Europe, which were divested during the period 2005-2009. The sample period was selected in order that it would be long enough to provide a representative sample of exits (in so far as it is possible to select any period that can really be considered representative when talking about venture capital), recognising that exit methods are likely to differ over the economic cycle (for example during expansionary periods, there are likely to be more exits via IPO).

We avoid the risk of sample selection bias by excluding exits through write-off; had we not done so, the analysis would have been biased due to the tendency to under-report write-offs. Thus the results, shown in the chart below, should be representative of the overall market.

According to the sample, there were 1,775 European-incorporated portfolio companies divested by VC funds over the period 2005-2009 by means other than write-off (see figure 7). There is an important caveat that has to be included here - although these exits were not write-offs, we cannot say what returns were made – it is possible that some could be classified as 'quasi write-offs', i.e. not written off in a technical sense, but achieving a negative return. By means of comparison, in the EIF's portfolio over the same period, there were 523 exits achieving positive returns.

The first thing to note is that of the 1,775 exits, 224 were IPOs, and of these 224, only 2 were IPOs onto non-European exchanges (NASDAQ in both cases).

Figure 7: Destinations of European exits



Source: VentureSource

1,152 portfolio companies exited via sales to Europe-based companies; 108 exited via trade sales to US based companies which are not publicly listed; 240 exited to publicly-listed US companies (2 IPO'd directly to NASDAQ). The most significant non-US exit destination was Canada, with 20 investments being sold to companies listed on the Toronto Stock Exchange. Finally, 33 were sold to companies listed on 'other' stock exchanges, or incorporated in other countries, of which the most significant were India and Japan.

It is true that the fragmentation of the various exchanges restricts liquidity and consequently in theory may make listing in Europe less attractive. However, the results do not seem to indicate that this is a particular issue. Although trade sales remain the most important exit route, IPOs were still a significant exit route, accounting for around 13% of the dataset, and of these the overwhelming majority were on exchanges in Europe. Furthermore, given that the possibility of exit via NASDAQ exists for European companies, that it was so infrequently used suggests that it is some other reason for which European VC portfolio companies do not tend to IPO as much as US VC portfolio companies. After all, many European portfolio companies end up being acquired through trade sales by US listed companies.

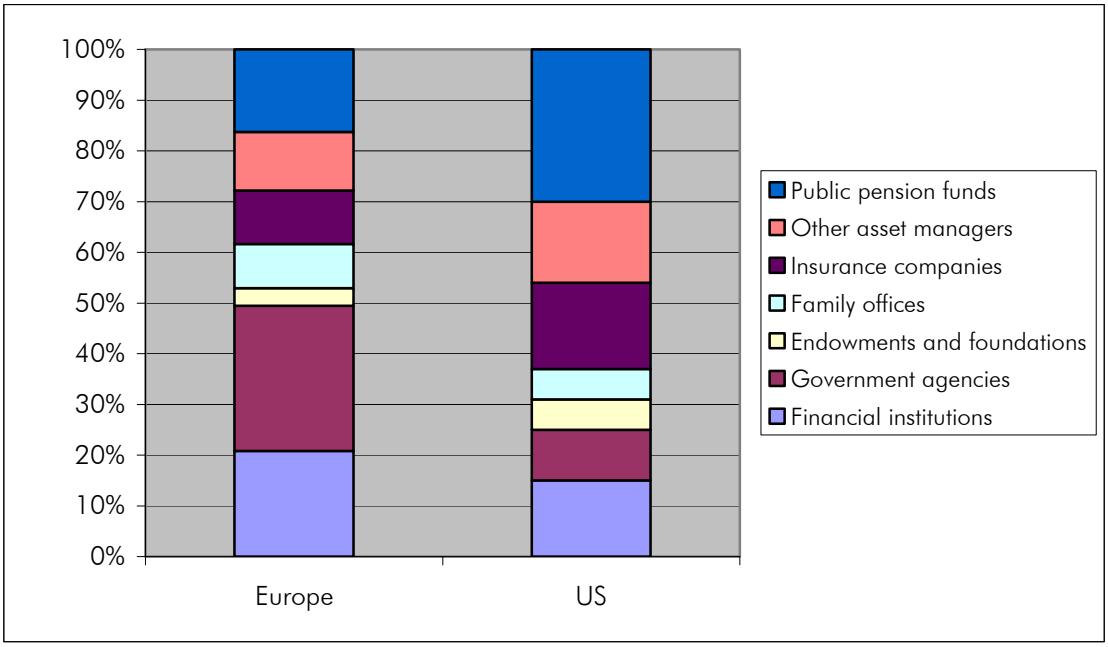
This hypothesis may indirectly explain some of the weaker performance of European VC, although only indirectly, in so far as it discourages investment (i.e. the impact is seen through the impact on investment activity). There is no real evidence that portfolio companies have suffered directly due to fragmented exit markets.

