The development and performance of European private equity

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I. Introduction

Private equity represents one of the most interesting and important developments in the provision of capital to companies. Definitions of private equity vary, but in this paper we consider the entire asset class including early stage venture capital (VC), expansion financing and buy-outs.[1] Private equity consists of equity investments in companies that are not listed on a stock exchange. Although much attention has been focussed on VC, the impact of private equity on economic performance has arguably been greatest in the buy-out arena. Certainly, within Europe, the vast majority of the funds raised have been devoted to buy-outs.

In this paper we analyse the development of the European private equity sector: how it has grown, the distribution of investments, and the returns. From being a niche sector only a few years ago, the private equity sector within Europe has emerged from the shadows and is becoming increasingly the focus of attention. In part this is due to the sheer amount of capital being raised by the private equity sector. For instance, as we document later, a conservative estimate of new commitments made in 2005 to private equity funds investing in Europe is €60 billion. Buy-out funds attracted around three-quarters of this sum and, given the leverage that they use in

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[1] I will use the term buy-outs to refer to all later-stage deals, including management buy-outs, buy-ins, and public-to-private transactions.

acquisitions, this implies that private equity funds could make new investments of about €150 billion based on 2005 fundraising alone.

However, it is not just the scale of investment, but the fact that within Europe an increasing number of high-profile companies have attracted the attention of private equity funds, that has excited the interest of politicians and regulators alike. For instance, in Germany a leading politician branded private equity funds "locusts" in respect of their interest in German mid-sized companies. In somewhat more complimentary vein, the Economist[2] referred to private equity funds as "Capitalism's new kings". Not surprisingly, regulators are also starting to pay more attention to the sector, which in many European countries has enjoyed relatively low levels of regulation, and tax authorities have increasingly been looking at various details of the rules relating to private equity funds, such as thin capitalisation rules and the taxation of profits.

The notoriously secretive private equity firms themselves are starting to realise that greater transparency and disclosure – over important issues such as performance, fees, and even compensation – might be in their own self interest. Little is actually known about what private equity funds do, and how they add value.[3] Despite this, the growth of private equity has started to raise some fundamental questions about the traditional ownership and governance arrangements for public quoted companies. For instance, a recent survey[4] of European executive directors found that 70% of finance directors and 80% of chief executives and chairman were interested in a job in private equity. The survey suggested a perception that stock exchange listed companies are overly bureaucratic, and involve executives being constantly under the public microscope. Furthermore, private equity shareholders were viewed as more informed, more focussed on delivering returns, and more decisive.

There are, therefore, some fundamental questions that will form an interesting research agenda for the next few years. However, the aims of this paper are more

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[2] The Economist, 27 November 2004.

[3] For instance, Henry Kravis – founder of Kohlberg Kravis Roberts – one of the first and most successful private equity firms, is recently quoted as saying "Although we are private organisations, better understanding of how we create value is in our enlightened self-interest", Financial Times Fund Management, February 27, 2006, p.1

[4] The survey was conducted by the Financial Times and involved 160 executives. It was reported in the Financial Times on 19 September 2005, p. 23.

modest. Little is actually known about the growth of the European private equity market, how it is distributed across countries or types of investment, and how it has performed. This paper provides some evidence on all of these issues. But it also highlights the limitations of the available evidence and the challenges that researchers in this field face. The structure of the remainder of the paper is as follows. In the next section we briefly explain the key structural features of private equity funds. This is necessary to understand some of the later discussion regarding activity and performance. The extent and distribution of private equity funds within Europe is discussed in section III. In section IV we review some of the evidence on performance and highlight the problems currently faced in assessing how well this asset class performs. Section V concludes.

II. The structure of private equity funds

The private equity sector has a number of unusual features. Most funds are structured as limited partnerships with a fixed life (typically 10 years, although allowing for possible extension periods). The partnerships comprise the investors – typically pension funds, endowments, rich individuals etc. – who are the *limited partners* (LPs) and the *general partner* (GP), which will be the private equity fund. The GP and/or individuals working for the private equity fund, will normally contribute some of the capital to the fund, but the great majority of the funds will be provided by the LPs. The LPs commit money to the fund but the GP only draws down the funds as and when they identify investments. There is, therefore, a lag between the commitment of capital and investment.

For the vast majority of private equity funds that are structured as limited partnerships, the funds committed are only invested once. The private equity fund will make an investment in a company and will normally aim to exit the investment within 2-5 years. When they do exit – whether by sale to another company, IPO, or recapitalisation – the proceeds are immediately returned to investors; there is no re-investment. Therefore, although funds have a notional 10-year life, the duration of the investment from the viewpoint of the investor is much shorter than this. Furthermore, as we shall see in Section IV, one of the key performance measures of private equity funds is the internal rate of return calculated over the period that the funds are invested. Therefore, the private equity funds only ask for the committed capital as it is

required, and are keen to return the proceeds to investors as soon as possible after realisation. A further important implication of this structure is that the private equity organisations have to raise fresh capital on a regular basis. Reputation for having producing good returns is a key determinant of future successful fundraising.

Although most European private equity is invested via limited partnerships, there are some idiosyncrasies. For instance, some private equity funds are publicly quoted and do not return capital to investors upon realisation. Instead they pay dividends in the same way as other public companies. The leading example of such an entity is 3i, which is one of the largest private equity organisations in Europe (certainly by number of portfolio companies, if not capital under management).[5] Also in the UK there are currently over 100 *venture capital trusts* (VCTs), which are quoted investment vehicles focussing on smaller companies. Again, the development of these entities was encouraged by government, this time by the provision of generous tax-relief to individual investors.

However, despite these examples of alternative structures, it remains the case that the limited partnership is the main vehicle used within Europe for private equity investing. The fee structures observed in such partnerships are fairly similar across countries. Investors pay a management fee, which is a proportion of the *committed* capital (not the actual amount that is invested at any point in time). The management fee ranges from 1-3% p.a., with 2% being quite ubiquitous. Sometimes this fee reduces during the second half of the 10-year life of the limited partnership, as by this stage most of the capital should have been invested (and many of the management costs are associated with sourcing deals) and, indeed, some capital may already have been returned. In addition to the management fee investors also pay a profit share or *carried interest*, which is typically 20% of the net profits of the fund. There is little variation in this proportion across funds, although some funds charge up to 30% and some as little as 10%. In practice, therefore, a "2 and 20" remuneration structure is very common and similar to that observed in the other main "alternative" asset class, namely hedge funds.

[5] 3i was originally formed (as Investors in Industry) by the UK banks, with the encouragement of the government, to address the perceived "equity gap" facing UK small and medium sized companies. 3i went public in 1994 and currently has a market capitalisation of around £5 billion.

The impact of these fees on the net returns earned by limited partners is very significant. For instance, under plausible assumptions about the time profile of investments and realisations, a fund that returned a gross 25% internal rate of return (IRR) might only return around 18% to investors. These fees are clearly much higher than those observed on mutual funds that invest in public equity, and so expected private equity returns must consequently be significantly higher. We return in section IV to review the evidence as to whether this has been the case in Europe.

It is worth noting one final aspect of fund structure and incentives: given that the income of the private equity fund is a non-linear function of committed capital (management fees) and the absolute size of the profits earned by the fund (the carried interest), there is typically much more money to be earned from investing in large deals. This assumes, of course, that expected returns for both types of deal are similar. It also assumes that large investments do not incur proportionately higher costs than small deals, but this is certainly the case in practice. Indeed, smaller early-stage deals often involve much more prolonged and intensive input from the private equity fund than large later-stage buy-outs. The latter can certainly be complex to execute and involve a wide range of specialist advisors, but, in the case of successful deals, the costs of these are typically borne by the portfolio company being acquired.[6] But once acquired they may involve proportionately much less input from the private equity fund. Furthermore, as we shall discuss later, buy-outs can be leveraged using debt financing which significantly increases the expected size of the carried interest, and therefore the expected income of those sharing in the carried interest. All the economic incentives, therefore, tend to pull the most skilled private equity professionals towards the larger funds, which will tend to focus on buy-outs. Whether this results in higher returns earned on later stage funds depends on the competition for such deals. We look at the European evidence on the proportion of capital devoted to private equity by stage of investment in the next section, before looking at the out-turn returns in section IV.

