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"US Private Equity vs. Public Equity: Academic Studies of Historic Returns"

This review discusses six academic studies, all of which come to the general conclusion that, on average and net of fees, US private equity returns have not produced premium returns to public equities.

Introduction

Institutional investors expect a return premium for private equity over public equity – typically in the order of 3-5% after fees. Certainly a premium should be expected, given the illiquidity of private equity, the uncertainty of its valuations, the obligation of capital calls, and the time commitment to initiating and monitoring of private equity. We review a number of academic studies which have found that, on average, and net of fees, US private equity has not produced premium returns to public equities. The studies are quick to note that premium returns can be earned. But, as Martin Leibowitz et al. (2010) point out in "The Endowment Model": (The average investor might well ask: "Do we have these advantages?")

"...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."

One often hears about attractive private equity returns based on internal rates of return ("IRR"s), while the funds in question still have unrealized investments. Unrealized investments were carried at cost before about 2007 and, following an accounting change, marked to market thereafter[1]. The discrepancy between returns based on IRRs and the academic findings lies in the valuation of unrealized investments – or "residual values". One study found that residual values exaggerated true value by 7%, leading the authors to call residual values "the living dead." The academic studies referred to herein, are all based on largely-matured or wound-up funds, which have little or no residual values.

I began my work in this area in 2003[2], have written various articles on this topic, and have been fortunate to have met and spoken with some of the authors cited. I believe their studies make a convincing case.

The Expected Return Premium

The Russell Investments *2010 Survey on Alternative Investing* reports a 3-5% expected private equity premium over public equity returns (down from 4-6% in the *2008 Survey*). It also reports sponsors expect to increase allocations to alternative investments in general and increases to private equity within that class.

[1] US 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.

[2] Two versions earlier versions of this summary can be found on: 1/ The Brandes Institute website at http://www.brandes.com/Institute/Documents/Private%20Equity%200409.pdf, and 2/ *The Canadian Investment Review* (Fall 2008) http://www.investmentreview.com/files/2009/12/livingdead1.pdf

Data providers also lend support to this belief. Thomson Reuter's is the leading provider of returns for venture capital, buyouts, and private equity. The industry uses an IRR calculation based on capital calls, sales of assets, distributions of cash and/or securities, and residual values. The IRR methodology[3] is widely used for private equity because investments are illiquid and infrequently priced. Thomson's recent return data are shown in Exhibit 1. S&P 500 Index returns are calculated using the "public market equivalent" (PME). This technique matches private equity cash flow in timing and size with identical commitments to public equity markets. All returns are net of fees. The data below suggest a private equity return premium consistent with the above-noted 3-5%.

Exhibit 1: Thomson Reuter's US Private Equity Performance Index (PEPI) – March 31, 2011

Asset Class (Annualized Returns)	1 Year	3 Year	5 Year	10 Year	20 Year
Venture Capital	21.1	1.3	4.2	0.4	19.7
Buyouts	21.6	3.2	5.4	6.1	9.6
All Private Equity	19.9	3.3	5.7	5.0	12.1
S&P 500 Index	15.6	3.5	3.2	3.8	8.0
Return Premium	**4.3**	**-0.2**	**2.4**	**1.2**	**4.1**

Source: Thomson Reuter's US *PEPI First Quarter 2011.*

Academic Research on Private Equity Returns

These academic studies are valuable in assessing private equity returns since they have largely eliminated the uncertainty of unrealized investments. We review the six studies which are summarized below.

Exhibit 2: Summary of Studies – Data and Sources

Author(s)	Source	Period	Number Funds Studied	Category
Chen, Baierl, Kaplan (2002)	Venture Economics	1960-1999	148 Liquidated Funds	Venture Capital
Kaplan, Schoar (2003)	Venture Economics	1980-1997	580 Largely Closed Funds 166 Largely Closed Funds	Venture Capital Buyouts
Ljungqvist, Richardson (2003)	Single Institution	1981-2001	73 Closed Funds	Venture Capital and Private Equity
Cochrane (2004)	Venture One	1987-2000	7,765 Companies	Venture Capital
Lerner, Schoar, Wong (2005)	Asset Alternatives Dir. of Alt Inv Services Galante's Directory Venture Economics	1991-2001	417 Institutions, 1398 Mature Funds	Early Venture, Late Venture, and Buyouts
Phalippou, Gottschalg (2007)	Venture Economics VentureXpert Total sample	1980-2003 1980-1993	Base: 852 Mature Funds Extended: 476 Mature Funds Total: 1328 Mature Funds	Venture Capital and Private Equity

All the studies referred to excluded or minimized unrealized or residual values and all used PMEs.

