

LIVING Dead

Private equity doesn't quite live up to expectations, according to the literature.

BY BRUCE GRANTIER

Institutional investors typically expect a return premium of 4% to 5% for private equity over public equity, according to some surveys. The additional risks and costs associated with private equity investing certainly warrant a premium.

However, a number of academic studies have found that, on average and net of fees, private equity has not produced premium returns to public equities. This review of the current academic literature aims to outline the research and thinking that is currently being discussed and provide a summary of the thoughts and conclusions currently being put forth. Indeed, the key to the discrepancy between expected and actual returns appears to lie in the valuation of unrealized investments—or “residual values”—of those investments carried at cost, often for long periods. One study even found that residual values exaggerate true value by 7%, leading its authors to call residual values “the living dead.” Contributing to this discrepancy are well-known but inherent biases in the widely used methodology of performance for private equity—the internal rate of return.

Taking a closer look at these issues, this paper proceeds as follows. We discuss the expected return premium, risks and costs in private equity. We then review a number of academic studies, with a focus on residual values. Finally we discuss institutional success, provide comments by one successful private equity investor, and offer some possible explanations for the persistence of an expected return premium.

EXPECTED RETURN PREMIUM

The Russell Investments 2008 Survey on Alternative Investing of North American plan sponsors reports the mean expected returns on private equities did not change much between 2003 and 2007, and were in the range of 12% to 14%; a 4% to 6% premium to expected public equity returns. Financial publications have noted high expectations: *Business Week* with “Gluttons at the Gate”¹, *The Economist*, with “Private Equity: Caveat Investor”, and “Private Equity: The Uneasy Crown”², and *Fortune* with a Bill Gross article, “Don’t Follow the Kings... Yale’s Swenson can do things ordinary folks can’t...”³ One of the academic papers cited herein⁴ refers to “a widely-held belief of high past performance” supported by various quotes from the *Financial Times*, including one which reports investors’ expectations of a 4.2% private equity premium over public equity.

Data providers also lend support to this belief. Thomson Venture Economics is the leading provider of returns for

U.S. Private Equity Horizon IRRs and Public Equity Annualized Returns - Dec. 31, 2005

Asset Class	1 Year	3 Year	5 Year	10 Year	20 Year
Venture Capital	7.8%	3.0%	-6.3%	25.8%	16.0%
Buyouts	26.9%	11.0%	2.9%	9.0%	13.8%
All Private Equity	20.4%	8.2%	0.1%	12.7%	13.8%
S&P 500 Index	4.4%	6.4%	-3.9%	8.1%	10.6%

Source: Thomson Venture Economics’ Investment Benchmarks Report 2006, page 378.

FIGURE 1

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venture capital, buyouts, and private equity. The industry uses an internal rate of return (IRR) calculation based on capital calls, sales of assets, distributions of cash and/or securities, and residual values. The IRR methodology⁵ is widely used for private equity because investments are illiquid and infrequently priced. Thomson's recent return data are shown in Exhibit 1.⁶

RISKS AND COSTS

There are added risks and costs associated with private equity versus public equity investing. The research cited herein makes almost no mention of traditional risk, since the concept of volatility is not applicable when assets are illiquid and infrequently priced.⁷ The Chartered Alternative Investment Analyst Association (CAIA)⁸ textbook on private equity by Meyer and Mathonet (2005), "Beyond the J-Curve," discusses the inadequacy of traditional risk measures in private equity—indeed, it notes that, since private equity markets are not efficient markets, much of traditional finance theory cannot be applied. Beta, for example, can only be modelled in a very simplistic way, using public proxies for private equity portfolios. Private equity betas, thus calculated, however, have proven to be quite unstable over different market environments. On a different risk measure, the Basel Committee on Banking suggests it is sound practice to establish an internal system for risk ratings. Notwithstanding, its usual measure of risk (value at risk, or VaR) cannot be used due to the lack of volatility data. As Meyer and Mathonet state, private equity operates not only in a risky but also an uncertain environment—one in which unknown, unidentified or non-measurable risks and opportunities exist. They note numerous qualitative measures of risk such as risk governance, risk measurement (commitment, portfolio liquidity, operational) and risk monitoring. They also cite a body of research which views private equity from a biological point of view—due to its evolutionary nature.