[6] Private equity funds are particularly concerned about the transactions costs associated with deals that are not completed. In many cases they may ask advisors to work (either implicitly or explicitly) on a contingent basis, with only a proportion (if any) of the normal fees being charged in the case of deals that do not complete.

III. How significant is the European private equity sector?

In this section we document the development of the private equity sector within Europe in recent years. We start by looking at the overall quantity of private equity, and the distribution between VC and buy-outs. We then look briefly at who the investors are in European private equity. Since many of the later stage deals are highly leveraged we then look at trends in the use of debt financing. An interesting recent trend has been the coincidence of much higher levels of debt alongside increasing valuation multiples for European buy-outs. Finally in this section we provide some evidence on the distribution of private equity across selected European countries.

It should be noted at the outset that it is difficult to obtain primary data on the flows of money into and out of private equity funds, and, in particular, data on the returns (which we consider in the next section). Private equity funds are under no obligation to reveal such information to anyone other than their limited partners. This is a problem that applies equally in Europe and the US. Indeed, in the US there have been various attempts to make the investors associated with public pension funds or publicly funded universities to reveal their investments and their returns.[7] However, such attempts have generally only succeeded in obtaining aggregate information at the fund level, rather than the full detail of the cash flows into and out of the fund that researchers would require.

There are a few academic papers with this level of detail, such as Kaplan and Schoar (2005) which analyses US private equity returns using a survey of performance and fundraising conducted by Venture Economics. A recent paper by Mayer, Schoors and Yafeh (2005) provides some detailed information on sources of funds and investment activities for Germany and UK (along with Israel and Japan) for 1999/2000, but does provide information on performance. In this section we also make use of Venture Economics survey data as reported by the European Private Equity and Venture Capital Association (EVCA). However, since the underlying data has not been released we rely on the reported aggregate figures. To some extent the

[7] The first significant attempt was by Mercury News to obtain information from the California Public Employees' Retirement System (CalPERS). Information on the returns from their various private equity investments are published by CalPERS on their website, but only at the fund level. The identity, and performance, of the individual portfolio companies is not revealed.

analysis of this section provides an update to that of Bottazzi and Da Rin (2002) who, as well as analysing the extent of VC financing of recently listed European companies, looked at EVCA data up to 2000. In this section we consider the funds raised across all European countries over the last decade.

III.A How much European private equity?

Before presenting the evidence for Europe, it is worth noting a few important features of the data.[8] First, the EVCA data is derived from a survey of currently active PE firms investing in Europe, regardless of whether they are members of the EVCA or any national industry association. For the most recent survey 1600 eligible PE companies were identified, of which around 73% completed the questionnaire. Many PE companies would have more than one active fund, and so the latest sample includes information on approximately 2600 European focussed funds. The EVCA estimate that in terms of capital under management, the activity survey covers around 90% of the market.[9] Given this relatively high response rate no adjustments are made to the totals to account for non-responders. However, figures before 2000 did make such adjustments and the EVCA suggest that "caution should be exercised when making comparisons between pre-2000 figures and data from the last four surveys" (EVCA, 2005, p.307).

Second, it is worth noting that all the figures reported in this section relate to private equity investments within Europe, irrespective of the original source of the committed capital, a significant proportion of which will come from outside Europe (mainly US investors). Furthermore, later in the section where we analyse the distribution of private equity across European countries, activity can be designated according to the location of the office raising the money, or by the location of the portfolio company into which the investment is made. In general, the UK has a disproportionate share of the headquarters (or main offices) of private equity funds within Europe, and so judged by the "office" approach will typically appear to attract

[8] These details are derived from Chapter 20 of the EVCA (2005), which deals with methodology and definitions.

[9] It is important to note that the investment activity survey obtains a very much higher response rate than the performance survey that we will discuss in section IV.

a disproportionate share of the capital. However, much of this is invested in portfolio companies in other European countries, and it is important to distinguish between this "market" approach and the office approach to reporting activity when considering activity at the national level.

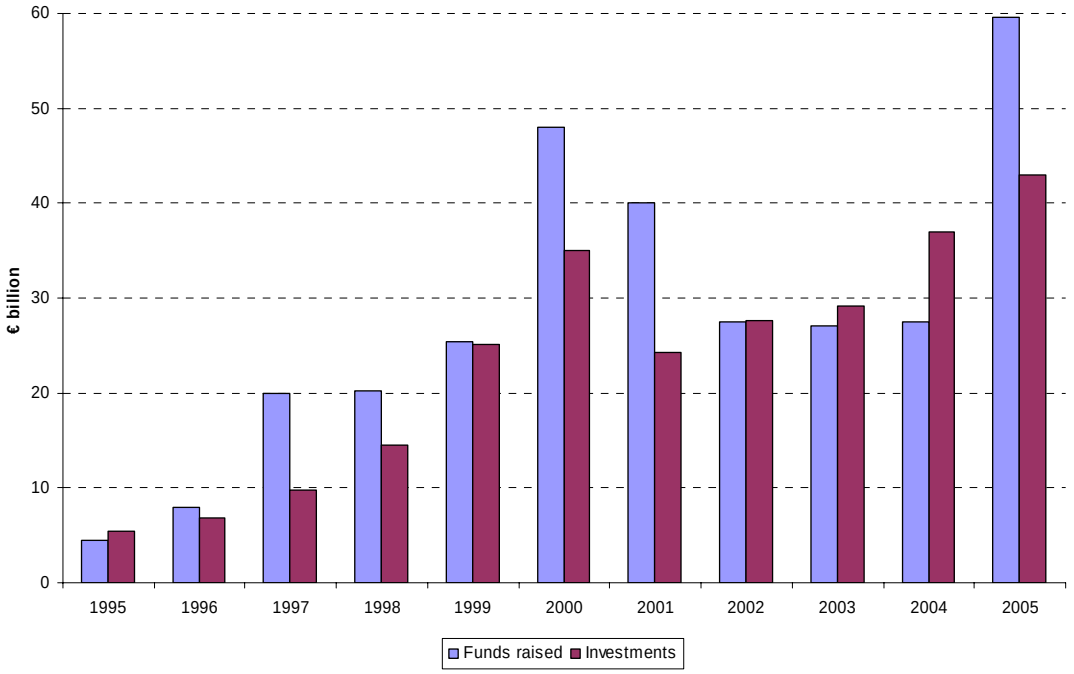
Given the structure of private equity funds, there is a distinction between the amount of money that has been committed by investors, and the amount that is actually invested. Furthermore, the total size of the transactions executed by private equity funds differ significantly from the total equity invested, since in many later-stage deals significant amounts of debt are also invested. We consider debt financing later and discuss the significant developments in the European debt markets.

Starting with the aggregate size of the European market, in Figure I the amounts committed to private equity funds over the last decade are presented, along with the amounts actually invested. Funds raised by private equity funds total around €300 billion over the last decade. The difference between the funds raised and investment figures reflects the lag between the commitment of capital and its deployment, as explained above. However, in some cases – in particular for funds raised in the boom years of 2000 and 2001 – it is likely that some funds will never draw-down and invest all the funds that have been committed.

Alongside the flows of private equity investments, there are also substantial divestments, as the funds return the invested capital to their LPs. Netting off these flows produces an estimate of the stock of invested capital, which is interesting in its own right. However, the process of arriving at a stock figure encounters certain complexities. In particular, although private equity funds report the extent of their divestments as soon as they occur, the way unrealised investments are valued is much more difficult and funds may not be consistent in the approach adopted. We discuss this issue in more depth in section IV. Nonetheless, the EVCA estimate that the stock of private equity investments as of end-2004 amounted to some €156 billion, having risen from €139 billion at the end of 2003.