3.3 Fundraising

Hypothesis 8: Pension fund regulations and practices limit European access to funds

We already saw earlier that investment activity is a smaller share of GDP in Europe than it is in the US. Of course this could be because funds are available but there is a market failure in matching funds to suitable projects. However, it is equally (more?) likely that this reflects lower fundraising in the industry. So what is holding back European fundraising? The chart below shows sources of funds in Europe and the US.

Figure 8: Sources of VC funds Europe vs. US (2009)



Source: EVCA/Boston Consulting Group

One striking thing to note is that pension funds are a far more important source of funds in the US than in Europe. Pension funds are huge potential providers of funds to the industry in those countries which operate contributory schemes[3], which are faced with large amounts of money to invest over long periods. This is the case for the US; however in Europe it is only really the UK the Netherlands and Sweden that operate such schemes; most other European countries rely on government schemes, at least at the present time.

The importance of pension funds for VC investment in the US has been directly impacted by changes in regulations, including the relaxation of the "prudent man" rule, which allowed them to invest up to 15% of their assets in riskier investments, and the safe harbour rule in 1980, which resulted in pension funds becoming the largest source of VC funding in the US. The liquidity of VC investments was further increased by the Financial Modernisation Act, which allowed banks, insurance companies and securities firms to affiliate and sell each others' investment products.

[3] Under contributory pension schemes, contributions are paid into a fund by employers and/or employees, and the funds are invested, as opposed to government schemes in which essentially current workers pay the pensions of retired people – i.e. there are no funds to invest as such.

Endowments have been critical in the development of the VC industry in the US: they tended to invest in innovations created in their own universities, so had close links to technology development, and as such were able to identify investments with potential for success more easily.

By contrast, European VC relies much more on funds from government agencies. A number of studies have shown that purely from a performance perspective, the track record of the public sector as a direct investor is weak (see for example Lerner, 2009), largely due to the pursuit of other non-financial objectives with their investing. Profit maximisation is not necessarily the goal of public sector investment in the US or Europe[4]; on this basis, as a higher proportion of public sector funds is going into VC in Europe, one might expect overall VC performance figures to be lower.

Overall, it is certainly true that US funds have more sources of funding available to them, principally due to the relatively more common use of contributory pension schemes in the US. And venture capital investment seems to be far more commonplace among institutional investors in the US. However, there is another hypothesis (Meyer, 2010) which suggests that the importance of pensions to the US VC industry is a temporary phenomenon, that they followed endowments, foundations and family offices into the market at the end of the 1990s, and helped inflate the dot.com bubble. Furthermore, it has been argued that the US picture is distorted by the politically-motivated (due to their proximity to Silicon Valley) investments of the large Californian pension schemes, including CALPERS and CALSTRS.

4 The demand side

Hypothesis 9: The problem is on the demand side

Rather than being a supply side issue, it could be that the problem is on the demand side, namely that there are simply less quality entrepreneurial ideas being generated in Europe. Clarysse, Knockaert and Wright (2009) suggest that part of the reason for the success of the Israeli venture capital industry is because of the nature of the human capital: the influx of highly qualified immigrants resulted in a high incidence of entrepreneurship and as a result provided a healthy demand for venture capital. On the basis of this argument, it may be that the supply side issues outlined above, such as lack of exit markets, is a red herring: the low levels of liquidity arose simply because there was not the demand for IPO because there are few high tech companies ready to be taken to market. Along the same lines, it may be that risk aversion among Europeans means that there is a preference to take the money in a trade sale rather than taking a risk on an IPO.

