INVESTORLIT Research
Private Equity vs. Public Equity

By Bruce Grantier, Founder, InvestorLit

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Introduction

Institutional investors expect a return premium for private equity over public equity—typically in the order of 3-5% annualized, net of fees. Certainly, a premium should be expected, given the illiquidity of private equity, the uncertainty of valuations, the necessity of capital calls, and the fees and time commitment associated with initiating and monitoring an allocation to private equity.

However, a number of academic studies have found that, on average, net of fees, private equity has not produced superior returns vs. public equities. While the studies also note that premium returns can be earned, “...investors should be leery of accepting the endowment model’s past periods of high returns as a simplistic template for the future. Many of the more notable early successes were achieved by organizations that enjoyed special advantages in staff and analytical resources, highly committed sponsors, flexible funding needs, extensive access networks, and perhaps most important—early entry.”1 Investors may well ask if they have these attributes.

In addition, recent reports regarding the potential for misinterpretation of internal rate of return (IRR) calculations for private equity funds are raising further questions about the attractiveness of private equity.

In this InvestorLit review, I address both of these issues and conclude:

- Even though the current, widely used IRR calculation methodology is Global Investment Performance Standards (GIPS)-compliant, there are alternatives that, I believe, more accurately reflect private equity fund returns.

- While private equity may offer exceptional return potential, institutional investors should be extremely cautious when contemplating this asset class. If they cannot earn high quartile returns, they may be better served investing in public equities (particularly small-cap stocks, as I note herein).

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Calculating Internal Rates of Return

Part of this review is based on a recent article in *The Journal of Alternative Investments* by Ludovic Phalippou, finance professor at the Said Business School, University of Oxford. Phalippou has written extensively on private equity investing and is a leader in this field.

In this recent article, Phalippou concludes, “Maybe most people know that IRR can be misleading but think it is not dramatic. This article shows how dramatic and misleading it can be.” The professor shows “…the GIPS-recommended performance metric may sometimes be uninformative of the true historical returns, display several oddities, and be highly misleading.”

His most recent work in this area is consistent with the conclusions of a 2008 paper he wrote. Here, I summarize those 2008 findings:

- IRR methodology can produce exaggerated returns when compared to more realistic measures such as MIRR (discussed later), since IRR is based on a single rate of return throughout. When early returns are high, IRR is much greater than MIRR. When early returns are low, IRR is much closer to or even lower than MIRR. This exaggerates relative performance: top quartile performance is overestimated and bottom quartile performance is underestimated.

- Because early success boosts IRR significantly, the General Partner may elect to cash out early successful investments, regardless of whether the timing of cash flows was done intentionally.

- Separately, aggregation of funds leads to the whole is not equal to the sum of the parts. Average IRRs for a group of funds do not equal the IRR of the aggregate cash flows.

Given the return expectations for private equity, accurate measurement and understanding of IRRs are very important, as well as understanding alternative measures of return calculations. Phalippou suggests that Modified Internal Rate of Return (MIRR) is a better representation of returns in a number of private equity cases. I have had some experience on using yet another return calculation approach called the Public Market Equivalent (PME) and a variation known as PME+ and also comment briefly on these alternative methodologies.

In short, there are various ways in which IRR can be misleading—an important topic considering that it is the GIPS compliant standard for private equity and is widely used. Money-weighted returns (which is another name for IRR), produce different rates of return for different size portfolios when compared to time-weighted returns—even assuming portfolios with identical composition and cash flow. Time-weighted rates of return were adopted by the CFA Institute as appropriate for comparing performance when fund size and cash flow should not affect rates of return, such as when comparing performance of mutual funds.

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3 The endnotes contain the private equity references discussed in InvestorLit 2011(5) “Private vs. Public Equity.”
5 Ibid
7 There is a very rare special case when this IRR does not cause this exaggeration: the returns at all stages of the fund are the same—such as a loan at a single interest rate throughout its lifetime.
Money-weighted returns (which is another name for IRR), produce different rates of return for different size portfolios when compared to time-weighted returns—even assuming portfolios with identical composition and cash flow.

The MIRR is an improved methodology over IRR because it uses:

- an assumed cost of capital to finance expenditures, and
- an assumed reinvestment rate of distributions.

Note: the MIRR does not use the project’s IRR, which is used in the Since Inception IRR (or SI-IRR) methodology and can lead to errors.

The MIRR calculates the present value of contributions, discounted at the cost of capital. It also calculates the future value of distributions compounded at the reinvestment rate. The MIRR is the rate of return at which the present value of contributions grows to the future value of reinvested distributions over the life of the project.9

Yet another alternative to IRR and MIRR is PME (and its cousin PME+). PME could be viewed as a variant of the MIRR as it also benchmarks performance. However, the PME computes an IRR for the public market benchmark to reflect the timing of investment/divestment in private equity investing. This is the IRR that would have been achieved by investing in a common stock index at the same time when the private equity fund makes a capital call and by selling the index whenever the fund distributes capital back to investors.