Costs include resource requirements for origination and due diligence, tax and legal advice, and ongoing monitoring costs by both investment staff and governing fiduciaries. Ontario Teachers' Pension Plan, for example, has some 65 investment staff in their private equity department. There are also "agency costs" in private equity investing. A discussion of agency costs may be found in another textbook for the CAIA by Gompers and Lerner (2004) entitled "The Venture Capital Cycle." It includes a discussion of covenant patterns in private

equity agreements. These primarily protect the interests of limited partners (LPs) from potential conflicts of interest for general partners (GPs). An example of an agent conflict is the pricing of unrealized private equity investments. GPs have an interest in successfully raising "follow-on" funds and want their current fund returns to appear robust. Douglas Cummings and Uwe Walz (2007) in "Private Equity Returns and Disclosure Around the World" specifically refer to such conflicts: "We provide theory and supporting empirical evidence from 39 countries... Private equity fund managers may report to institutional investors inflated valuations of private investee companies that are not yet sold in order to obtain more funds from the institutional investors; however, overvaluations may result in reputation cost when investments are realized in subsequent years."

PRIVATE EQUITY RETURNS

Academic studies are quite valuable in assessing private equity returns since they are rigorous and unbiased—they have no predisposed point of view other than to advance the understanding of the topic. We review a number of academic studies; three are related, two are variations on the topic. The studies referred to herein generally use two methodologies: first, they adjust for investments carried at cost (residual values), and second they calculate the equivalent return if invested in public markets. Since residual values can have a great influence on returns, we note the following accounting convention.⁹ Investments are carried at cost, until:

Realized: assets are sold and cash and/or securities are distributed to the LP,

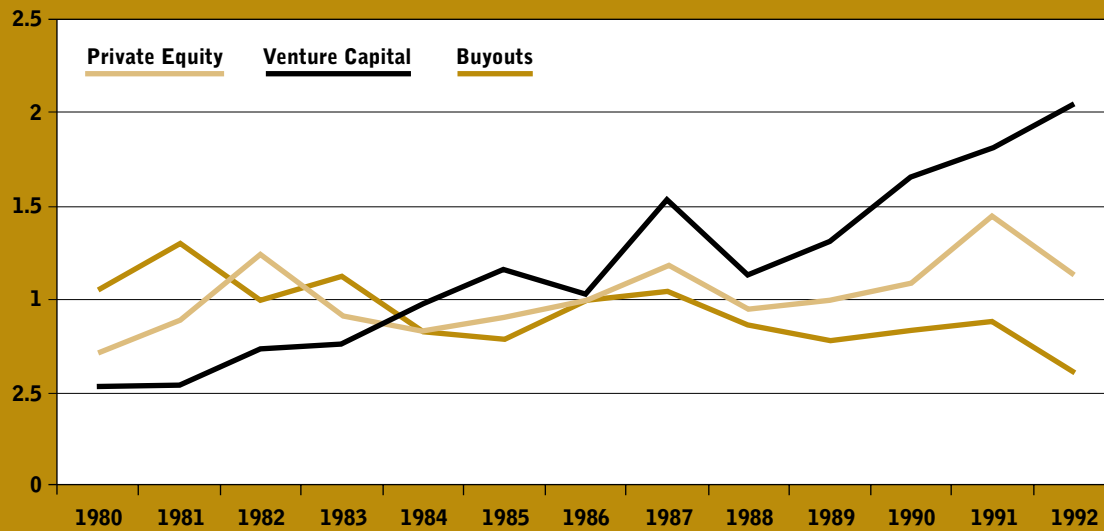
Written down: at discretion of the GP, usually only done under bankruptcy, or

Revalued: investments must be revalued to reflect the latest round of financing.

Peng Chen, Gary Baierl and Paul Kaplan (2002), in "Venture Capital and its Role in Strategic Asset Allocation," dealt with residual values by only using funds which had none. Chen et al calculated the returns of 148 matured venture capital funds on the Thomson database between 1960 and 1999, and found private equity returns exceed public equity returns by a very small premium (13.4% vs. 12.2% for the S&P 500).