Figure I : European private equity: funds committed and invested

This figure presents evidence from EVCA (2005, 2006a) on funds committed to, and invested by, private equity funds focussed on Europe. Funds committed by investors are drawn down by the private equity fund and invested over a number of years.



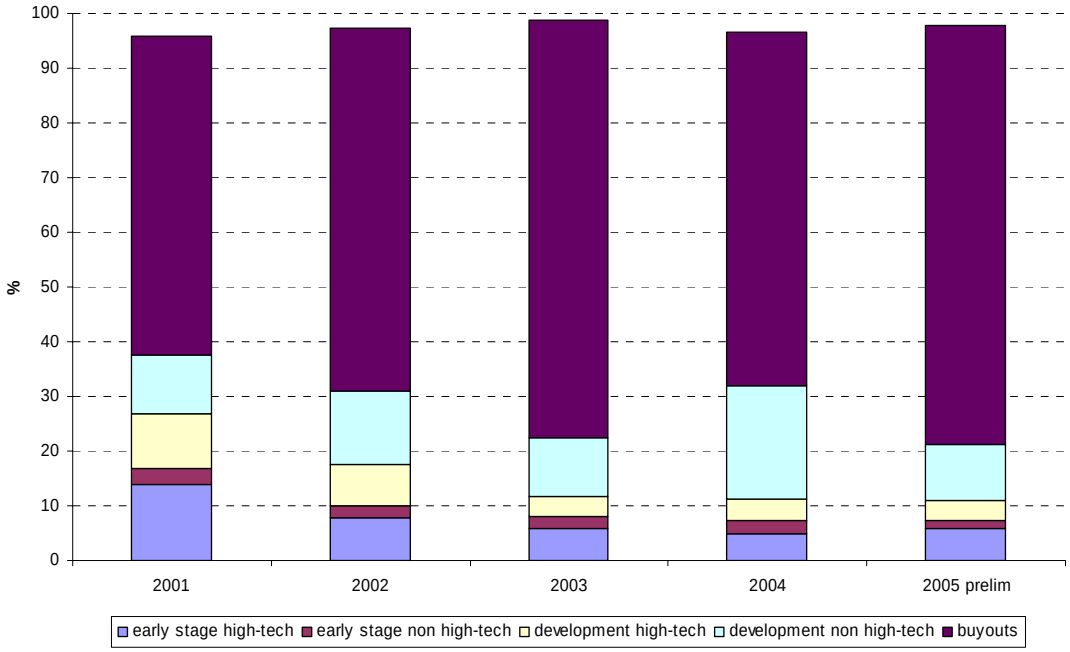
However, these figures under-state the total value of *transactions* conducted by private equity funds, as they only measure the equity component of the deals. Since buy-outs typically employ significant amounts of debt, it is necessary to take this into account in estimating the total (enterprise) value of the companies controlled by private equity funds. We return to this issue later in the section.

In total, therefore, 2004 and 2005 witnessed record levels of investment in private equity within Europe. Indeed, as we shall see below, 2004 was the first year in which the level of investment in European private equity approximately equalled that of the USA. However, as well as the overall quantity, the distribution between different stages of investment is an important consideration, to which Figure II refers. The consistent finding is that – in terms of capital invested – buyouts dominate the European private equity market. This is not altogether surprising, given that buyouts are aimed at more mature companies with cash flows to support high levels of debt. Indeed, in recent years the size of private equity buy-outs has been growing dramatically: for instance, in 2004 there were 55 European private equity deals valued at more than €1 billion. As a result, the proportion of capital allocated to buy-outs has,

if anything, been increasing in recent years, with the most recent estimates suggesting that nearly 80% of European private equity funds are allocated to buy-outs.

Figure II: The distribution of European private equity investments

Investments by private equity funds are classified according to their stage of investment. For early stage and development stage investments, which together comprise venture capital, the figures distinguish between high-tech and non high-tech investments. Unclassified investments are not reported, but comprise the residual between the presented figures and 100%. The 2005 figures are preliminary. Source: EVCA (2006a)

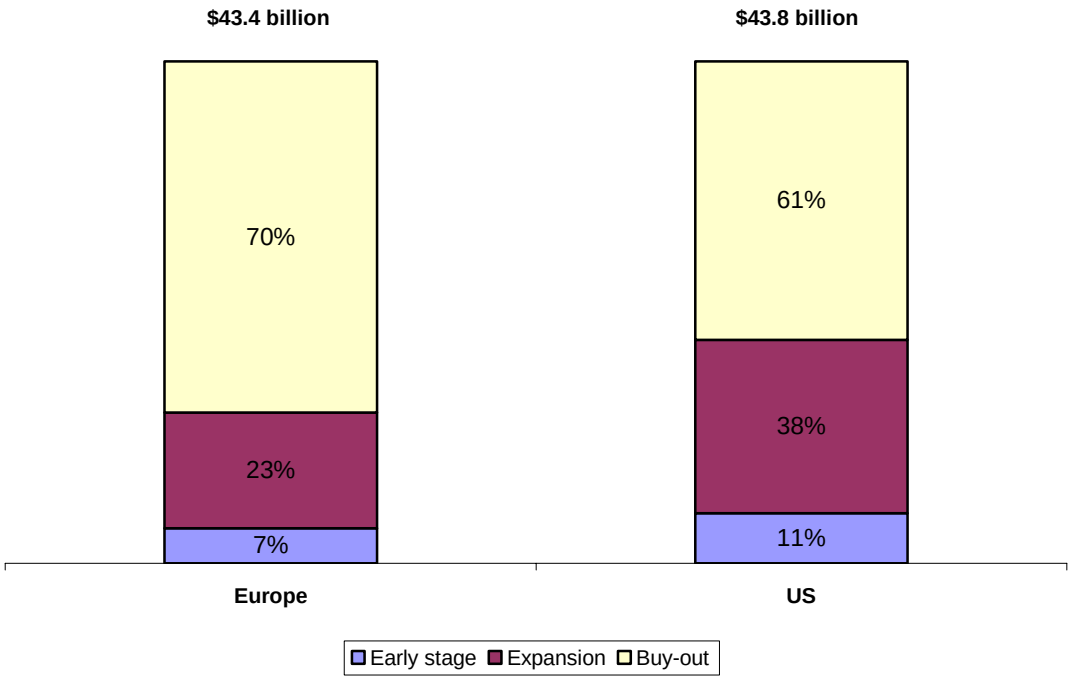


Of course, in terms of the number of portfolio company investments, the picture would look quite different – with the relatively small proportion of funds allocated to early stage ventures representing a much larger proportion of the number of investments. In terms of the split between high-tech and other investments – which only really applies to the early-stage and development categories – Figure II shows that the proportion of funds allocated varies quite considerably over time. Whereas more than 20% of funds were allocated to high-tech investments in 2001, this proportion has fallen by about one-half in recent years. Given that funds invested have been growing over this period, the absolute level of investment has fallen by much less than 50%, but clearly much of the growth of private equity activity in recent years has been devoted to buy-outs.

By way of comparison, in Figure III we present similar figures for the US.[10] Until recently, the main difference between Europe and the US has been the overall scale of the private equity sectors. For instance, in the boom year of 2000, total investment in US private equity was around $131 billion, compared with $41 billion in Europe. However, as Figure III shows, in 2004 total private equity investments in Europe and the US were very similar, as are the sizes of the economies. Consequently, in 2004 private equity investments in the US totalled 0.40% of GDP, only marginally exceeding the comparable proportion for Europe of 0.37%. However, as we shall see below, the distribution of private equity investing across European countries is far from even, and some countries – such as the UK – achieve levels of investment of a similar magnitude relative to GDP to those observed in the US.

Figure III: The distribution of European and US private equity investment, 2004

This figure presents total sums invested by private equity funds in 2004. The source of this is the PWC Global Private Equity Survey, 2005. The classifications used in the survey differ slightly between regions, and so we have include "seed" capital in the early stage category and "replacement" in the expansion category for Europe, and "other late stage" in the expansion category for the U.S.



