A comment on recent evidence on private equity performance

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Three recent papers have raised doubts about previous evidence on private equity returns. This note aims to put them in context. First it discusses the size of a potential bias in the Thomson Venture Economics dataset, which is stressed by Stucke (2011). Results show that the bias would not significantly change the previous estimate of average private equity performance. This note then considers recent estimates derived by Robinson and Sensoy (2011) and Jenkinson, Harris and Kaplan (2011). With access to up-to-date and high-quality data, these two studies show an outperformance of the S&P 500 index by buyout funds. Although neither study shows the yearly size-weighted outperformance, their numbers indicate that it is around 2.4% per annum. However, this note raises several issues that still need to be addressed before concluding that private equity generated a positive alpha. The main issue is probably the existence of a strong size effect in recent years: the S&P 500 index significantly underperformed small cap and mid cap stocks, which are the size categories in which private equity funds mainly invest. The real lesson to be drawn from recent developments is yet another reminder of the need for a comprehensive, unbiased and widely available dataset of private equity funds track records.

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1 I am thankful to Peter Cornelius, Joost Driessen, Tim Jenkinson, TC Lin, Peter Morris, Mariana Popa, David Robinson and Berk Sensoy for very valuable comments on this note.
Introduction

Although private equity investing on an institutional scale began in the 1970s, it took about thirty years for the first large-scale academic study of investor returns to emerge. First Kaplan and Schoar (2005) and then Phalippou and Gottschalg (2009), using a similar dataset, found that the average buyout fund had underperformed stock market indices.\(^2\)

This finding has now come into question. Stucke (2011) suggests that the database the two earlier studies used suffers from a significant bias. In addition, both Robinson and Sensoy (2011) and Jenkinson, Harris and Kaplan (2011) have access to more up-to-date and better quality data. They argue that the average buyout fund has significantly outperformed the S&P 500 index.

This note puts these recent developments into context. It provides some background to the dataset that the earlier studies used, and shows that a key assumption that both studies made about it was widely held at the time. It then measures the size of the potential bias in that dataset that is highlighted by Stucke (2011). Results show that at the time the earlier studies were conducted, if the bias was present then it was small.

This note then addresses the more recent research, which claims that the average private equity fund has outperformed the S&P 500. It raises a series of issues that have yet to be fully addressed. Until they are, no strong conclusion can be drawn about how attractive investments in private equity funds have been. The main issue is a simple size effect. Private equity funds invest in companies that are smaller than those in the S&P 500. It may therefore be more appropriate to benchmark private equity funds against indices that exclude the large capitalizations. Earlier studies were not affected by the size effect because stock market returns in the 1980s and 1990s were unrelated to size. Recent stock market returns for large capitalizations, however, have been lower than the returns of the other size categories by about 7% yearly. Finally, this note lists a number of further adjustments that may need to be made when comparing an investment in public equities with an investment in a private equity fund.

The conclusion highlights the need for, and the benefits of, a comprehensive, unbiased and widely available dataset of private equity funds track records.

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\(^2\) This note focuses on buyout funds. Private equity stands for venture capital plus buyout. Unless otherwise specified, “return” means net of fees charged by the funds.
Background to previous studies using TVE data

In the early 2000s, Thomson Venture Economics (TVE) decided to share its (anonymized) private equity cash flow database with three teams of academics; it also sold its data to some commercial users.\(^3\)

The academic team to which I belonged scrutinized the data in order to identify any potential bias or issues that could damage the robustness of our findings. The main issue we spotted was that a number of funds were reporting implausibly high NAVs, given that these funds had passed their tenth year anniversary and had no cash flow activity. In addition, these NAVs were exactly the same from one quarter to the other, over an extended period of time.\(^4\) It is highly unlikely that the market value of a fund would never change at a time when there is no cash flow activity and the fund has already reached its liquidation age. As a result, we believed that the final NAVs could not be correct estimates of market values, which is how they are commonly treated.