[4] However, it cannot be ignored that public sector investment may have an indirect positive impact by crowding in private sector investors.

More specifically, on the demand side, we encounter issues such as

- Barriers to entrepreneurship – delays, fixed costs, labour markets
- Bankruptcy – legal and psychological issues. There is still a strong stigma attached to bankruptcy in most European countries, whereas in the US, particularly in Silicon Valley, it is something of a badge of honour – the idea that it is better to have tried and failed than not to have tried at all is prevalent, and it allows entrepreneurs a second chance. Of course, in Europe, this stigma is cultivated by legal issues that penalise bankrupts heavily – for example, barring them from becoming company directors in certain countries. And debt discharge in personal bankruptcy remains a big issue, which can put many potential entrepreneurs off.
- Taxation regimes, in particular capital gains taxation, are an issue and favour certain countries over others.
- Becoming an entrepreneur is not regarded as a career in Europe – cultural attitudes are such that higher education and training tends to be focused on traditional areas and there is little in the way of encouragement, advice or support for those who wish to pursue their own ideas.

These arguments are all convincing from a theoretical perspective, and reflect the perception of the US being a dynamic entrepreneurial economy, while Europe is more rigid, and not as investor- or entrepreneur-friendly. Although Europe is trying to address some of these demand side issues, e.g. through the Small Business Act (SBA)[5], this will not happen overnight.

5 Critical Mass

Hypothesis 10: European venture capital lacks critical mass

Many of the above arguments can be summarised by saying that unlike in the US, VC in Europe has failed to reach critical mass. The basis of this argument is that the venture capital industry needs to reach a certain 'critical mass' before it can be self-sustaining and can provide higher returns. Unfortunately, the concept of 'critical mass' is conceptual rather than tangible; it is not possible to quantify what constitutes critical mass. However, it could encompass ideas such as the availability of sufficient funds so that investments are not avoided due to questions of fund availability for multiple investment rounds, without requiring access to public funds; this has implications on both the fundraising and investment side.

The concept of critical mass is complicated by the fact that we cannot really refer to reaching critical mass in a country, region or continent: rather it is in terms of an individual cluster. For example, there are a number of venture capital clusters in the US, including Silicon Valley and Boston, Massachussets which we could say have reached critical mass. But we cannot refer to the

[5] The SBA Review seeks to strengthen the competitiveness of European SMEs, outlined in a list of new proposed actions "to present an action plan for improving SMEs' access to finance, including access to venture capital markets (…)" and to "explore options for setting up an intellectual property rights valorisation instrument at the European level, in particular to ease SMEs' access to the knowledge market." European Commission (2011).

US as a whole as having reached critical mass; in the same way we cannot really refer to a European VC industry in the singular: European VC operates at country and regional level; a number of clusters have emerged such as Silicon Fen, based around Cambridge, but we would be hard pushed to say that any of these clusters have reached critical mass, and this holds back performance[6].

The concept of critical mass has been important in encouraging government involvement in venture capital funds. And while the problems associated with a number of government-supported schemes are well documented (see for example Nightingale et. al., 2009), the idea that volumes of funds are required was a key idea behind the creation of a number of publicly-backed funds such as the UKFTF. The latter tried to avoid the agency problem of publicly-managed of funds by getting professional VC funds to manage the funds.

The concept of critical mass also supports the finding of persistence in performance in the private equity industry: it is something of a virtuous circle. Successful funds tend to be oversubscribed, meaning that they do not tend to face funding restrictions (within reason); this allows them to raise larger funds, which in turn is more likely to improve the performance of their funds[7]. The finding of persistence in performance between subsequent funds is well documented by a number of authors (see for example Kaplan and Schoar, 2005).

6 Ecosystems

Hypothesis 11: European VC does not have critical mass because Europe lacks a venture capital ecosystem

This is the most convincing argument, not least because it encompasses all the above factors. Performance will be affected by both supply and demand side factors, and the two will act in concert to make a successful VC industry. A number of researchers and practitioners (see Clarysse, Knockaert and Wright, 2009, for example) have suggested that successful venture capital investing occurs within an ecosystem. Indeed, the idea that ecosystems might be important is evidenced by findings (see Hege, Palomino, and Schweinbacher, 2009) that show that US venture funds investing in Europe do not perform better than their peers.