The PME and MIRR approaches are analogous. If the market returned a constant cost of capital/reinvestment rate equal to that used in the MIRR, the PME and MIRR results would be identical. The PME, however, gives a return linked to a public market benchmark as opposed to a cost of capital.

PME+ is a variation of PME which adjusts for the problems of shorting the public market investment. Shorting results when large distributions exceed the amount invested in the public market and, according to industry commentators, this occurs often enough to be a problem.10 Shorting the market can produce an erroneous PME and PME+ and render both useless. The PME+ methodology scales back outsized distributions so that the PME is always positive and the final values of the fund's terminal value and the PME always match. Indeed, the PME+ name stems from this methodology eliminating these effects of shorting by never having negative holdings (hence, it's always positive “+”).

However, the calculations for PME+ are unworkable in some situations, especially where large distributions occur. Generally, I believe MIRR is a preferred solution to PME/PME+ although both are more accurate measures of performance than SI-IRR.

Private Equity vs. Public Equity

Last year, I reviewed a paper written by the Kauffman Foundation (InvestorLit 2012(7) “Venture Capital”) that suggested using the Russell 2000 Index as the public market proxy for private equity. From my experience, I believe using the Russell 2000 Index makes sense because U.S. small caps have cumulatively (although certainly not every year) outperformed U.S. large caps by over 2% annualized since 1926, and it is a readily available alternative.11 Not only that, the performance objective for small-cap managers is typically 3% annualized (or a total of 5% over passive large caps), which coincidentally is often used as the value added objective of private equity.

The recent attention on return calculations for private equity prompted me to revisit that review and reiterate my conviction for investing in public equities—especially small caps.

A recent Russell Investments Survey on Alternative Investing reported a 3-5% expected private equity premium over public equity returns. It also reported sponsors expect to increase allocations to alternative

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9 Also explained in more detail in Phalippou’s 2008 “Hazards” paper. See Endnotes for more details.
investments in general and private equity within that class. Yet in the Introduction of this article, I noted that various academic studies conclude that, on average, net of fees, private equity returns have trailed those of public equities.

Here, I summarize six studies supporting that assertion. These studies, listed below in chronological order of publication, generally use a common methodology which:

- excludes or minimizes investments carried at cost (residual values), and
- calculates the equivalent return if invested in public markets (i.e., the PME).

1. **Peng Chen, Gary Baierl and Paul Kaplan (2002):** The authors dealt with residual values by only using funds which had none (i.e., they were completely wound up). They calculated the returns of 148 matured venture capital funds on the Thomson database between 1960 and 1999, and compared them to public market returns over that period. By using only matured funds, the authors could calculate IRRs which eliminated the potential for optimistic pricing of residual values—what they called “interim pricing.” They found private equity returns exceeded public equity returns by a very small premium of 1.2% over a 40-year period (13.4% vs. 12.2% for the S&P 500 Index).

2. **Steve Kaplan and Antoinette Schoar (2003):** The authors calculated returns of “largely liquidated” venture capital and buyout funds on the Thompson database between 1980 and 1997. They defined “largely liquidated” as investments whose residual value remained unchanged for six quarters and which were less than 10% of invested capital. By allowing largely liquidated funds to be included in the sample, the authors greatly expanded the sample size.

Using the PME, Kaplan and Schoar calculated the ratio of private equity return to public equity return for all private equity (venture capital and buyouts) was 0.96 over the sample period, indicating generally one would have been slightly better off in public markets. (They noted better performance for venture capital).

3. **Alex Ljungqvist and Matthew Richardson (2003):** The authors evaluated matured funds only of 73 private equity fund investments of one large institutional investor between 1981 and 2001. Excess returns were found only in the first part of this period. They examined various factors driving returns and concluded that the main factor behind excess return was the early timing of investments in private equity. Between 1981 and 2001 there was a tenfold annual increase in private equity fund raising and too much money chasing too few deals is likely to be a factor in future returns.

4. **John Cochrane (2005):** This author used a different database and approach altogether. He used data on a very large number of individual projects, as opposed to funds composed of many projects. The most successful projects progressed to the initial public offering or acquisition stage. The least successful, out-of-business projects, were written off. He concluded that the return estimate of his sample (15%) was fairly similar to that of the S&P 500 Index (15.9%) over the comparable period. He noted the similarity of his conclusion to that of Chen et al.

5. **Josh Lerner, Antoinette Schoar and Wan Wong (2005):** The authors carried out an extensive review of returns focussing on return differences by type of limited partner (LP). They assembled a group of 417 LPs, which invested in 1,398 funds raised between 1991 and 2001. The LPs included public pension funds, corporate pension funds, foundations and endowments, advisors, banks and insurance companies. The authors showed that returns varied quite dramatically depending on the LP, as opposed to what the fund was. Their results are summarized in Exhibit 1 on the following page.

