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The Private Equity Conundrum: Reconciling Private and Public Equity Risk/Return Profiles

Alexander Rudin, PhD
Global Head of Research
Investment Solutions Group

Anne-Marie Fink, CFA
Portfolio Strategist
Global Fiduciary Solutions

Private equity (PE) seems to contradict the investment maxim that greater reward only comes with increased risk. On an observed basis, private equity has higher returns and lower volatility than public equities, as shown in the chart below:

Benchmark	Annualized Return	Annualized Volatility
State Street Private Equity buyout index (SSPE)	+11.4%	10.3%
S&P 500 Total Return	+ 6.0%	16.0%
Russell 2000 Total Return	+ 8.4%	20.5%

Source: State Street Global Exchange, Bloomberg (March 1999 to March 2019). Past performance is not indicative or a guarantee of future results.

Many observers view this risk/reward combination as too good to be true, and have sought to reconcile this conundrum. A debate has ensued about whether the observed numbers appropriately capture the true risks and returns of private equity.

In a well-known 2016 paper, L'Her et al. found "no significant outperformance of buyout fund investments versus their public market equivalents," after adjusting PE returns for the smaller capitalizations and greater leverage deployed by private equity managers. In effect, the authors concluded that the higher reported returns of private equity were due to inappropriate comparisons.

Many observers — the camp of PE skeptics — have interpreted this research to mean that private equity is nothing more than leveraged small caps. These observers conclude that private equity's "fair" volatility must therefore be in excess of the volatility of publicly traded small caps. This camp assumes annual volatility levels of 20%-30% and betas above 1 to broad equity indices (e.g. S&P 500). Indeed many prominent providers of capital market assumptions have forecasts consistent with this view.

When reconciling their high volatility estimates with the low observed volatilities of private equity indices, these observers focus on the backward-looking nature and discretion inherent in determining PE's quarterly unrealized valuations. They see these appraised values as artificially smooth, and dismiss observed PE risk statistics as largely fake.

Inconveniently for this viewpoint, actual transaction data is not particularly supportive. While unrealized values of private companies involve appraisers' discretion and are thus open to debate, research has focused on PE cash flows to find unquestionable valuations. These researchers[1] have found that, over the full life cycles of funds, private equity valuations are consistent with the cash flows produced by those funds.

The question remains unresolved.

[1] See Rudin et al. [2019] for a literature review.

Our Research

Intrigued by this conundrum, we, in conjunction with our colleagues at State Street Global Exchange, examined PE volatility and factor risks (Rudin et al. [2018]). Access to anonymized data from the State Street Private Equity index (SSPE), a database derived from the custodial information of 2800+ funds spanning 30+ years, gave us a unique advantage in conducting this research. Using this data and specially designed econometric techniques to quantify the degree of smoothing, we found that while observed PE returns do exhibit some artificial smoothing, the extent is more moderate than many expected. Using our technique to "unsmooth" the returns of a broad private-equity index (we used SSPE Buyout index) increased the standard deviation from a raw 10.3% to 13.3%. While this increase in volatility is material, it results in volatility levels that are considerably lower than the 20+% assumed by most PE skeptics. We found an unsmoothed, fully adjusted beta to the S&P 500 of 0.5.

Our analysis shows — we believe convincingly — that PE has lower volatility and less beta than broad public equities.

The Key

To be confident in these quantitative findings, we must understand why PE can have lower risk than public equities. How are our lower-risk results compatible with L'Her's conclusion that PE's higher return profile is consistent with leveraged small-cap equities? We believe Robert Shiller's concept of "excess volatility" is the key to unlocking this seeming contradiction.