There were only two possible explanations for this anomaly. First, the data were correct – in other words, TVE was correctly reporting data it had received from its anonymous market sources. In that case, we thought the most sensible way to interpret these NAVs was that they reflected living-dead investments. As such, they should be written off for the purposes of our analysis. However, the change from treating the reported NAVs as market values to writing them off reduced overall returns by only 2% per annum. Some earlier versions of the paper wrote off only NAVs that had not been updated for more than 36 months; this produced a 1% decrease in annual return, as opposed to 2%.

The second possible explanation for the anomaly was that TVE was making a systematic error. Most likely, when TVE stopped receiving data about a fund from its sources, it chose to repeat each quarter the fund’s last reported NAV. But TVE denied that it was doing this.

Most academics at the time shared the belief that TVE was not committing this error. Although TVE’s sources were anonymized, it was widely assumed that they consisted of fund investors, not fund managers. If so, TVE’s database was not likely to suffer from a selection bias similar to the one found in hedge funds, whose managers have an incentive to report only when

\(^3\) The three academic teams I am aware of were: Kaplan and Schoar, Jones and Rhodes-Kropf, and Gottschalg, Phalippou and Zollo. Among practitioners who bought the data is Robeco, a Dutch asset management company. Frieser, van Dijk and de Zwart (2007) used this data access to write a paper on over-commitment strategies. This paper is forthcoming in the Financial Analyst Journal.

\(^4\) Only Phalippou and Gottschalg (2009) pointed this out.
their performance has been good. To illustrate this point, one of the *Journal of Finance’s* two anonymous referees for Phalippou and Gottschalg (2009) wrote:

The data they [Phalippou-Gottschalg] use – and that previous authors such as Kaplan and Schoar in this Journal have used – come from Thomson Venture Economics (TVE). TVE in turn obtain their data mostly from fund *investors*; fund *managers* have shown a remarkable distaste for disclosure.\(^5\) The “self-selection” problem is therefore a different one from the one analyzed in the hedge fund market. Hedge funds have an incentive to report their performance to data vendors a) when their performance has been good; and b) for as long as they are actively seeking to attract fund inflows. In private equity, by contrast, the questions are; c) do the investors that supply TVE with performance information invest in a random selection of funds? And d) are some funds better than others at holding their investors to their confidentiality agreements (which are standard in the industry).

The authors use an argument that sounds like a) above, to motivate their attempt to correct for “sample selection”. I’m not so sure that is relevant, but it’s largely an empirical question. [Emphasis in the original]

The referee, who was clearly very familiar with the field, asserts unequivocally that TVE’s sources are fund investors, not managers. That means worries about sample selection, although natural, are likely in his/her opinion to be irrelevant. It follows that there should be no need to worry that a large fraction of the funds might just stop reporting.

Kaplan and Schoar (2005) write in a similar vein:

Our sample differs from the mutual fund studies because we only use realized returns at or near the end of a fund's lifetime. Observations are not dropped from the dataset if returns in a given period fall below a certain threshold as is sometimes the case in mutual fund data sets. In an interview in the *Asset Alternative Newsletter* (*Asset Alternative* 2002), Jesse Reyes from Venture Economics states that Venture Economics observes very few incidents of funds that stop reporting when returns worsen. Furthermore, Venture Economics does not rely solely on the GPs for performance information, but also on LPs who are not prone to this type of selection bias.

\(^5\)Witness their heavy-handed reaction to the University of California’s decision to disclose performance information for funds it had invested in, following Freedom of Information Act litigation.” [The italics and this footnote are in the original referee’s report.]
There was, therefore, a consensus at the time that what we had noticed could not be a data error. This left only the first explanation: that is, many funds held living-dead investments. That is the basis on which we proceeded.

