

▶ PORTFOLIO CONSTRUCTION

The Private Equity Panacea?

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Many large institutions have embraced illiquid investment strategies, such as private equity, to capture return opportunities public markets presumably don't offer. This approach is suitable for long-horizon investors with positive cash flow and the resources needed to access the best among a crowded field of managers. For most other institutions, academic research and empirical data shows that a liquid, public market portfolio can work just as well.



The Yale University endowment fund, headed by David Swensen since 1985, helped popularize the private equity industry during the late 1980s and pioneered the move by endowment funds into illiquid asset classes. Mr. Swenson observed that a university endowment's primary mission is that of preserving and growing capital over a long-term investment horizon, and that superior long-term returns can be captured by strategies that take advantage of illiquidity premiums and information inefficiencies associated with private markets — provided they can be identified and captured by skilled investment managers.

Yale's investment success produced many imitators and largely created today's "endowment model" for portfolio management, which devotes a large portfolio weight to illiquid asset classes and investment strategies such as private equity, private real estate and hedge funds. Private equity — due to its illiquidity and ability to work with portfolio companies freed from constraints imposed by public markets regulation — has been assumed to offer a higher rate of return than that available in public markets. This paper explores the history of private equity performance. Has it lived up to its promise of superior returns? And what types of institutions are best-suited to benefit from a private equity allocation?

The Private Equity Partnership Structure

Investing in the public markets can be achieved through either a separate account (where the investor owns custody of the assets) or a comingled fund (where investors share ownership). Private equity, for all but the largest investors, requires a general partner (GP)/limited partner (LP) structure. When a private equity fund is created,

Summary

- Private equity continues to gain popularity as an alternative to public equity allocations.
- While there are very good performance metrics to compare across private equity funds, the metrics used historically have been insufficient to compare to the public markets.
- The development of a Public Market Equivalent (PME) has enabled researchers to compare the risk and returns of private and public equity more directly.
- Unless an investor has a long-term investment horizon, and a higher than average tolerance for risk, private equity does not provide enhanced return for the inherent risks.

LPs provide capital along with the GPs. The GPs manage the partnership and make all investment decisions. GPs typically receive a management fee on committed capital and a share of profits (typically 20%). These and any other fees associated with the partnership are outlined in a limited partnership agreement. Two primary categories of private equity are: 1) venture capital, where the GP takes ownership stakes in start-up ventures and 2) leveraged buyouts, where the GP uses debt financing to purchase a public company, restructures it and then seeks to sell it at a profit.

Private Equity Performance Metrics

Comparing private equity results with returns achieved in public equity markets is a difficult task. In fact, private equity investors face a daunting challenge that doesn't exist in public markets: that of even defining and measuring a meaningful rate of return due to the structural complexity of private equity funds. Cash flows are unpredictable and vary from fund to fund as capital is called and returned to investors. Illiquid ownership stakes in private companies require periodic valuation to enable return measurements, and this can be a subjective exercise. The private nature of the industry requires self-reporting, makes data access difficult and makes the available performance data potentially unrepresentative of the opportunity set investors truly face. Several metrics have been developed, however, to help PE investors define and measure returns.

The most commonly used have been internal rate of return (IRR) and TVPI. These can be used to compare performance of funds launched in the same vintage year. But they can't be directly compared with public market portfolio returns.

- **IRR** — technically the discount rate that equates the present value of a series of positive and negative cash flows to zero — is influenced by the timing of capital calls and distributions, which are under the control of the GP.
- **TVPI**, defined as the ratio of capital paid out to capital paid in, ignores cash flow timing completely.

The size and timing of cash flows needs to be accounted for when comparing PE and public market return; this is particularly important when investors view public and private equity as alternative routes to equity exposure.

A third performance metric, called the public market equivalent (PME), was developed by finance academics

Kaplan and Schoar (2005) to allow direct comparison of private equity returns with what could have been achieved simultaneously in public markets. Measuring PME requires access to underlying cash flow data across a universe of funds in order to aggregate results over various vintage years.

- The **PME** is a ratio of discounted distributions divided by discounted contributions, where the discount factor is the public market return for the respective time periods.

A PME equal to one implies the return from the private equity investment equals what would have been achieved in the public markets with equivalently timed capital calls and distributions. A PME greater than 1 means the private investment outperformed the public market. A PME less than one indicates private equity underperformed.

A Simple Example

The following simple example illustrates these PE performance metrics.

Assume a PE fund's vintage year is year one. The GP issues a capital call for \$100 in year three and returns \$200 in year 10. The implied seven-year IRR is 10.4% and the TVPI is 2x. Now assume the public equity market return over the 10-year period is 8%. Was the private equity investment superior to the public market? There is insufficient information to answer the question.

To illustrate, consider two public equity market scenarios. Each shows a starting index value of 1,000 and annualized return of 8% over a 10-year investment horizon.