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11 As we discuss next, subsequent researchers, Phalippou and Gottschalg, examined these residual values and concluded they should be written off, and gave them zero value, reducing returns significantly.

12 Cochrane’s data was gross of fees, unlike the other studies. However his results - even gross of fees were similar to the other studies.
Exhibit 1: U.S. Private Equity, Venture Capital and Buyout Returns, 1991-2001

<table>
<thead>
<tr>
<th>Limited Partner</th>
<th>Overall</th>
<th>Early Venture</th>
<th>Late Venture</th>
<th>Buyouts</th>
</tr>
</thead>
<tbody>
<tr>
<td>Public Pension Funds</td>
<td>7.6%</td>
<td>12.1%</td>
<td>10.8%</td>
<td>3.2%</td>
</tr>
<tr>
<td>Corporate Pension Funds</td>
<td>5.1%</td>
<td>9.4%</td>
<td>10.9%</td>
<td>0.3%</td>
</tr>
<tr>
<td>Endowments</td>
<td>20.5%</td>
<td>34.6%</td>
<td>19.3%</td>
<td>0.1%</td>
</tr>
<tr>
<td>Advisors</td>
<td>-1.8%</td>
<td>-0.5%</td>
<td>-1.0%</td>
<td>-4.3%</td>
</tr>
<tr>
<td>Insurance Companies</td>
<td>5.5%</td>
<td>2.6%</td>
<td>12.3%</td>
<td>-0.6%</td>
</tr>
<tr>
<td>Banks</td>
<td>-3.2%</td>
<td>-13.9%</td>
<td>1.0%</td>
<td>-2.2%</td>
</tr>
<tr>
<td>Other Investors</td>
<td>4.8%</td>
<td>-6.8%</td>
<td>17.8%</td>
<td>-2.3%</td>
</tr>
<tr>
<td>Average for all Investors</td>
<td>6.9%</td>
<td>12.8%</td>
<td>9.4%</td>
<td>0.4%</td>
</tr>
</tbody>
</table>

Source: Lerner, Schoar and Wong (2005)

The S&P 500 Index return from 1991 to 2001 was about 10% annualized—much better than most of the returns shown, although handily beaten by the endowments investing in venture. By comparison, returns for small-cap U.S. stocks (as measured by the Russell 2000 Index) over the same period were approximately 14.0% annualized.

6. Ludovic Phalippou and Oliver Gottschalg (2007): The authors updated and extended the Kaplan and Schoar sample of funds to a broader sample, following a similar methodology. They used a price index that was the equivalent of the PME used by Kaplan and Schoar. Their main conclusion was that residual values, which they called the “living dead,” should be written off. All residual values in their sample of 10-year old funds had zero cash flow after six quarters, and 71% had neither cash flow nor revisions in residual values after three years. Writing them off reduced returns by 7% and caused private equity to lag public equity by 3.5%—the most dramatic quantification of underperformance of the studies I reviewed.

Conclusion

At a CFA Institute Annual Conference, David Swensen, CIO of the Yale Foundation, was asked about his secret recipe for successful private equity investing. He responded candidly, saying manager selection was “all that mattered.” He added while equity weight and diversity will get you part of the way, the real trick is in the investment team’s ability to make high-quality asset decisions. He said that if you invest in absolute return assets (i.e., hedge funds, real estate and private equity) without skill, “You will get killed. Fees don’t care who you are. The only way to be successful is to be top decile.”

And apparently, investing with a top-decile fund may not be enough. The Kauffman Foundation report I mentioned earlier concluded even top decile private equity funds did not always beat public equity. In closing, a brief look at institutional investors suggests some are much more successful than others when it comes to private equity. Swensen stressed manager selection and the importance of process, the team, and the ability to make high-quality decisions. Given these qualifications (and the uncertainty regarding the methodology for reporting returns), one wonders why many investors continue to consider private equity managers and expect the same return premiums as the most successful investors—especially when public equity (in particular small-cap stocks) offer such an attractive alternative.
ENDNOTES
The academic articles and books referenced in this piece include:


DISCLOSURES
The Russell 2000 Index with gross dividends is an unmanaged, market capitalization weighted index that measures the performance of the small-cap segment of the U.S. equity universe. The Russell 2000 Index measures the performance of the small-cap segment of the U.S. equity universe. The Russell 2000 Index is a subset of the Russell 3000® Index representing approximately 10% of the total market capitalization of that index. It includes approximately 2,000 of the smallest securities based on a combination of their market cap and current index membership. This index includes the reinvestment of dividends and income, but does not reflect fees, brokerage commissions, withholding taxes, or other expenses of investing.

The S&P 500 Index with gross dividends is an unmanaged, market capitalization weighted index that measures the equity performance of 500 leading companies in leading industries of the U.S. economy. The index includes 500 leading companies in leading industries of the U.S. economy, capturing 80% coverage of U.S. equities. This index includes dividends and distributions, but does not reflect fees, brokerage commissions, withholding taxes, or other expenses of investing.

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