In 2009, I was writing an update of the evidence for a book chapter (Phalippou, 2010). I looked at the NAVs reported by TVE for the vintage years that we had included in the previous study (i.e. 1980-1993). The latest version of the data I had at that point was a download showing performance as of December 2007. All the buyout funds raised between 1980 and 1993 reported a total NAV of $13 billion in December 2003. This is what we had written off in our analysis. As of December 2007 - that is, four years later - these same funds reported a total NAV of $10 billion. The NAV had gone down, as one would naturally expect – but not by very much.⁶

In that book chapter I discussed the two possible explanations mentioned above: either (a) these funds really were living-deads (which explains why their NAV did not go down as much as one would expect) or (b) it was a data error. In either case, the treatment of final NAVs at market value (which was the usual assumption) was not warranted. Section 3 of the book chapter specifically pointed out that if (b) was the case, then performance could be underestimated:

Another possibility is that Thomson data are fraught with a flaw. The worse kind would be that Thomson may not have cash-flow reports for some funds. For example, assume that for fund \(i = 1, \ldots, N\) Thomson stops receiving cash flow information at date \(T_i\) and thereafter they report for every quarter \(t\) that NAV(\(t\)) equals NAV(\(T_i\)). If that is the case, then performance derived from this database is most likely underestimated. This is because investments tend to happen in the early years of a fund (and are therefore more likely to be recorded) while dividends tend to happen in the later years of a fund (and are therefore more likely to be distributed after date \(T\), being thus omitted). As Thomson provides no description of how they maintain their dataset, it is very difficult to determine whether or not performance is, indeed, underestimated.

New private equity performance datasets and statistics have become available in recent years. For example, Cambridge Associates makes aggregate statistics publicly available online.

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⁶ If one accesses Thomson performance data as of June 2011, the NAVs of the 1980-1993 funds are still summing up to $10 billion. The NAV as of June 2011 is thus very close to the December 2007 number.
As of 2011, these show a negligible NAV for the 1980-1993 buyout fund vintages.\textsuperscript{7} This raises concerns that TVE data may be flawed after all.

One possible reason is that it is in fact fund managers who provide the bulk of the Thomson data, and not investors. The problem may have worsened over the last decade as the fund coverage in TVE seems to have decreased significantly (Cornelius, 2011).\textsuperscript{8} The fact that the National Venture Capital Association (NVCA) has recently stopped using TVE and switched to Cambridge Associates is a further indication that TVE’s data quality may have deteriorated significantly in recent years.

Definitive proof is unlikely to emerge, of course, given that the TVE data are anonymized and for legal reasons cannot be de-anonymized. However, it is possible to go back to the 2003 dataset and assess the size of this potential bias. The next section addresses this question.

\textit{The size of the potential bias in TVE data, as of 2003}

I now go back to the original TVE dataset used in the Phalippou and Gottschalg (2009) study. Selecting vintages 1980-1993, and funds with a size above $5 million, produces a total of 968 funds. This is higher than the 852 in the original study because funds showing recent cash flow activity are left in. As in the original study, both buyout and venture capital funds are included. Key statistics are summarized in Table 1.

In the Phalippou-Gottschalg study, the value-weighted PME was 1.01. Writing off the NAVs reduced the value-weighted PME to 0.94 (a decrease of 0.07). Weighting funds by the present value of their investments (instead of size) reduces the PME by a further 0.02 and the sample bias correction by another 0.04, leading to a final estimate of PME of 0.88.

Out of the 968 funds, 399 reach a point where they have no more cash flow activities and a non-zero NAV that is repeated for at least four consecutive quarters. For simplicity’s sake, let this be the time when they ‘stop reporting’. The mean and median fund age when this occurs are both 11.5 years, which is reassuring since fund’s life is usually between 10 and 12 years.

\textsuperscript{7} Stacke (2011) compares the NAVs of different vintage years across several publicly available datasets and finds that Thomson does indeed show exceptionally high NAVs for old vintage years.

\textsuperscript{8} Note that the last decade was not included in the academic studies that used TVE data, including mine, so the problem is minimal for these studies.
Only 25 funds stop reporting before they reach their fifth anniversary (the typical end of the investment period). If we move the threshold to eight years, we count 116 funds that stop reporting before they reach their eighth anniversary. If we exclude these 116 funds, the remaining 852 funds generate a value-weighted PME of 1.01 when NAV is treated as the correct market value at the time the funds stop reporting, or at the end of the sample if they do not stop reporting. If I include all 968 funds, and treat NAVs the same way, then we find the same value-weighted PME: 1.01.