Steve Kaplan and Antoinette Schoar (2003), in "Private Equity Performance: Returns, Persistence and Capital Flows," calculated returns of "largely liquidated" venture capital and buyout funds on the Thomson database between 1980 and 1997. They defined "largely liquidated"

U.S. Private Equity, Venture Capital, and Buyout PME, 1980-1995



Source: Kaplan and Schoar (2003) Note: KS found no "largely liquidated" funds in 1996 and 1997.

FIGURE 1

as investments whose residual value remained unchanged for six quarters and which are less than 10% of invested capital. By allowing largely liquidated funds to be included in the sample, the authors greatly expanded the sample size.

Kaplan and Schoar calculated a public market equivalent (PME). This assumes investing the same cash flow pattern in the public market. The PME is the ratio of private equity return to public equity return for a specific period. Exhibit 3 shows annual PMEs by vintage year. The average equal-weighted PMEs for all private equity (the sum of venture capital and buyouts) was .96 over the sample period, indicating generally one would have been slightly better off in public markets.

In comparison to Chen et al, Kaplan and Schoar's sample period was probably a more competitive time for private equity. The amount of private equity financing has grown significantly over the past forty years. Also, the inclusion of buyouts probably reduced returns compared to Chen et al's venture-only sample (generally buyouts have lower returns than venture capital). On the other hand, Kaplan and Schoar allowed residual values to be carried at cost, giving those funds the benefit of the doubt.

Ludwig Phalippou and Oliver Gottschalg (2007) in "The Performance of Private Equity Funds" updated and extended the Kaplan and Schoar sample of funds to a broader sample, following a similar methodology. The authors used a "price index"—the equivalent of the PME used by Kaplan and Schoar.

They make a number of observations which shed new

Sample of Private Equity and Venture Capital Funds Raised Between 1981-2001

Vintage Year	Number of Funds Raised	Average Fund Size \$mm
1981	94	75
2001	829	465

Source: Ljungqvist and Richardson, 2003.

TABLE 2

light on performance measurement issues. Their main conclusion centres on an analysis of residual values—which they called the "living dead" and concluded, should be written off. They examined residual values in some detail and found: 1) all residual values in their sample of 10-year-old funds had zero cash flow after six quarters, and 2) 71% of the residual values belonged to funds which had neither cash flow over three years nor revisions in residual values. Writing them off reduced returns by 7%—a very significant amount. The authors note that this results in private equity underperforming public equity by 3.5%—the most dramatic quantification of underperformance of the studies I reviewed.

The authors also used an additional dataset of funds—a commercially available dataset of 476 mature private equity funds, none of which were included in their base sample. These funds were found to have significantly lower successful exit rates than the base sample, leading to a 4% lower return than the base sample. The authors consider this difference to be a result of sample selection bias in the base dataset, as less successful funds are not included.

U.S. Private Equity, Venture Capital, and Buyout Returns, 1991-2001

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

Source: Ljungqvist and Richardson, 2003.

Finally, they adjusted the weighting of IRRs for the timing of investment and not just commitment of capital. This has the effect of correcting upward bias in commitment-weighted IRRs, by about 2%. These three adjustments reduce the PME significantly. For venture capital an unadjusted PME of 1.01% is reduced by 7%, 4%, and 2% respectively, yielding an adjusted PME of .88%.

PRICING AND SELECTION BIAS

John Cochrane (2004) in “The Risk and Return of Venture Capital” utilized a different database and approach altogether in order to correct for potential pricing and selection bias. He used the Venture One database, which provides data on a very large number of individual projects (as opposed to funds comprised of many projects). The most successful projects progressed to the IPO or acquisition stage. The least successful, out-of-business projects were written off. These two samples (the best and worst) provided evidence as to the shape of the total probability distribution for all projects in the sample. Cochrane 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).

Alex Ljungqvist and Matthew Richardson (2003) in “The Cash Flow, Return and Risk Characteristics of Private Equity” took a different approach again, but came to similar conclusions. To evaluate mature funds and avoid the limitations of interim valuations, the authors used the cash flow of 73 matured private equity fund investments of one large institutional investor between 1981 and 2001. They noted a number of biases in reporting of private equity returns, including: 1) returns are self-reported, and 2) interim values are subjective. They examined various factors driving returns and found 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 fundraising—shown in Exhibit 3. Ljungqvist and Richardson concluded that “too much money chasing too few deals” is likely to be a factor in future returns.