[10] Note that different sources are used for the data in Figures I and III differ, and so the estimates of total European investment for 2004 are slightly different.

Furthermore, the distribution of private equity investments is very similar in Europe and the U.S., with buy-outs comprising around two-thirds of total investment. As noted earlier, in terms of the number of transactions, there would be many times more early stage investments – most of which are for relatively small amounts – than buy-outs, where single equity investments can be several hundred million euros. It is also noticeable that the small proportion of capital devoted within Europe to early stage investments is only slightly higher in the case of the US.

It is important to note that there are cyclical swings in private equity fundraising and investment, and that the proportion of US investment in early stage companies has been much higher in certain periods – in particular 1999 and 2000. However, the most recent figures on US early stage investing suggest that there have only been modest increases in investment in recent years. Compared with the $3.6 billion invested in US early stage companies in 2003, the sums invested in 2004 were around $5 billion in 2004, and similar levels of investment are forecast for 2005.[11]

Given that the majority of private equity investments, in both Europe and the US, are applied to buy-outs, it is important to note that such equity investments are made alongside significant debt financing. Therefore, to assess the economic significance of the private equity sector – in terms of the total transactions executed – it is necessary to take account of the leverage of private equity investments. We do this later in section III.C.

[11] See the NVCA/PwC/Venture Economics survey at http://www.nvca.org/pdf/05Q3MTRelFinal.pdf.

III. B Who invests in European private equity?

The growth in the amount of capital committed to European private equity has been impressive, but who has provided the funds? In Table I we present the most recent evidence on the sources of funding for private equity funds operating within Europe. Note that this analysis is not limited to European *investors* – indeed, a substantial proportion of the capital committed to European private equity would have come from the US and other regions.

Table I: Investors in European Private Equity

This table presents the total new funds raised by European Private Equity funds, drawing on the evidence published in EVCA (2006a). Realised capital gains are excluded (they are included in the data underlying Figure I).

Type of investor	2005	2001-04
corporate investors	6.9%	6.2%
private individuals	4.5%	5.9%
govt agencies	2.5%	7.4%
banks	31.4%	23.5%
pension funds	26.1%	21.2%
insurance companies	12.6%	11.8%
fund of funds	6.0%	13.6%
academic institutions	0.5%	1.8%
capital markets	1.7%	0.7%
other	7.7%	8.0%
Total new funds raised (€m)	€ 57,081	€ 113,040

The figures in Table I show that banks are the largest single source of capital, and in 2005 contributed nearly a third of new funds raised within Europe. The proportion of funds committed by pension funds has been growing but remains at relatively low levels given their share of investment funds. In contrast to the US, European pension funds have historically allocated a relatively small proportion of their assets to private equity. For instance, Barros et. al. (2005) report that from 1995 to 1999, around one-half of all US venture capital was derived from pension funds. Furthermore, few European endowments – such as academic institutions – have invested in private equity on anything like the scale observed in the US counterparts (see, for example, the evidence presented in Swensen (2000)). Most surveys of European institutional

fund managers project an increasing allocation to private equity in the future, and so the traditional importance of banks as a source of capital may well reduce over time.

These figures only relate to equity investment. However, given the importance of buy-outs, it is critical to consider the role of debt financing, to which we now turn.

III. C How leveraged are private equity investments?

Early stage private equity investments typically do not involve the use of external debt.[12] However, in the case of buy-outs the private equity firm that sponsors the transaction will usually put together significant debt financing in order to purchase the company. Indeed, the extent of the leverage that private equity sponsors impose on the portfolio companies is, at least when viewed through the lens of the public equity markets, surprising. As can be seen in Figure IV the proportion of debt in the capital structure of private equity buy-outs averages around two-thirds. This is in contrast to the public equity markets where the proportion of *equity* in total capital structure is typically around two-thirds (see, for example, Rajan and Zingales (1995)).

The debt employed by private equity sponsors is raised, at least in the first instance, almost entirely from the loan market. This market has developed very strongly in Europe and liquidity in recent years has been abundant. The loans are initially provided by the lead banks but are then syndicated to other banks and investors (including, increasingly, hedge funds). The size and sophistication of the European leveraged loan market now appears to be at least equivalent to that of the US market.

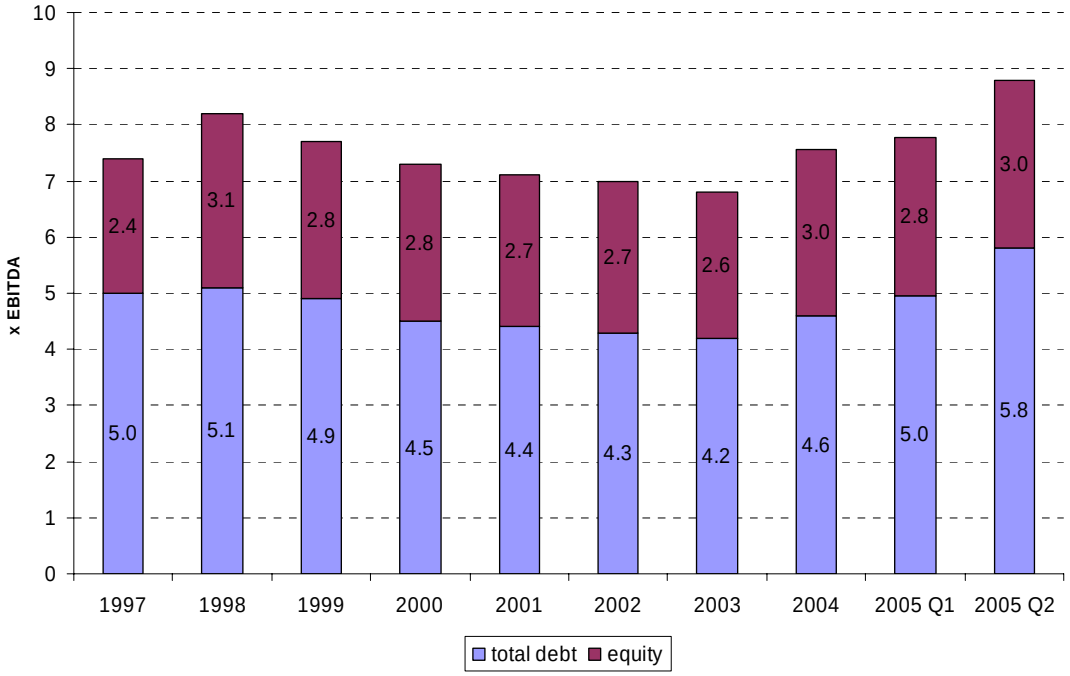
In terms of measuring the impact of private equity, the figures of equity raised, or invested, given in the previous section will clearly under-state the significance – in terms of companies bought and controlled – significantly. Given that about two-thirds of total private equity is devoted to buy-outs, and that buy-outs are themselves leveraged significantly, the total value of investments made by the European private equity industry over the last decade was probably nearly €500 billion, with around

[12] In practice, the investments made by private equity firms in portfolio companies may often be structured as having debt components, but this is mainly for tax reasons. Control would then be exercised via the equity, or convertible equity, part of the transaction. However, recently some tax authorities have started to limit the ability of private equity funds to structure their investments in this way, by revising so-called thin-capitalisation rules.

€430 billion being invested in buy-outs.[13] Therefore, although much attention is rightly devoted to analysing the availability of early stage VC financing, the vast majority of private equity investments are devoted to acquiring and enhancing more mature companies.

Figure IV : Leverage and valuation of European buy-outs

This figure shows the average ratio of total debt and equity to earnings before interest, tax, depreciation and amortisation for European buy-outs. This represents the financial structure that private equity sponsors employ in the companies they acquire. Total debt includes senior and subordinated debt. The data are derived from S&P LCD European LBO Review Q2 2005.