Contrary to the consensus that prevailed until recently, it now appears that funds may stop reporting to TVE and thereby create a bias. If so, then it is indeed a mistake to write off the NAVs of mature funds. Assuming there is a mistake, and taking the NAVs at the moment the reporting most probably stops, produces a value-weighted PME of 1.01 (as of 2003). Because the other corrections are found to still hold when treating NAVs as market values, there is still an underperformance of private equity as of 2003 but it would be smaller (about 1% per annum).

To conclude this section, the flaw in TVE data that Stucke (2011) describes is plausible. The existing literature (Phalippou, 2010) had already mentioned the issue. However, it does not significantly alter the results in Phalippou and Gottschalg (2009). At best it would bring private equity returns closer albeit below those of the S&P 500 index (as of December 2003). TVE’s database (in 2003) would need to include another significant bias in order for it to show private equity returns significantly higher than the S&P 500 for the 1980-1993 vintage years (as of 2003).

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9 They have invested a total of $2.4 billion, distributed a total of $0.7 billion, and report a total NAV of $1.5 billion.
10 These 116 funds have invested a total of $9 billion, distributed a total of $8 billion, and report a total NAV of $6 billion. After excluding these 116 funds, the remaining 852 funds left in the sample have invested a total of $114 billion, distributed a total of $208 billion, and report a total NAV of $8 billion.
11 The PME would be 0.96 if NAV was written off; and 1.02 if the final NAV was treated as the final market value (as in Kaplan and Schoar, 2005). The difference of 0.02 between the Phalippou-Gottschalg study’s PME of 0.94 and the 0.96 just cited reflects the inclusion of funds that show recent cash flow activities. Kaplan and Schoar (2005) propose filtering out funds that show recent cash flow activities and to improve result comparability, Phalippou and Gottschalg (2009) applied the same filter.
TVE bias does not affect cross-sectional results

Even if the bias mentioned above affects results such as the mean return, it may not have any impact on cross-sectional results. In fact, cross-sectional results obtained with TVE data seem similar to results obtained with other datasets.

Take for example the correlation of performance between an individual manager’s successive funds. Kaplan and Schoar (2005) documented this and called it “persistence”. If a manager stopped reporting for all its funds, that would probably bias downward the performance of all that manager’s funds and thus generate a spurious correlation. But the correlation seems to be present in other data samples as well (Kaplan and Schoar, 2005). This result is therefore likely to be robust.

Similarly, estimates of beta using TVE data seem very close to those found in other studies. Driessen, Lin and Phalippou (2011) find a beta of 1.3 for buyout and 2.7 for venture capital using TVE data. Both Cao and Lerner (2005) and Franzoni Nowak and Phalippou (2011) find a beta of 1.3 for buyout as well. Cao and Lerner (2005) estimate beta from a sample of reverse buyouts and Franzoni Nowak and Phalippou (2011) use a different dataset (CEPRES) that contains returns on a large number of liquidated buyout investments. On the venture capital side, independent and contemporaneous work by Korteweg and Sorensen (2010) using a different methodology and dataset also got a beta of 2.7.

Finally, results pertaining to fees in Phalippou and Gottschalg (2009) are also likely to be robust. For example, the main result shows that two thirds of the fees are from fixed fees while one third is from variable fees (carried interest) for a fund with a performance equal to that of the S&P 500 index. The same numbers are found by Metrick and Yasuda (2011) using a different dataset and approach. Using SEC filings by Apollo, Blackstone and KKR, Morris (2011) also finds numbers consistent with these results.
Two recent studies on private equity performance

I now turn to two recent working papers, whose authors have had access to more comprehensive (but different) datasets of cash flows: Robinson and Sensoy (2011) and Harris, Jenkinson and Kaplan (2011). The focus will be on buyout funds because they are much larger and controversy is usually focused on these. In addition, the two studies report numbers that are quite different for non-buyout funds.\textsuperscript{12}

Previous research (Ljungqvist and Richardson, 2003, Kaplan and Schoar, 2005, and Phalippou and Gottschalg, 2009) focused on value-weighted PMEs. These are the statistics that are usually seen as economically meaningful because they measure the value created by the average dollar invested in the asset class. Although these two recent studies do not report that these statistic we can find them.