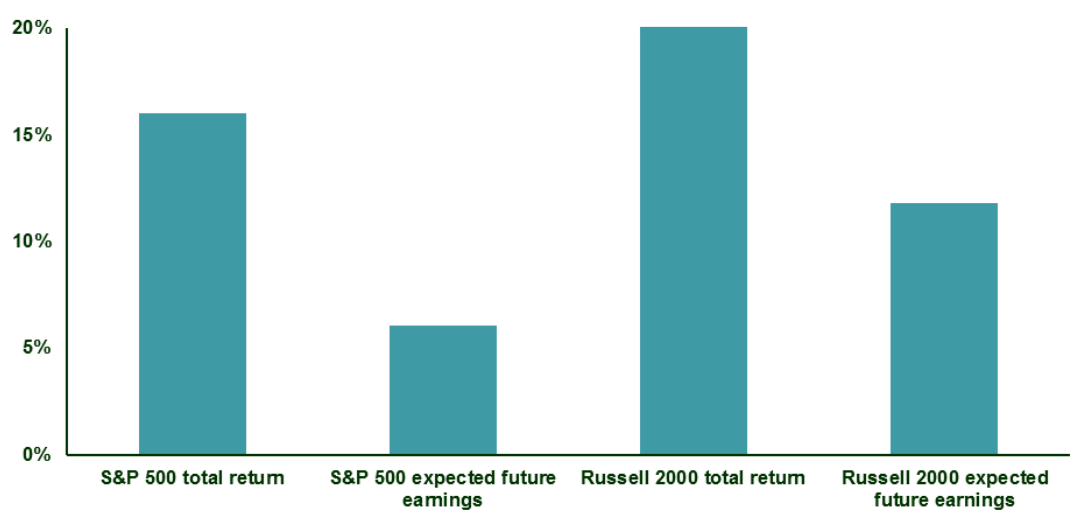
In 1981, Shiller introduced the concept of excess volatility to describe the difference between fluctuations in public equity prices and in those equities' earning expectations. While variability in earnings expectations, and in the resulting dividends/cash flows, should logically drive fluctuations in equity valuations, stock prices are far more volatile. Other factors, both technical and psychological (e.g. flows, momentum, fear/greed, animal spirits, etc.), contribute volatility on top of that generated from changes in earnings expectations. Shiller called these extra contributions "excess volatility".

As illustrated below, variability in observed prices and earnings expectations supports this excess volatility concept (for which Shiller received the Nobel Prize in 2013) for both large- and small-cap stocks.

Figure 1 Volatility

Variability in observed prices and earnings expectations supports this excess volatility concept for both large- and small-cap stocks.

Large-cap and small-cap stock variability in observed prices and earnings expectations



Source: Factset, Bloomberg, State Street Global Advisors (March 1999 – March 2019). Past performance is not indicative or a guarantee of future results.

Over the last 20 years, the volatility of public equity prices has been more than 850bps greater than that of the volatility of one-year forward expected earnings. Excess volatility has been more significant for the S&P 500, which is consistent with its liquidity and benchmark status. The Russell 2000 small-capitalization stocks, which L'Her and others have viewed as a better proxy for private equity portfolio companies, have also experienced significant excess volatility.

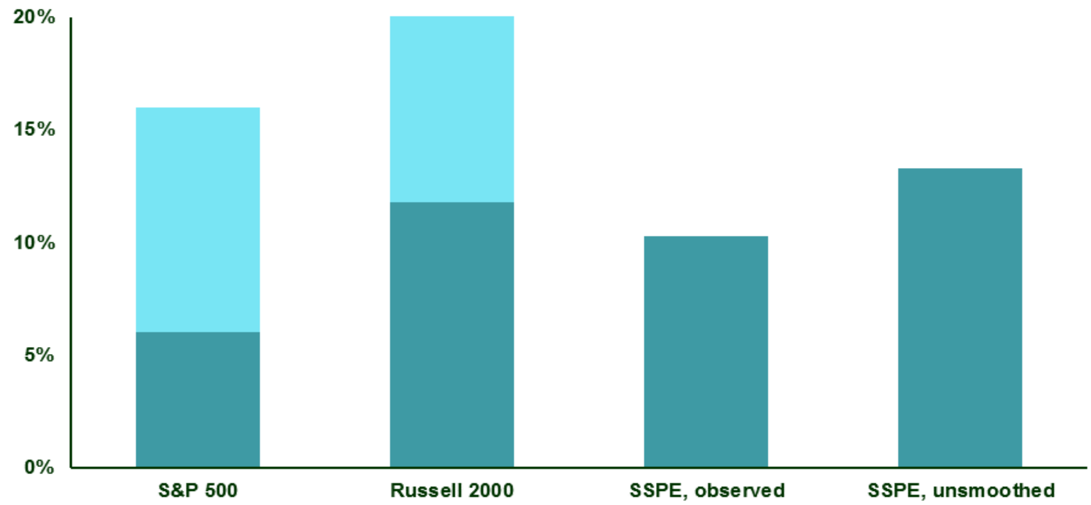
Private equity has less exposure to excess volatility. The processes used to mark PE holdings primarily focus on earnings expectations. As illustrated below, private equity volatilities track more closely to public equity small-cap earnings volatility, than their price volatility.