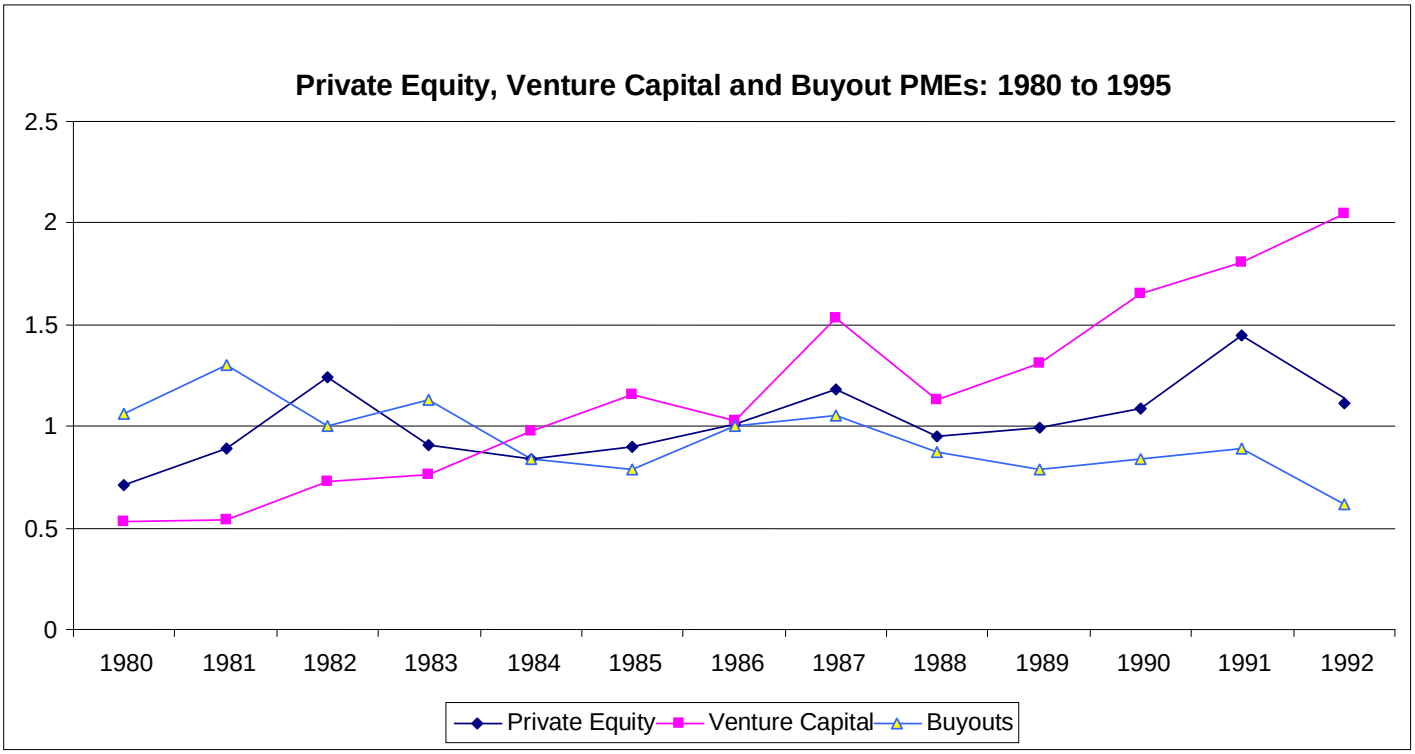
[3] The time-weighted rate of return methodology is used in frequently priced markets. While IRR is appropriate for infrequently priced markets, it can be biased by size and timing of cash flow. The time-weighted rate of return does not suffer these biases.

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 – i.e., they were completely wound up. Chen et al. 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 exceed public equity returns by a very small premium - 1.2% over a forty-year period (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 Thompson database between 1980 and 1997. They defined "largely liquidated" 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.[4]

Using the PME, Kaplan and Schoar calculated the ratio of private equity returns to public equity returns for all private equity (venture capital and buyouts) averaged .96 over the sample period, indicating generally one would have been slightly better off in public markets. (Note better performance of venture capital).

Exhibit 3. U.S. Private Equity, Venture Capital, and Buyout PMEs, 1980-1995



Source: Kaplan and Schoar (2003)

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

Alex Ljungqvist and Matthew Richardson (2003): in "The Cash Flow, Return and Risk Characteristics of Private Equity" 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 the authors concluded "too much money chasing too few deals" is likely to be a factor in future returns.

John Cochrane (2004): in "The Risk and Return of Venture Capital" utilized a different database and approach altogether. Cochrane used data on a very large number of individual projects, as opposed to funds comprised of many projects.[5] The most successful projects progressed to the IPO or acquisition stage. The least successful, out-of-business projects were written off. 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. (2002).

Josh Lerner, Antoinette Schoar, and Wan Wong (2005): in "Smart Institutions, Foolish Choices?: The Limited Partner Performance Puzzle" carried out an extensive review of returns focussing 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 found 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:

Exhibit 4: 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: Lerner, Schoar, and Wong (2005)

I asked Professor Josh Lerner how these returns compared with public markets and he kindly wrote back, saying that was not the intent of their research but since all funds were raised in the 1990s, public market returns are readily available. I looked up the S&P 500 Index return over 1991 to 2001 - about 10% per annum – generally better than most of the returns shown, although handily beaten by the endowments investing in early venture (in bold above).

[5] Cochrane's data was gross of fees, unlike the other studies. Obviously, net of fees, returns would have been even lower than 10%

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. 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 all the studies reviewed herein.

Conclusions

At the May 2007 CFA Institute Annual Conference, David Swensen, CIO of the Yale Foundation, spoke on successful private equity investing. Swenson's presentation and his responses in the question period are available on the CFA Institute website under conference proceedings. 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."

Given the above, one wonders why many investors continue to expect to earn 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).

The brief survey of academic literature on the subject presented here suggests that, on average and net of fees, private equity returns appear to be no better and, according to some the studies, even less than public equity returns.

One study suggested endowments investing in venture capital did indeed outperform public markets. Quotes from one successful institutional investor –Yale - also suggest some are much more successful than others. Manager selection appears to play an important part, which requires access to top managers and the resources to make high-quality decisions. As mentioned at the outset, the average investor may well ask: "Do we possess those abilities?"

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