In the case of Harris, Jenkinson and Kaplan (2011) combining their Table 2 and Table 5 provides an estimate of the value weighted PME. This is because their Table 5 shows the value weighted PME in each vintage year and Table 2 shows the amount committed in each vintage year.\textsuperscript{13} Combining these two data series leads to a value-weighted average PME of 1.16 for buyout funds. Robinson and Sensoy (2011) do not report the amount committed to (or invested by) the funds in their sample per vintage year. This makes it impossible to deduct the value-weighted PME from their paper, but they told me it was 1.12 for the full sample of buyout funds.\textsuperscript{14}

Take the highest of these two numbers (1.16) as the estimate of the average dollar PME. This means the compounded outperformance of the average fund over its entire life is 16%, but this figure can be hard to interpret. Phalippou and Gottschalg (2009) show how to obtain a yearly outperformance number from a PME. Without the underlying cash flows, though, it is impossible to do that calculation. Instead, I need to make a back-of-the-envelope calculation and make an assumption about the effective life of the average fund.

The longer the life, the lower the yearly outperformance will be. For example, assuming a life of ten years, the yearly outperformance would be 1.5% (because $1 compounded over ten

\textsuperscript{12} Ljungqvist and Richardson (2003) also offer a measure of performance for a large set of buyout funds raised up until 1993 which an anonymous LP invested in. The PME they find is much higher.

\textsuperscript{13} To get the exact number we would need to know the present value of all the investments made in each vintage.

\textsuperscript{14} Both studies report the equally weighted PME. Harris et al. (2011) find 1.22 and Robinson and Sensoy (2011) find 1.18.
years at 1.5% a year leads to $1.16). But not all the money is invested over the full life of the fund, so a lower duration is appropriate. Phalippou and Gottschalg (2009) find an average effective life of 6.25 years in their sample. Using this number, the yearly outperformance would be 2.4%.

Having derived an estimate of the yearly outperformance, the first thing to note is how different this number looks from the outperformance that the PE community has historically claimed. For example, the 30% that the Yale endowment reports on its private equity investments is regularly invoked as the type of return a PE investor can achieve.\textsuperscript{15} Recently the 88% of Bain capital has also frequently be mentioned in the media. Medias usually do not mention, however, that these two numbers are internal rates of return and therefore not a rate of return (see Phalippou, 2011b). As such these two numbers are uninformative of true rates of return. Finally, the NVCA presents every quarter the annualized returns of their private equity benchmark and these are routinely in the range of 5% to 10% over the returns of the S&P 500 index.\textsuperscript{16}

On the face of it, this discrepancy may seem puzzling. However, until recently, TVE was the data provider of the NVCA and, in 2003, the NVCA was reporting strong outperformance of private equity funds based on these data. One of the most important contributions of Kaplan and Schoar (2005) and Phalippou and Gottschalg (2009) was to show that a more “academic” approach to measuring returns produces very different results from the same underlying data.\textsuperscript{17}

The recent studies have had access to what appears to be good quality data. Their results suggest that private equity modestly outperformed the S&P 500. This does not establish conclusively that private equity has been an attractive investment; but nor does it prove the opposite. The studies inevitably leave some issues and questions outstanding. I now discuss in turn potential sample biases; the choice of benchmark; and a number of other points.

\textsuperscript{15} http://www.yale.edu/investments/
\textsuperscript{16} For example, Cambridge Associates (the NVCA data provider) shows that as of June 2011, returns over the past ten years are 11.34% for PE and 2.72% for the S&P 500; and for the past twenty years, returns are 13.61% for PE and 8.73% for the S&P 500 index.
\textsuperscript{17} The academic studies used the exact same underlying data as the NVCA benchmarks, hence only a difference in methodology can explain the difference in results. Phalippou (2011a) discusses why it is that the two methodologies may lead to very different answers.
The ever-present issue of sample bias

Sample bias is always an important issue in performance evaluation. The long mutual fund literature provides a good illustration. Sample biases are naturally magnified in high-volatility assets such as private equity or hedge funds.