	Scenario A	Scenario B
Year 1	1,000	1,000
Year 3	900	1,400
Year 10	2,159	2,159
PME	0.8	1.3

In Scenario A, \$100 invested in the public markets in year three will be worth \$240 in year 10; the private equity fund in Scenario A has a PME of 0.8. Alternatively, \$100 invested in year three under Scenario B will be worth \$154; the PME for this scenario is 1.3. Without adjusting public equity returns to reflect the timing of all private equity cash flows, traditional PE performance metrics are insufficient to compare performance against the public market alternative. (These metrics are still useful when comparing PE funds against one another for each vintage year.)

I. Median Private Equity Public Market Equivalent Ratios: 1984-2010

Vintage Years

	Buyout PME	Venture Capital PME
Average 1980s	1.09	0.76
Average 1990s	1.16	1.26
Average 2000s	1.19	0.81
All	1.14	0.97

Source: Robert S. Harris, Tim Jenkinson and Steven N. Kaplan, 2015, How Do Private Equity Investments Perform Compared to Public Equity?, forthcoming *Journal of Investment Management*.

Surveying Academic Research

The considerable body of academic research into private equity performance lacks a consensus, yet a survey of the research nevertheless offers good insights into general characteristics of returns dating back to the 1980s.

Table I presents three decades of PME data from a 2015 research paper by Robert Harris, Tim Jenkinson and Steven Kaplan. While the buyout category's median PME exceed 1.0 in all three decades, the median venture capital PME exceeded 1.0 only during the 1990s. Additionally, the authors note in the paper that buyout PMEs were only in line with, and did not exceed, public market returns from 2006 through 2010. Given large endowment funds' heavy allocation to private equity, it is no surprise their performance lagged many institutional portfolios that emphasized public market equities over this period.

In another academic study, Ang, Chen, Phalippou and Goetzmann used limited partner cash flow data to decompose PE returns into: 1) a component due to exposure to traded risk factors and 2) a private equity premium (or alpha). They show that individual private equity fund returns are more volatile than broader PE industry indices due to smoothing biases that result from the appraisal process or delayed adjustment to market prices. More importantly, they find that private equity alpha, while variable from year to year, is zero over the entire time period studied (1993-2010).

In a third study, Sorensen, Wang and Yang developed a model to measure the alpha required by a risk-averse private equity investor in order to breakeven with equivalently timed public equity market investments. While Harris, Jenkinson and Kaplan showed that PMEs for buy out funds exceeded 1.0, Sorenson, Wang and Yang's research suggests the breakeven alpha needed to compensate for risk factors and illiquidity is just sufficient to generate this PME. In other words, the observed return for buyout funds is simply the compensation required for the risk taken. Interestingly,

this implies that private equity investors with a relatively high risk tolerance can achieve attractive risk-adjusted returns and supports the use of private equity by endowment funds with long-term horizons and positive net cash flow.

A Look at Endowment Model Results

A look at the actual performance achieved by endowment model practitioners versus a traditional liquid market portfolio structure complements insights derived from academic research. Table II presents returns for three hypothetical liquid market equity/bond portfolios — weighted at 60/40 and 70/30 — compared with endowment model performance. The liquid market portfolios are structured to be broadly representative of:

- Return opportunities offered by domestic and international, U.S. dollar-denominated, publicly traded equities and U.S. core bonds.
- Traditional liquid market equity/bond portfolio allocations commonly used by U.S. dollar-based institutions with long-term investment horizons.

The endowment and foundation data comes from the widely read survey published annually by the National Association of Colleges and University Business Officers (NACUBO) and shows the average return achieved by college and university endowments ranging in size from under \$25 million to over \$1 billion. The NACUBO data reflects a very heavy allocation to illiquid alternatives strategies; the June 30, 2016 fiscal year data is indicative of average dollar-weighted allocations reported by survey respondents throughout the 10-year period shown.

June 30, 2016	Average Allocation
Equity	35%
Fixed Income	12%
Alternatives	53%
Private Equity	18%
Private Real Estate	5%
Hedge Funds	22%
Commodities	7%

II. Liquid Portfolios vs. Endowment Model

	Trailing Periods at June 30, 2016			
	1 Year	3 Years	5 Years	10 Years
Global Equity/U.S Bond				
60% MSCI ACWI / 40% BCAGG	1.3%	6.3%	6.1%	5.4%
70% MSCI ACWI / 30% BCAGG	0.4%	6.6%	6.4%	5.4%
Domestic-Focused Equity/U.S Bond				
51% S&P 500 / 9% MSCI ACWI ex-U.S. / 40% BCAGG	3.7%	7.8%	7.9%	6.4%
59.5% S&P 500 / 10.5% MSCI ACWI ex-U.S. / 30% BCAGG	3.3%	8.4%	8.5%	6.5%
Domestic Equity/U.S Bond				
60% S&P 500 / 40% BCAGG	5.0%	8.7%	8.9%	6.8%
70% S&P 500 / 30% BCAGG	4.8%	9.5%	9.7%	7.0%
NACUBO—Endowment & Foundation Average	-1.9%	5.2%	5.4%	5.0%