The other notable development that can be seen in Figure IV is the significant increase in the valuation multiples that are being paid for European buy-outs, along with an increased willingness of debt providers to lend higher multiples of earnings. From their recent low-point in 2003, valuations have risen from an average of 6.8 times earnings before interest, tax, depreciation and amortisation (EBITDA) to 8.8

[13] These estimates are based on the total sum invested in private equity (from Figure 1) of €214 billion, and assuming (a) that buy-outs represent two-thirds of the total equity invested, (b) buy-outs employ one-third equity in the total capital structure, and (c) all other investments by private equity firms are unleveraged.

times EBITDA in the second quarter of 2005.[14] At the same time, lenders have increasingly been willing to extend higher amounts of debt, relative to earnings, with a remarkable jump to 5.8 times EBITDA observed in the most recent quarter. This lending multiple is considerably higher than historical norms, and has raised some concerns about excess liquidity in the loan market. To put these levels of debt in context, UBS recently analysed the net debt to EBITDA ratio of public companies across many countries and found that the ratio averaged 1.1 in 2005.[15]

An interesting issue is the extent to which these higher valuations are related to the increased availability of debt, and whether risks are being appropriately priced in the loan market. In recent years, the weighted average spread on European leveraged loans has been remarkably stable, despite the observed increase in leverage. This is an promising area for future research.

So far we have focussed at the pan-European level, but it is also interesting to analyse differences in the development of private equity across European countries. We do this in the next section.

III. D How is private equity invested across Europe?

In assessing the development of European private equity, it is interesting to consider the differences between countries. Using the most recent figures published by the EVCA, it can be seen in Figure V that over one-half of all the (equity) investments made during 2004 were by private equity funds managed from the UK. This reflects the fact that most of the large pan-European private equity funds are based in the UK. Across Europe, 86% of investments by number, and 65% by value, made during 2004 were by funds located in the same country as the portfolio company. In the main, the flow appears to be from UK managed funds to portfolio companies in the mainland Europe. Hence, the investments in portfolio companies located in the UK accounted for 26% of total investment – exactly one-half of the proportion of funds managed from the UK. On the other hand, companies in France, Germany and the Netherlands

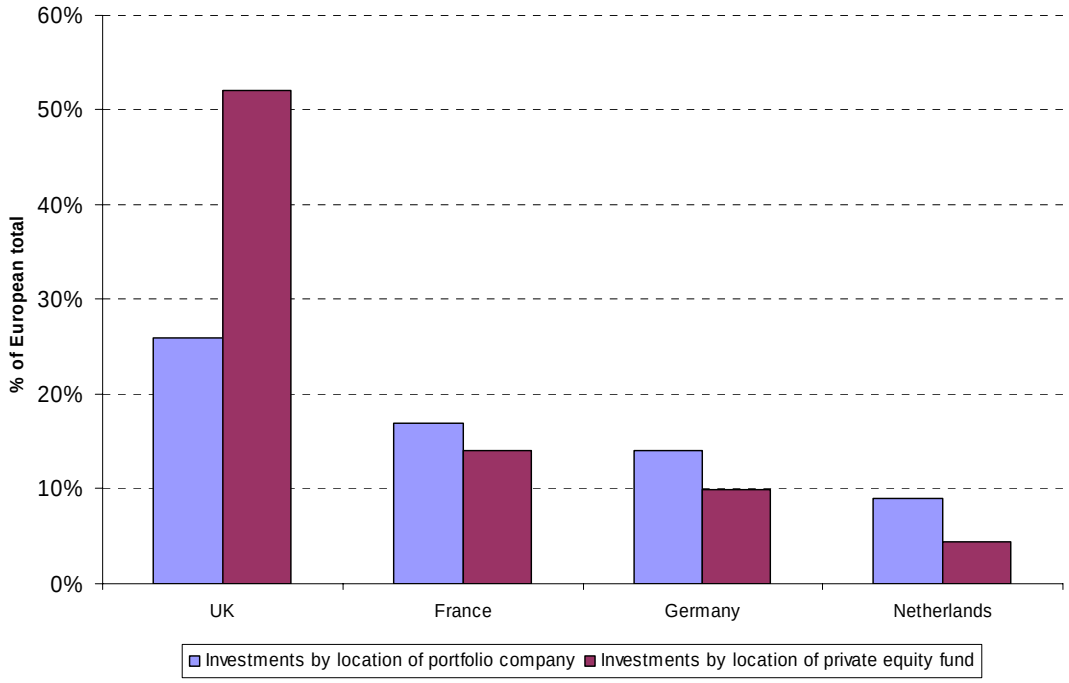
[14] The use of EBITDA as a benchmark for both valuation and lending is ubiquitous in the private equity sector. This is usually reported on a trailing EBITDA basis – that is, the most recent reported values – rather than using prospective values, and so all the figures used in this paper are measured on the trailing basis.

[15] As reported in the Financial Times, September 19 2005, p.20.

attracted investments from funds managed in other European countries. Along with the UK, companies in these four countries attracted two-thirds of European private equity investment, and accounted for four-fifths of funds managed.

Figure V : Private Equity investments in 2004 for selected European countries

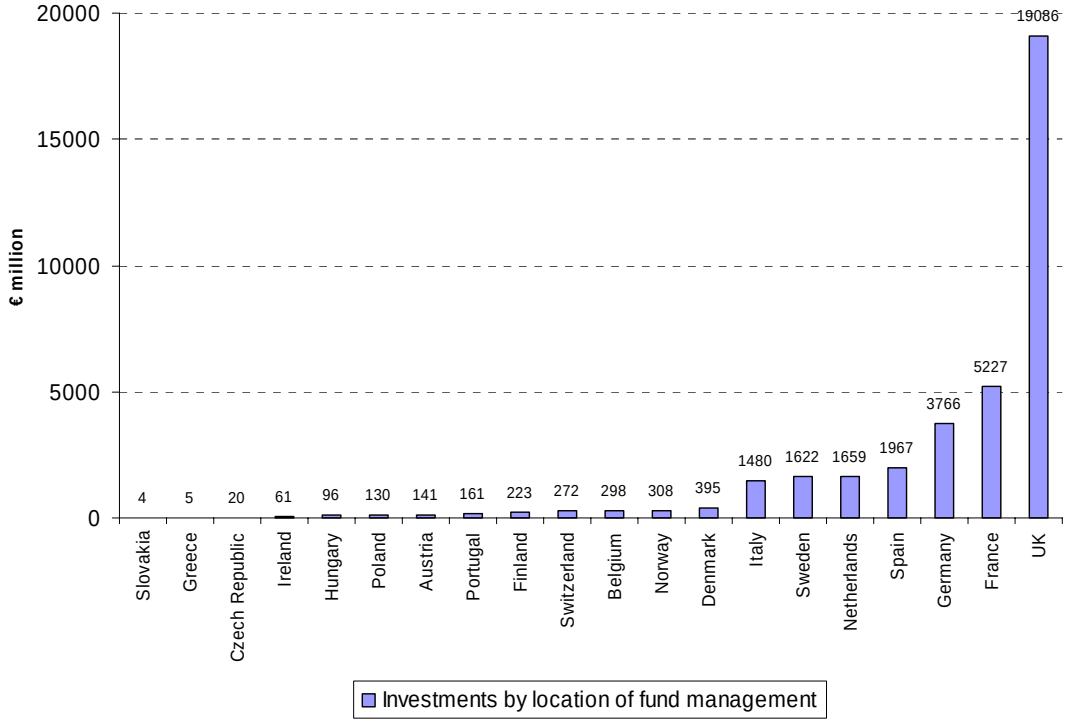
This figure shows the distribution of private equity investment within Europe in 2004 according to two criteria: by the location of the portfolio company receiving the investment and by the location of the private equity fund making the investment. Source: EVCA Activity Report, 2004.