The datasets behind the two recent studies seem to be of better quality than anything else that has yet been made available for research purposes. Harris et al. (2011) examine the returns of funds that were selected by a large number of investors who agreed that their track record could be included in the study. The fund data in Robinson and Sensoy (2011) come from one investor - but because the investor inherited the track record, they argue that the investor has no vested interest. In both cases, it seems fair to say that a private equity investor that has both survived for a number of years and willingly shared its track record with academic researchers is more likely to have selected funds that are above average than below average.\(^{18}\)

In addition, investors in private equity generally prefer it if the asset class is shown to outperform. If not, capital may be re-allocated towards asset classes perceived to be more profitable, with the result that the private equity investment team may be downsized. It is obviously hard to tell how many private equity studies have been either not commissioned, or not completed, or suppressed once completed, because the people who commissioned them deemed the results insufficiently positive.\(^{19}\)

Nonetheless the size of this bias may turn out to be small. These two recent studies seem to capture a high proportion of private equity funds in terms of the capital that was invested over the last two decades. Any missing funds may therefore be negligible on a value-weighted basis, especially in recent years when the buyout industry concentrated dramatically. For the 1980s, however, it is more difficult to be optimistic. But the empirical question remains open.

These two recent academic studies were given access to the best quality data that have yet become available in the field of private equity. It follows that they define the current state of our knowledge about returns. Much can be learnt from them and the point estimate for average returns seems sensible.

In absolute terms, however, research into private equity still lacks an adequate dataset. In

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\(^{18}\) For example, the public pension funds which back a disproportionate number of underperforming local fund managers (see Hochberg and Rauh, 2011) are unlikely to be part of these databases. As a result these underperforming funds are unlikely to be included in the sample.

\(^{19}\) Anecdotally, the figure is greater than zero.
the US, nothing that has become available comes close to the CRSP dataset of mutual funds in terms of quality and open access.²⁰ Outside the US, the situation is worse.

This situation is unfortunate, to say the least. Stepping back for a moment, it seems extraordinary that an issue with such important public consequences is allowed to languish with imperfect data. It is hard to imagine this being tolerated in other fields (e.g. medical research). Zingales (2009) and Morris and Phalippou (2012) make suggestions about how the situation could be improved. There are also remarkable private initiatives that are ongoing but have not yet come to fruition. Until the situation does improve, strong conclusions about private equity returns will remain frustratingly out of reach.

_Private equity outperformance, or S&P 500 underperformance?_

Academic research has generally used the S&P 500 as the public market benchmark for private equity returns. This is probably because S&P 500 index returns are readily obtainable at a negligible cost for institutional investors. However, companies that belong to the S&P 500 index have been beyond the reach of most private equity funds. Private equity funds invest mainly in companies that are similar in size to so-called small cap and mid cap stocks, not to those in the S&P 500 index. For the time period covered in earlier studies of private equity performance, this fact did not matter because the S&P 500 index had returns similar to those of small cap and mid cap stocks.²¹ Hence for simplicity the S&P 500 was used. For the recent time period, however, the size effect has been strong again. The largest stocks have significantly underperformed all the other stock size categories by a wide margin.

Table 2 shows the annualized average value-weighted return of each of Fama-French’s size-decile portfolios (available on Ken French’s website) over the last three decades. The data are also illustrated in Figure 1. Returns across deciles are almost flat for the 1980s and 1990s. In the 2000s they are also flat except for the largest decile. To give an idea of the actual sizes involved, Ken French reports that the average size in the top decile category is always above $50 billion (which is the size of the largest buyout transaction ever). Because the S&P 500 contains

²⁰ CRSP is a dataset maintained by the University of Chicago.
²¹ The reason has been the unusual absence of a size effect in US stock returns in the 1980s and 1990s (unlike in other decades; see for example Fama and French, 1993).
mainly, if not exclusively, stocks in that highest decile, and because private equity funds do not
invest in such large companies, it may be worth exploring stock benchmarks that are not driven
by top decile stocks.

Another illustration is provided by Figure 2. It plots 10-years forward looking moving
averages of the S&P 500 index, and the CRSP equally-weighted index. Ten year averages are
shown because that is the usual life span of a private equity fund. The CRSP index contains all
common stocks traded in the US (on the Nasdaq, Amex and NYSE). The CRSP equally-weighted
index thus measures the return of the average US stock.