The ecosystem refers to many things. On the one hand, it refers to the geographical proximity of VC funds to other funds with which they can co-invest, and the presence of experienced, skilled legal and financial advisers. Even in the current advanced era of communications, physical presence can be important, and can help sustain active networks. The involvement of corporates and strategic investors is also important: the strong ties between corporates and the VC community in the US is held to account for the much greater amounts realised in trade sales; in Europe corporate involvement until recently has tended to be limited to corporate venturing. In other words, it is not just stock markets that are fragmented in Europe, it is also M&A markets. With this in mind it is no surprise that clusters of VC have grown up in the US, for example in

[6] That the UK has not reached a critical mass is suggested by Clarysse, Knockaert and Wright (2009).

[7] We should also note that larger funds may allow for more diversification, in line with the argument made in hypothesis 3.

Massachusetts and California, where entrepreneurs and venture capitalists are in abundance, and frequently meet to share experience, and in the case of the latter, develop networks of co-investors. To some extent this is also true in parts of the UK, for example Silicon Fen. But the latter is an exception in Europe, rather than the rule. That said, we are seeing encouraging signs in Europe, for example with the development of Medicon Valley in Denmark/southern Sweden, the Heidelberg cluster and others.

In addition to microeconomic factors governing the supply and demand side, the ecosystem can also refer to broader macroeconomic factors which can drive both supply and demand for venture capital, and help determine whether it can reach a critical mass. From this perspective, other things equal, VC funds in countries with higher growth rates are likely to show better performance; without any action on the fund manager's part, their portfolio companies will on average perform better than those in countries with lower growth rates. Of course the caveat 'other things equal' is key here. It is not terribly useful from a policy perspective to know that macroeconomic differences impact VC fund performance; it is not terribly constructive to suggest that a country need only double its GDP growth rate to achieve a commensurate increase in VC fund performance. However, policy can influence (to a degree) structural (microeconomic) differences, in other words differences in financial ecosystems, which are key to differing VC performance between countries.

7 Conclusion

European venture capital has performed poorly over its history. By comparing to the US, a naïve conclusion might be that European venture performance would have been better had investment been undertaken in greater volumes, with more of a focus on early stage, and more of a sectoral/technical focus. However, correlation does not indicate causality. It is likely that the industry has not reached a critical mass, because it is fragmented due to operating across a number of countries with different legal and regulatory regimes which makes cross-border investment more complicated. It is also likely that the industry does not operate within as conducive an ecosystem as that which exists in certain parts of the US; this also impacts the demand side, which has often been overlooked in research in this area. For these reasons, government policy to develop VC industries that has focused purely on volumes has often been unsuccessful.

Of course, the difficulty is that an ecosystem cannot be created – witness the attempts to 'introduce' venture capital to Australia and New Zealand – it must evolve. The question is one of causality – does the industry need to achieve a certain critical mass for an ecosystem to develop, or does the ecosystem need to have already evolved in order for critical mass (and successful performance) to be achieved? This cannot easily be tested for the US due to the vague definitions of these two concepts, and this is the challenge that policymakers face in attempting to improve European VC performance.

Partly in recognition of this challenge, the commitments of the Innovation Union as regards the EU focus on developing instruments that ensure a high leverage effect, efficient management and

simple access for business, rather than adopting a pure volume-based approach. Moreover, the European Council's proposal for "putting in place an EU-wide venture capital scheme building on the EIF and other relevant financial institutions and in cooperation with national operators" (European Council, 2011) recognizes that the best way forward is to work on the overall environment, and having one coordinating European institution which cooperates with national operators.

In this context, it is also a key priority for the EIF to help establish a well functioning, liquid VC market that attracts a wide range of private sector investors, and develop new and pioneering financing instruments in order to reach to parts of the market currently not accessible through EIF's existing instruments. The objective is to leverage EIF's activity and seize market opportunities in all areas of the VC eco-system which are relevant for the sustainable development of the industry.