Therefore, the distribution of the European private equity industry, by either measure, is relatively concentrated. The UK stands out as an outlier, although the proportion of funds being invested in France and Germany has been increasing significantly in recent years. However, if one looks at the development of the private equity sector across the rest of Europe, the amount of private equity activity falls away quickly. For instance, and again focussing on 2004 activity, Figure VI shows that in most European countries the funds managed locally are extremely limited. Of course, there may be some cross-border investments, but as noted earlier, with the exception of the UK, the overwhelming majority of investments are made in portfolio companies located in the same country as the funds are managed.

Figure VI : Private equity funds managed in selected European countries, 2004

This figure shows the distribution of private equity investment within Europe in 2004 according to the location of the private equity fund making the investment. Source: EVCA Activity Report, 2004.



Whilst some have questioned whether the current level of fundraising is sustainable, and whether the opportunities for profitable private equity investing in Europe have been exhausted, this evidence shows that many European countries are relatively unexposed to private equity investing. This suggests that sizeable opportunities still exist, which may explain the recent spate of fundraising for enormous European funds.[16]

[16] For instance, both CVC and BC Partners have recently each raised funds totalling around €6 billion targeted at Europe, and Permira is rumoured to be seeking nearer €10 billion for its next European fund.

IV. How has European private equity performed?

Measuring the returns earned by private equity funds is a challenging exercise. The funds are under an obligation to report regularly to their investors, but have no obligation to report to anyone else. Surveys are conducted by various industry associations and commercial data providers, but the underlying data is seldom made available. The potential biases could be significant: for instance, the probability of reporting on the performance of a particular fund will probably decrease with the performance of the fund. Furthermore, there are various problems in measuring returns *per se*. It is straightforward to measure returns once all the investments have been realised and the cash returned to the limited partners. However, most private equity funds have a 10-year life, and so if performance is measured before the fund has finally exited all the investments then the value of the unrealised investments – known as the *residual value* – will be measured by the fund itself. Funds can differ a great deal in the way they measure such investments, and the extent to which they attempt to "mark to market", rather than carry investments at book value. Indeed, industry bodies have often differed in their advice to private equity funds on the appropriate way to value investments. However, within Europe there has been an initiative to agree valuation guidelines, and there now exists an agreed approach to valuation that has been endorsed by all the main national industry associations in Europe, and many outside Europe (a notable exception, at present, is the US National Venture Capital Association).[17] This should result in greater consistency across funds in measuring the intermediate returns on funds before they have fully exited their investments, although these will still, inevitably, be a mixture of cash and accounting valuations.

In the remainder of this section we first discuss the ways in which the performance of private equity funds is typically measured by investors. Then we address the data issues regarding European private equity returns.

[17] See International Venture Capital and Private Equity Valuation Guidelines, available from www.privateequityvaluation.com . At the time of writing, the guidelines had been endorsed by 27 regional and national industry associations.

IV. A How is private equity performance measured?

There are two main measures that investors tend to focus on when analysing performance. The first is the internal rate of return (IRR), net of fees and carried interest, earned by the limited partners on their investment. The IRR is calculated as an annualised rate, and in the case of unrealised investments the residual values are treated as a terminal period cash flow to investors. In the early years of a fund the estimated IRR will clearly be dominated by the residual value, however as funds mature the IRR becomes based upon actual cash-flows. The relevance of the IRR to investors is that it takes careful account of the time that their capital is employed by the private equity fund, and provides a consistent measure of the rate of return they receive. However, high IRRs are not an end in themselves: the real end is higher cash returns. For this reason, in measuring the performance of private equity funds, attention is also directed towards the multiple of the original investment that is returned by the fund to investors. There are various measures of this, but probably the most widely reported is the ratio of total value to paid-in capital (or *TVPI*). The total value includes both cash flows back to investors along with residual value, and so, as noted early, is initially based mainly on estimates of residual value and becomes cash-based as the fund matures. TVPI measures the size of the profits for the LPs relative to the initial investment, without regard to the time period over which the capital was employed. Although high IRRs and high TVPI tend to go together, the relationship is clearly complex. For instance, high IRRs on investments that are quickly harvested may be associated with low TVPI. Many funds will have joint targets for these two measures – such as to return a 25% IRR and twice the originally invested capital.

IV.B Data on European private equity returns

For Europe, probably the best information on the returns earned by private equity investments is the annual Thomson Venture Economics (TVE) survey, which is produced in association with the EVCA. The most recent version, a summary of which is reported in EVCA (2005, 2006b), covers funds formed from 1980 to 2004, and includes returns information on 956 funds in total. This survey represents the most comprehensive source of performance data that is currently available for Europe and allows for the analysis of longer term trends. Interestingly, the survey is sent to both the GPs and LPs, who are both asked to report the cash flows into and out of

their funds, along with the valuation of unrealised assets. This allows for cross-checking of the returns, and must increase the reliability of the data.

However, there are inevitably some sample selection issues with this self-reported survey. First, although performance is reported back to 1980, the first European survey was conducted in 1996. Therefore, although respondents are asked for historical performance data, TVE caution[18] that coverage for the vintage years before 1987 is lower than average, since few GPs reported returns earned on funds that had completed their life-cycle. For funds formed between 1987 and 1999 TVE estimate that the coverage in terms of the number of funds averages 51%, although when weighted by capital under management this figure increases to 77%. However, the coverage inevitably drops again for the most recent vintages, since for funds in the early stages of their life there are few, if any, realised investments, and so the valuations are based on accounting measures rather than cash returns. As a result, the coverage of the performance survey is considerably less comprehensive than that of the investment survey, which was discussed in the previous section. The latest version of the performance survey covers 956 funds that are either currently active or existed at some stage over the period from 1980-2004. In contrast, the most recent investment survey achieved a response rate of around 73% from the 1600 private equity companies that operate, or invest, in Europe, which between them run around 3000 funds. In terms of capital under management the EVCA estimate that the investment survey achieves a response rate of over 90%.

Second, given that funds voluntarily report their performance, to the extent that there is a bias in reporting it is likely to be an under-representation of poorly-performing funds. Of course, GPs may still report on such funds, but this is unlikely to entirely eradicate the bias.

Third, as we shall see in the next section, a large proportion of the reported returns are associated with the residual values of unrealised investments, which are estimated by the GPs. Worries about the reliability of these estimates has caused the few academic papers to have studied private equity returns to focus on funds which are largely liquidated. Even then, the results derived can differ significantly.

For instance, two studies that analyse the TVE survey of U.S. private equity returns arrive at strikingly different conclusions. Kaplan and Schoar (2005) find that

[18] Details on the European performance survey is available in EVCA (2005b).

average returns (net of fees) earned by private equity investors in funds started by 1995 (this cut-off was imposed to ensure the funds were largely liquidated) are about the same as those that would have been earned on the S&P 500. In contrast, Phalippou and Zollo (2006) use an updated version of the Kaplan and Schoar data and make certain adjustments for sample selection, aggregation and remaining unrealised investments. As a result of these adjustments the authors claim that the net returns earned by U.S. private equity funds lagged public equity markets by as much as 3.3% per annum.

No equivalent analysis has been performed using the European private equity performance survey, but this research on U.S. returns cautions that the raw returns need to be interpreted with some caution. Nonetheless, the TVE survey of European private equity performance remains the best available measure, and in the next section we present its main findings.

IV.C Long-term performance

There are various possible ways of measuring the average performance across the many separate funds and time periods. The most comprehensive way of looking at private equity as an asset class is simply to treat all cash flows into and out of all the funds – along with the accounting valuations of unrealised investments – as a single investment pool, and to calculate the pooled IRR and pooled TVPI. We start by looking at the returns earned by investors in European private equity firms from the early days of the industry in 1980 to the end of 2004. All the figures we analyse are net of management fees and carried interest, and therefore represent the net returns to the limited partners.