In effect, Figure 2 shows alternative benchmark returns for private equity funds of any
given starting date. Take a private equity fund that began operations in 1980. Over the next ten
years the total return on the S&P 500 was just over 15% per annum, and the return of the average
US stock was similar. This would be the benchmark return. For funds starting in 2000, however,
the picture is very different. The average return on the S&P 500 over the next ten years is
negative while it is above 10% for the average US stock. If funds starting in 2000 have
outperformed the S&P 500 by 3% per annum, that means they underperformed the average US
stock by more than 7% per annum.

Another way of putting it is as follows. Suppose a private equity fund added no value but
simply bought and sold at market prices a random small cap or mid cap company over the last
decade; it would have strongly outperformed the S&P 500 index. This is why it is customary to
benchmark returns against stocks of similar size (and book-to-market; see for example Fama and
French, 1993).

Interestingly, Robinson and Sensoy (2011) take a step in this direction when they report
what they call the “tailored PME”. They divide their buyout funds into three groups (terciles)
based on their size and benchmark these three groups against the three size-tercile portfolios of
Fama-French.22 This means that only one third of their buyout funds are benchmarked against
large stocks (instead of all of them). The equally weighted average PME then drops from 1.18 to
1.08 (the value-weighted average is not reported). A PME of 1.08 corresponds to about 1.2%
yearly outperformance (assuming again a fund’s life of 6.25 years). This is consistent with the
idea that the documented outperformance may be largely driven by a size effect.

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22 Large buyout funds are matched with large stocks, small buyout funds are matched to small stocks and so-called
mid-market buyout funds are matched with mid cap stocks.
Comparisons between private and public equity returns cannot ignore the potential for sample bias and the size effect. This section raises some further issues.

First, risk may not be the same for public and private equity. Private equity may have a risk premium that is higher than the 2.4% outperformance estimated above. Robinson and Sensoy (2010) find that when they use different betas (i.e. risk corrections) their measured outperformance hardly changes. However, other studies such as Franzoni et al. (2012) show a dramatic change in alpha when using different risk corrections. The scale of the change seems plausible, given the size of the different risk premia observed over the last decades and the risk exposures of private equity documented in the literature. Note also that Franzoni et al. (2012) find a zero alpha gross-of-fees for a large sample of liquidated buyout investments.

The second issue involves the way private equity funds are structured. An investor in a private equity fund usually has to provide what is known as a “capital commitment”. This is the economic equivalent of a committed credit facility. It allows the fund’s manager to draw down cash from the investor as and when convenient, over a period of (typically) five years. Providing this commitment represents a cost to the investor, but this has yet to be quantified.

Third, investments in private equity funds cannot readily be sold. A recent paper by Sorensen et al. (2011) estimates this illiquidity cost to be at least 1% annually.

Fourth, investing in private equity involves additional costs, relative to public equity. Private equity investors pay more for consultants, lawyers, and internal costs (e.g. staff, premises, travel). They may also use a fund of funds, which entails an additional layer of fees. These costs all need to be factored in to reach an accurate all-in comparison of private and public equity returns to the investor.

Finally, recent private equity returns are hard to assess. NAVs may be conservative or aggressive and the answer may be time varying (e.g. NAVs may be more conservative in good times). Robinson and Sensoy (2010) find that if they focus only on liquidated funds the average performance is similar, which is reassuring. The sample used by Harris et al. (2011), however, contains few mature funds and as a result the accuracy of NAVs plays a larger role.

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23 This may be due to the S&P 500 returns being close to zero over their sample period. If so, a benchmark that excludes the largest stocks may lead to a different answer. Otherwise, it seems difficult to explain.