Source: NACUBO Commonfund Study of Endowments (www.nacubo.org) and Wilshire Compass / Note: NACUBO—Endowments & Foundations Average returns are reported net of fees and expenses, Index portfolio returns are reported gross of fees and expenses. The returns shown for the Endowment & Foundation Average are derived from NACUBO data which is compiled from a survey and only published net of fees, therefore the returns here are shown net of fees. The returns shown for the Liquid Portfolios are based on the hypothetical combinations of the benchmarks shown and are presented gross of fees. These hypothetical returns do not represent any CBIS fund. Returns of actual portfolios would be reduced by investment management fees and other expenses that may be incurred. The collection of fees produces a compounding effect on the total rate of return net of management fees. For example, if an annual management fee of .60% were deducted quarterly from your account, a ten-year annualized cumulative composite return of 10.00% would be reduced by .64% to 9.36%.

The three hypothetical liquid market portfolios emphasize U.S. equities, contain varying amounts of international equity exposure, and utilize the Bloomberg Barclays U.S. Aggregate Index (BCAGG) — the most widely used U.S. bond benchmark — as a proxy for core bond exposure.

- I. The **Global Equity/U.S. Bond** portfolio uses the MSCI All-Country World Index (ACWI) for equity exposure; just over half the ACWI is allocated to U.S. stocks and the rest is diversified globally.
- II. The **Domestic-Focused Equity / U.S. Bond** portfolio allocates 15% of its equity exposure to non-U.S. companies through the MSCI All-Country World ex-U.S. Index (ACWI ex-U.S.).
- III. The **Domestic U.S. Equity / U.S. Bond** portfolio employs a traditional 60% S&P 500 / 40% core bond structure, which may be representative of benchmarks used by smaller institutional portfolios and balanced funds.

The liquid market portfolio returns are shown gross of fees while the NACUBO data is reported by survey respondents and published by NACUBO net of fees. Nevertheless,

even if liquid portfolio returns are reduced by an imputed fee (which would depend on an institution's portfolio size and specific products used for implementation), the relatively strong liquid, public market portfolio results are notable. These are largely due to the average foundation and endowment portfolio's heavy allocation to illiquid strategies along with its nearly 20% exposure to non-U.S. equities and its significant fixed-income underweight during the financial crisis.

As shown in Table III, bonds offered a valuable hedge on equity downside volatility during 2008 and early 2009. As markets recovered in 2010, both long domestic equities and fixed-income outperformed the average return generated by alternatives. Given the dominance of U.S. equities in recent years, both illiquid alternatives and international equities have trailed domestic equities continually since fiscal year 2009.

The NACUBO average returns mask wide dispersion across institutions. Some of the largest endowments, including Yale (with \$25 billion under management), have continued to achieve strong results with the endowment model even as performance for the majority has been disappointing.

III. Endowment Model — Average Returns by Asset Class Reported by NACUBO Survey Respondents

Fiscal Year Ending June 30	2016	2015	2014	2013	2012	2011	2010	2009
Domestic Equities	-0.2	6.4%	22.8%	20.6%	2.0%	30.1%	15.6%	-25.5%
Alternative Strategies*	-1.4	1.1%	12.7%	8.3%	0.5%	14.1%	7.5%	-17.8%
Fixed Income	3.6	0.2%	5.1%	1.7%	6.8%	6.5%	12.2%	3.0%
International Equities	-7.8	-2.1%	19.2%	14.6%	-11.8%	27.2%	11.6%	-27.6%

Source: NACUBO—Commonfund Study of Endowments (www.nacubo.org) * Includes a diverse variety of private equity, hedge fund, venture capital, private real estate, commodity and distressed debt investment strategies.
Note: The years shown are fiscal years ending June 30; for example, the 2016 year covers the period from July 1, 2015 through June 30, 2016.

Conclusion: Potential but No Panacea

Academic research into private equity performance generally confirms the view that financial markets are fairly efficient. For the average investor, any additional return achieved through private equity is probably just enough to compensate for the additional risks. In other words, there is no free lunch.

However, private equity may be a beneficial investment for institutions whose risk tolerance is relatively high. Large endowments with long-term investment horizons, and particularly those with positive net cash flow from donations, are good candidates for investing in PE.

Conversely, investors with persistently negative cash flow, when portfolio withdrawals are on average greater than contributions, and/or those with a shorter-investment horizon, are probably better-suited for liquid public equity exposure. The discomfort produced by large draw-downs that occur in bear markets is painfully amplified by portfolio illiquidity. The institution's financial flexibility, and even its ability to meet basic financial needs, may be severely compromised during such periods if a sizeable fraction of its portfolio is inaccessible.

Yet institutions should not be pessimistic about the results they can achieve by eschewing the endowment approach in favor of a traditional, liquid portfolio structure. The empirical data shows that a highly liquid, diversified portfolio constructed with public market equities and bonds, with its far lower complexity and lower fees, can work just as well as the endowment model for many institutions. ■

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