Annex: List of Acronyms

CALPERS:	California Public Employees' Retirement System
CALSTRS:	California State Teachers' Retirement System
EVCA:	European Private Equity and Venture Capital Association
GDP:	Gross Domestic Product
GP:	General Partner
IRR:	Internal Rate of Return
LP:	Limited Partner
NVCA:	National Venture Capital Association
SBA:	Small Business Act
UKFTF:	UK Future Technologies Fund
VC:	Venture Capital

References

- Bottazzi, L., Da Rin, M., and Hellman, T. (2004). The Changing Face of the European Venture Capital Industry: Facts and Analysis.
- Clarysse, B. and Heirman, A. (2007). The Impact of VC on the Growth of Firms.
- Clarysse, B., Knockaert, M., and Wright, M. (2009). Benchmarking UK venture capital to the US and Israel. www.bvca.co.uk.
- European Commission (2011). MEMO/11/109, dated 23.02.2011.
- European Council (2011). EUCO 2/1/11 REV1, CO EUR 2 CONCL 1, dated 08.03.2011.
- Hege, T., Palomino, F., and Schweinbacher, A. (2009). Venture Capital Performance: the Disparity between Europe and the United States.
- Kaplan, S. and Schoar, A. (2005). Private equity performance: returns, persistence and capital flows, *Journal of Finance*, 60.
- Lerner, J. (2009). Boulevard of Broken Dreams. Princeton University Press.
- Lerner, J., and Watson, B. (2008). The public venture capital challenge: The Australian case.
- Meyer, T. (2010). Who invests in venture capital funds? *Mimeo*.
- Nightingale, P., Murray, G., Cowling, M., Baden-Fuller, C., Mason, C., Siepel, J., Hopkins, M., and Danreuther, C. (2009). From Funding Gaps to Thin Markets: UK Government Support for Early-Stage Venture Capital. www.bvca.co.uk.

About …

… the European Investment Fund

The European Investment Fund (EIF) is the European body specialised in small and medium sized enterprise (SME) risk financing. The EIF is part of the European Investment Bank group and has a unique combination of public and private shareholders. It is owned by the EIB (61.2%), the European Union - through the European Commission (30%) and a number (28 from 16 countries) of public and private financial institutions (8.8%).

The EIF supports high growth innovative SMEs by means of equity (venture capital and private equity) and guarantees instruments through a diverse array of financial institutions using either its own funds, or those available through mandates given by EIB (the Risk Capital Mandate or RCM), the EU (the Competitiveness and Innovation Framework Programme or CIP), Member States or other third parties.

Complementing the EIB product offering, the EIF has a crucial role to play throughout the value chain of enterprise creation, from the early stages of intellectual property development and licensing to mid and later stage SMEs.

End 2010, EIF had invested in some 350 venture capital and growth funds with net commitments of over EUR 5.4bn. At end 2010, the EIF net guarantee portfolio amounted to over EUR 14.7bn in some 190 operations.

The EIF fosters EU objectives in support of innovation, research and regional development, entrepreneurship, growth, and job creation.

… EIF's Research & Market Analysis

Research & Market Analysis (RMA) supports EIF's strategic decision-making, product development and mandate management processes through applied research and market analyses. RMA works as internal advisor, participates in international fora and maintains liaison with many organisations and institutions.

… this Working Paper series

The EIF Working Papers are designed to make available to a wider readership selected topics and studies in relation to EIF´s business. The Working Papers are edited by EIF´s Research & Market Analysis and are typically authored or co-authored by EIF staff. The Working Papers are usually available only in English and distributed only in electronic form (pdf).

EIF Working Papers

2009/001 *Microfinance in Europe – A market overview.*
November 2009.

2009/002 *Financing Technology Transfer.*
December 2009.

2010/003 *Private Equity Market in Europe – Rise of a new cycle or tail of the recession?*
February 2010.

2010/004 *Private Equity and Venture Capital Indicators – A research of EU-27 Private Equity and Venture Capital Markets. April 2010.*

2010/005 *Private Equity Market Outlook.*
May 2010.

2010/006 *Drivers of Private Equity Investment activity. Are Buyout and Venture investors really so different?* August 2010

2010/007 *SME Loan Securitisation – an important tool to support European SME lending.* October 2010.

2010/008 *Impact of Legislation on Credit Risk – How different are the U.K. and Germany?* November 2010.

2011/009 *The Performance and Prospects of European Venture Capital.*
May 2011.