24 The drawback of a sample of liquidated funds, however, is that they may not be representative because funds that perform better may liquidate faster.
Conclusion

Claims are regularly made that private equity funds in aggregate generate significant alpha for their investors. Recent findings, like previous ones, fail to provide clear empirical support for this. This state of affairs might be expected in a world where capital is in abundant supply. The fact that so many new and different investors have invested significantly in private equity over the last two decades suggests that the provision of capital has been competitive (although this may change in future). In this situation, the standard economic prediction is that fund managers should capture most of the value they create, if any. Interestingly, many industry practitioners actually seem to hold this view. They routinely state that only top quartile funds are worth investing in. In addition, a similar view has been expressed for hedge funds (e.g. Fung, Hsieh, Ramadorai and Naik, 2008, Lack, 2012) and hedge funds have a similar investor base.

It should also be said that the current state of research probably does not allow a strong conclusion in the other direction, either. Evidence of a significant negative alpha is also not firmly established.

The only way to put these issues to rest is with a comprehensive, accurate and open data access. Both Kaplan and Schoar (2005) and Phalippou and Gottschalg (2009) used the TVE database in good faith. If this database is indeed biased, then despite the fact that the impact of this potential error was small at the time, the episode has both intellectual and public policy implications. It is wholly unsatisfactory that research on a subject as important as private equity has to rely on imperfect data. Zingales (2009) points out the dangers that can arise when information can be filtered by vested interests. Although the two recent studies had access to good quality data, many questions remain to be answered. Most if not all of these questions could be tackled if the data were comprehensive, unbiased and more widely available.
References


Hochberg, Yael, and Josh Rauh, 2011, Local Overweighting and Underperformance: Evidence from Limited Partner Private Equity Investments, working paper, available at SSRN.com


Sorensen, Morten, Neng Wang, and Jinqiang Yang, 2011, Valuing private equity, working paper.

Stucke, Rudiger, 2011, Updating history, working paper, available at SSRN.com

### Table 1: Descriptive Statistics of the TVE dataset as of December 2003

<table>
<thead>
<tr>
<th></th>
<th>Number of funds</th>
<th>Total Invested ($ bn)</th>
<th>Total Distributed ($ bn)</th>
<th>Final NAVs ($ bn)</th>
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<tbody>
<tr>
<td>Full sample</td>
<td>968</td>
<td>156</td>
<td>133</td>
<td>22</td>
</tr>
<tr>
<td>Funds that stop reporting:</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ALL</td>
<td>399</td>
<td>42</td>
<td>75</td>
<td>14</td>
</tr>
<tr>
<td>Stop before 5&lt;sup&gt;th&lt;/sup&gt; anniversary</td>
<td>25</td>
<td>2.4</td>
<td>0.7</td>
<td>1.5</td>
</tr>
<tr>
<td>Stop before 8&lt;sup&gt;th&lt;/sup&gt; anniversary</td>
<td>116</td>
<td>9</td>
<td>8</td>
<td>6</td>
</tr>
<tr>
<td>Small</td>
<td>Decile 1</td>
<td>Decile 2</td>
<td>Decile 3</td>
<td>Decile 4</td>
</tr>
<tr>
<td>-------</td>
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<tr>
<td>0.57%</td>
<td>7.30%</td>
<td>8.63%</td>
<td>9.21%</td>
<td>9.33%</td>
</tr>
<tr>
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<td>15.8%</td>
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<td>18.1%</td>
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<tr>
<td>1.8%</td>
<td>18.77%</td>
<td>18.77%</td>
<td>18.77%</td>
<td>18.4%</td>
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<tr>
<td>1.20%</td>
<td>15.8%</td>
<td>16.8%</td>
<td>17.5%</td>
<td>19.0%</td>
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</tbody>
</table>

Table 2: Annualized average value-weighted return of the Fama-French size portfolios with value-weighted value. Stocks are allocated to ten different portfolios based on their size, every year. Monthly returns are compiled for each decile and are value-weighted. Source: Ken French website.
Figure 1: Annualized average value-weighted return of the Fama-French size portfolios
This figure plots data from Table 2.
Figure 2: Annualized Ten Year Forward Looking Moving Average Returns

Each point is calculated as the average monthly return over the next 120 months of either i) the S&P 500 index, or ii) the CRSP equally weighted index (i.e. the average US stock), or iii) 10-year treasury bonds. The average monthly return is then annualized. Data are from the CRSP database from January 1980 to December 2010. The ten year forward looking moving average is thus from January 1980 to December 2000.
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