In Table II the returns are broken down by stage of investment. Starting with the early stage funds, it is remarkable that, over the last 25 years, if all such investments were considered as a single European portfolio, the IRR on early-stage investments would have been only 0.2%, and the funds would have barely returned the original invested capital to the LPs. It is worth stressing that these figures make no adjustment for inflation, let alone risk, and that during this period equity markets experienced considerable growth. Consequently, on average, early-stage private equity investments in Europe yielded extremely disappointing returns. This is an interesting and important finding, given that policy makers often claim there to be a

lack of early-stage financing for entrepreneurial ventures within Europe. Of course, this macro view of the performance experience over the last 25 years tells us nothing about the causes of the disappointing returns. But there is at least a suspicion that supply of funds may not be the real problem, as low out-turn returns are often the result of competition between rival private equity funds to invest in ventures, which pushes up valuations and reduces returns.

Table II : European private equity returns

This table presents internal rates of return (IRR) on an annualized pooled basis for European private equity funds over the period 1980-2004. IRRs are calculated as the return investors receive, net of fees and carried interest. The cash flows for each fund are aggregated into a pool as if they were a single European fund, and the IRR is presented on an annualised basis. The multiple of original investment paid out compares the cumulative cash distribution to investors as a proportion of the original investment. The remaining unrealised value, as estimated by the private equity fund, is also compared with the original investment. The sum of these two ratios is the ratio of total value to paid-in capital, or TVPI. Source: EVCA(2005).

Panel A: All Funds					
			multiple of original investment...		
	# funds	IRR	paid out	remaining	TVPI
Early stage	252	0.2%	0.40	0.60	1.00
Development	173	8.2%	0.74	0.68	1.42
Balanced	146	7.9%	0.66	0.59	1.25
All Venture Capital	**571**	**6.0%**	**0.60**	**0.62**	**1.22**
Buyout	**307**	**12.3%**	**0.70**	**0.67**	**1.37**
Generalist	78	8.7%	0.98	0.37	1.35
All Private Equity	***956***	***9.5%***	***0.72***	***0.60***	***1.32***
Panel B: Top Quartile Funds					
			multiple of original investment ...		
	# funds	IRR	paid out	remaining	TVPI
Early stage	65	14.9%	0.93	0.64	1.57
Development	46	18.7%	1.43	0.61	2.04
Balanced	43	21.3%	1.10	0.71	1.81
All Venture Capital	**154**	**18.6%**	**1.13**	**0.66**	**1.79**
Buyout	**84**	**28.7%**	**1.23**	**0.66**	**1.89**
Generalist	17	12.3%	1.00	0.47	1.47
All Private Equity	***255***	***23.3%***	***1.19***	***0.65***	***1.84***

Returns are somewhat higher in the case of later stage companies in need of development capital. For these investments the pooled IRR observed in Europe has been 8.2%, with a TVPI or 1.42. Balanced venture capital funds – which invest in both early and expansion stages – similarly exhibit somewhat better average returns. As a result, the returns for European venture capital as a whole have been modest but positive with an IRR of 6% and funds returning 22% more cash than was paid into them. However, it is worth remembering that such levels of returns would mean that investors would have been better off putting their money into government securities for the last 25 years.

Returns improve significantly for later stage investments: the average IRR on expansion funds is 8% and is 12% for buy-outs. Although there is considerable time-series variation on the returns to private equity, all the evidence points to the much stronger returns earned by European funds focussed on later stage investments and buy-outs. However, as noted earlier, later stage investments are highly leveraged, and so a comparison of the relative performance – either in comparison with early-stage investments or public market benchmarks – should take this into account. The academic analyses published to date, which have had access to the precise timings of the cash flows into and out of the private equity funds, have taken account of movements in the general stock market (matched to the timing of the private equity cash flows) but have not accounted for the higher leverage observed in private equity portfolio companies than in public companies. This is very difficult without detailed information on the capital structure of the portfolio companies, and remains an interesting avenue for future research. However, the direction of bias in the results is clear – comparative returns on buy-outs will tend to over-state risk-adjusted returns relative to returns on VC investments and public market comparators.

In this section we have focussed on the long-term returns observed on private equity in Europe, more or less since the inception of the asset class. However, there are various reasons for also being interested in the time-series of these returns. First, it is well established that realised returns are highly cyclical. In particular, vintages of funds that are invested during periods when the competition for deals is less intense, and when exit opportunities, and exit prices, are generous, tend to perform very well. Such exceptional vintages can dominate the longer-term average returns, although this will only become apparent when the time series evidence is analysed. Second, as

outlined earlier, much of the growth in the size of the private equity sector within Europe has occurred in the last few years, and so the returns on these funds are inevitably based more on the fund's own views of the residual value of their investments, rather than the out-turn cash returns received by investors. Given the typical cycle of investing and realisation, funds raised before about 1996 should have been substantially liquidated by end of 2004 (the latest observation in our dataset).[19] Therefore, if the focus of attention is on the realised returns it is necessary to go back into the detailed evidence for individual years. This we do in the next section.

IV.D How do European and US private equity returns compare over time?

Although the main focus of this article is on the European private equity industry, as we move towards analysing the time-series variation in returns it becomes increasingly difficult to establish benchmarks against which to judge the quite volatile returns. As noted above, to a considerable extent the returns on funds are linked to their vintage, since the market conditions experienced for investing and exiting will be similar across funds of the same vintage. Therefore, in this section we broaden the focus of analysis somewhat and compare the performance of European funds with roughly equivalent US funds.

To do this we analyse the sample provided in the VentureXpert database. The data for Europe is essentially the same as that summarized in Table II above, and so draws on the returns reported in surveys of LPs and GPs. Equivalent surveys have been undertaken for many years in the US, and in this section we compare the returns earned in both Europe and the US for funds raised from 1986 to 2001. This is a somewhat truncated sample compared with that used earlier in the aggregate figures. The reasons for starting the sample in 1986 is that before this date the European sample sizes each year were extremely small (for instance, only 3 or fewer of the European VC funds raised between 1980 and 1983 reported their returns each year, and the European buy-out sample only started in 1984 with 4 respondents). Such

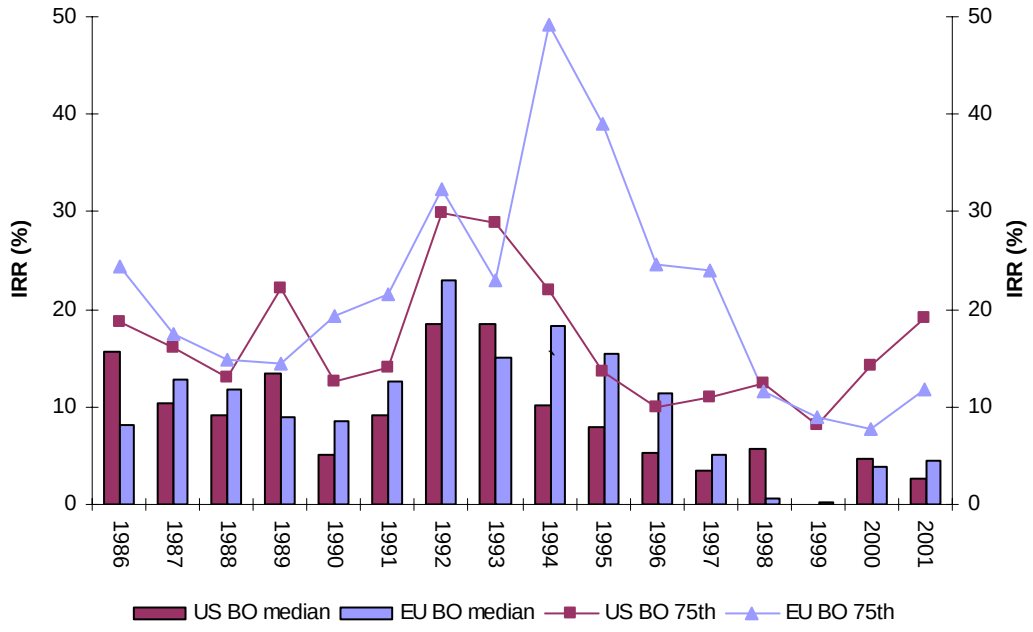
[19] This is clearly a generalisation, and depends on the nature of the fund, with buy-out funds tending to exit their investments somewhat more quickly than VC funds. Some public domain evidence to support this claim can be found from the regular reports on the private equity investments of the California Public Employees Retirement Scheme (CalPERS), available from their website at www.calpers.ca.gov