INSTITUTIONAL SUCCESS

Josh Lerner, Antoinette Schoar, and Wan Wong (LSW) (2005) in “Smart Institutions, Foolish Choices?: The Limited Partner Performance Puzzle” carried out an extensive review of returns focusing on return differences by type of 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 who the LP was, as opposed to what the fund was. Their unweighted average IRRs are summarized in Exhibit 4.

I asked two questions of the authors, which Josh Lerner kindly answered. First, did they draw any comparisons with public market returns? Lerner’s response was “No; it was not the intent of their research. However, since all funds were raised in the 1990s, public market returns are readily available.” Second, I asked how they adjusted for interim pricing. As Lerner noted, “We used seasoned or reasonably mature funds, so the bulk of the market value was realized.”

The study is significant because it reveals a unique insight on private equity investing—the success rate of endowments in venture capital is far ahead of that of pension funds, advisors, and banks. Top private equity managers (as opposed to the average) have indeed outperformed public markets—sometimes by a wide

margin. One study found that certain institutions are more successful than others at identifying these top managers.

At the May 2007 CFA Institute Annual Conference, David Swensen, chief investment officer of the Yale Foundation, spoke on successful private equity investing. Swensen was asked about his “secret recipe”—of which he spoke candidly. Swensen said manager selection was “all that mattered” in private equity. He said while equity weight and diversity will get you part of the way, the real trick is in the investment process and team and their 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.”

CONCLUSIONS

Investors expect a return premium from investing in private equity over public equity. Because private equity investing requires extensive commitments in time and resources, is illiquid and has a high degree of valuation uncertainty, and many other costs, it logically implies a premium return to compensate for these costs. However, according to a number of academic studies, on average and net of fees, private equity returns—adjusted for interim pricing—appear to be no better and, according to some studies, less than public equity returns. These studies point to inflated residual values as the cause for the discrepancy between expected and actual returns. Contributing to this is the nature of IRRs (the standard return measure in private equity). IRRs are subject to size and timing biases—unlike the time-weighted rate of return measure used in liquid markets. Some of the studies also point to sample selection bias; i.e., reporting good performance but not bad.

A brief look at successful institutional investors suggests some are much more successful than others. Comments from one point to manager selection as key, and to do so successfully requires the process, the team, and the ability to make high-quality decisions. Given the above, one wonders why many investors continue to expect the same return premiums as the most successful investors. Behavioural factors may play a part in this phenomenon. Such behavioural factors may include overconfidence and over-optimism (thinking one can successfully select the best managers), representativeness (making decisions on appearances, rather than objective and critical analysis), satisficing (believing one knows enough about a topic to make an informed decision), and possibly even herding (everyone else is investing in private equity). ■

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ENDNOTES

1. *Business Week*, October (2006).
2. *The Economist*, February (2007).
3. *Fortune*, July 2007.
4. Phalippou and Gottschalg (2007) “The Performance of Private Equity Funds.”
5. The time-weighted rate of return methodology is used in frequently priced markets. While IRR is appropriate for infrequently priced markets, it can be biased by size and timing of cash flow. The time-weighted rate of return does not.
6. The latest *Investment Benchmark Report* 2006, which came out in June 2007, provides data to December 31, 2005.
7. See, for example; Meyer and Mathonet (2005) and Weidig and Weber (2007), who discuss this in detail. Researchers have tried a technique used for infrequently priced markets such as real estate - repeat sales regression. However, this technique still does not deal with the problem of residual values—infrequent pricing is not the problem, rather inaccurate pricing.
8. Chartered Alternative Investment Analyst; the CAIA Association is the alternative investment equivalent of the CFA Institute.
9. See for example “Valuation Research ALERT, December 2007” on www.valuationresearch.com. A recent U.S. FASB accounting change, Statement No. 157 (2006) requires residual values be “marked to market” vs. carried at cost. The Private Equity Industry Guidelines Group issued guidelines in December 2007 to assist firms in applying this standard. My conversations with private equity GPs and LPs suggest there has not as yet been a general move to revalue residual assets.

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