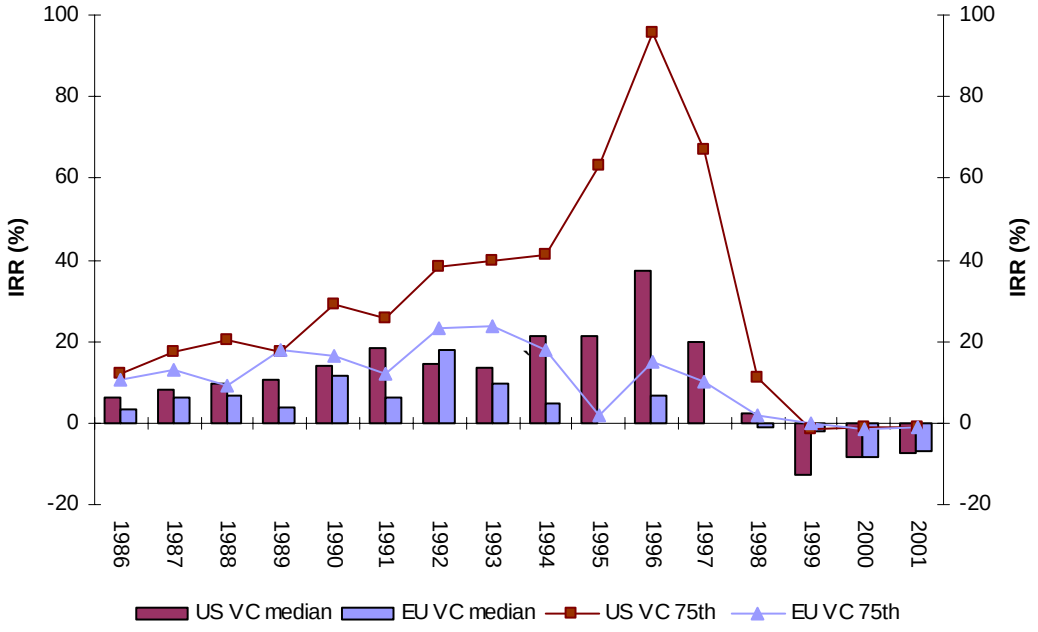
small samples are less important when measuring the long-term returns on the asset class over many years, but would render a time-series analysis largely irrelevant. Similarly, since we are more interested in out-turn returns, rather than funds' estimates of their residual value, we exclude the more recent vintages. Even the funds raised in 1999-2001 will have been reporting (at the end of 2004) returns largely based on unrealised investments. However, some of these more recent figures are interesting in that this was a boom period for fundraising, and some of these funds – especially those focussed on earlier stage investments – are likely to have suffered during the bursting of the dot-com bubble, and consequent stock-market falls, in 2000/01.

We present the evidence in Figure VII where we separate the buy-out funds from the VC funds. For each vintage year the solid bars show the median return among the sample of funds that reported their performance. In addition, the lines show the 75th percentile of returns. Therefore, these figures show the minimum return in each vintage year that would be necessary in order to be a top quartile fund (to be clear, it does *not* show the average returns earned by firms that comprise the upper quartile). Starting with the buy-out returns, it is noticeable that the cyclical patterns are indeed similar between the US and Europe. However, it is also striking that the median, and upper quartile returns, have been higher in most years in Europe than the US, and that this difference increased for funds formed in 1994-97. As mentioned above, later years are less reliable at present as funds of a more recent vintage will have a high proportion of unrealised investments. It is worth stressing that these results are based on limited samples – for instance the impressive upper quartile IRRs for 1994 vintage funds are only based on returns from 13 European funds – but nonetheless the evidence points towards superior performance by European buy-out funds compared with their US counterparts.

Figure VII: Returns on European and US private equity funds, by vintage year

In this figure 50th percentile (median) and 75th percentile IRRs are reported for European and US private equity funds, according to the year in which the fund started investing (the vintage year). The upper panel reports buy-out returns and the lower panel reports venture capital returns. Source: VentureXpert, based on returns reported up until 30/6/2005.





Turing to the lower part of the chart, similar evidence is presented for VC returns. It is important to note first the difference in the scale relative to the buy-out chart – this is

necessitated by the extraordinary performance of US VC funds formed in 1996. For the 33 US funds from the 1996 vintage that reported their results, the median IRR was 37% and to be classified as upper quartile the IRR would have to exceed 96%. The adjacent US vintages of 1995 and 1997 also produced impressive returns, especially amongst the top quartile. However, the other noticeable pattern is that in the case of venture capital the European returns have been consistently lower than those obtained by US funds, and there have not been any "bumper" vintages to boost returns: indeed, an IRR of 20% would put a European fund in the top quartile in most years.

Whilst the extraordinary performance of US VC funds formed in 1996 stands out in Figure VII the experience of US VC investing may look somewhat different in a few years as the more recently formed funds mature. In particular, there was a huge influx of capital into US VC in the 1999 and 2000, and yet at the end of 2004 the median returns on such funds were -13% and -8% respectively. At approximately half way through the lives of these funds this does not bode well for the final realised performance. Similar trends are also evident in the European figures.

Therefore, this brief analysis of the recent trends in performance suggests that relatively strong and consistent European performance in buy-outs is matched by relatively weak performance in earlier stage investing. Although there may be sample selection biases – which, as argued, might be expected to lead the reported figures to over-state average returns – these biases are likely to be similar between the European and US surveys. This evidence suggests various interesting questions for future research. First, is the systematically superior performance of European buy-outs compared with European VC a robust result (for instance, would appropriate risk-adjustment alter the pattern)? Second, what explains the noticeably inferior performance of European VC funds relative to their US counterparts? This is a surprising result given that policy-makers often complain that a lack of early-stage finance is a major competitive disadvantage facing Europe. In general, when competition for deals is low, returns would be expected to be high which would encourage additional capital. So are the low realised returns associated with more general structural features facing European early-stage companies and VC firms (such as a lack of the network benefits and externalities associated, for instance, with locations like Silicon Valley). Or is all the best talent within Europe being tempted by the more attractive economics associated with running buy-out funds? Understanding the factors influencing the relatively disappointing European early stage returns is an

important future area for research. Third, given the ability of investors to choose between investing in local or overseas private equity funds, it would also be interesting to know more about the flow of funds between Europe and the US. One might expect net outflows of capital from European investors to US-focussed VC funds along with net outflows of capital from US investors to European-focussed buy-out funds. However, little is known about the extent or direction of such international capital flows.

IV. Conclusions

In this paper we have presented a range of evidence on the development of the European private equity industry. From a relatively small asset class only 15 years ago, significant amounts of capital are now being allocated to European-focussed funds. Indeed, it is noticeable that capital raised by European and US private equity funds was virtually identical in 2004. Most of this money is flowing into later stage funds – in particular buyout funds – where the historical returns have been the highest. As a result, private equity funds are now involved in a very significant proportion of European corporate acquisitions and restructurings.

However, although the performance and growth of European buy-out funds has been impressive, the same cannot be said of European venture capital. Although there have clearly some excellent performers, average returns on early stage investing have been very low, both in absolute terms, and certainly relative to appropriate benchmark returns.

Finally, it is worth noting that, in comparison with many other areas in finance, our knowledge about the performance, and certainly the factors that influence performance, of the private equity sector is very limited. This is especially true of the European private equity sector, and we have noted a number of areas where future research is required. The paucity of existing research reflects, to a large extent, the difficulty of obtaining reliable and comprehensive information about the sector. However, as increasing amounts of capital are allocated to private equity, and as private equity funds become significant investors in both early stage and, in particular, more mature companies, the importance of such research will only increase.

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