Figure 2

Private Equity versus Public Equity Volatilities

Legend

- Expected Earnings
- Excess Volatility



Source: Factset, Bloomberg, State Street Global Advisors (March 1999 – March 2019).

As a result, the excess volatility that dominates public markets does not impact private equity valuations as materially. Private equity volatilities and betas are, thus, lower than those of comparable public benchmarks.

This hypothesis is consistent with research by Phalippou [2014], who found that publicly traded companies, if valued in the same manner as private companies, would also exhibit less volatility. Indeed, inherent in most active strategies is an expectation that fundamental stock-pickers can separate out the excess volatility and focus on long-term, earnings-based drivers of returns.

Our insight helps reconcile our results with those of L'Her. Over the long term, excess volatility cancels out (i.e. has an expected return of zero), and only earnings truly matter to stock prices. Since L'Her focused on the cumulative, long-term returns of PE investments, excess volatility would have no impact on L'Her's analysis.

Excess volatility also explains why "liquid private equity" strategies have generally not delivered on their promise. Since these strategies are implemented through publicly traded equities, they are exposed to the technical and psychological factors that drive excess volatility.

Conversely, secondary sales of private equity stakes (i.e. when limited partners sell their fund interests to third parties) do not provide the same insulation from excess volatility as private equity stakes held to term. Buyers in the secondary market are often subject to the same technical and psychological factors that contribute to excess volatility in the public markets. As a result, secondary purchases will, at different times, trade at varying discounts or even premiums to the underlying funds' appraisal-determined asset values.

Insulation from Excess Volatility

Overall, we find that excess volatility explains the seeming conundrum of private equity's lower-risk/higher-return profile. By minimizing the impact of excess volatility, private equity can generate returns consistent with leveraged, small-cap public equities over the long term, with short-term volatility that is in line with the lower variability of earnings expectations. Indeed, the greater stability of earnings-focused valuations arguably helps PE companies to handle more leverage than publicly traded companies generally can.

Of course, the major additional risk that PE brings into investors' portfolios is illiquidity, which is inextricably linked to PE's insulation from excess volatility. To use private investments within portfolios effectively, and to avoid the potential excess volatility in the PE secondary sale market, it is imperative that allocations to private investments be sized according to each plan's individual cash-flow needs. In subsequent articles, we will seek to describe a methodology for tailoring private allocations to the specific requirements of each plan.

With this illiquidity caveat clearly noted, we believe that insulating portfolios from excess volatility through investments in private assets can be highly beneficial for asset owners.

References

L'Her, Jean-Francois, Rossita Stoyanova, Kathryn Shaw, William Scott, and Charissa Lai. "A Bottom-Up Approach to the Risk-Adjusted Performance of the Buyout Fund Market." *Financial Analyst Journal*, Vol. 72, No. 4, pp. 36 – 48 (2016).

Rudin, Alexander, Jason Mao, Nan R. Zhang, and Anne-Marie Fink "Fitting Private Equity into the Total Portfolio Framework", submitted for publication in the *Journal of Portfolio Management* (2019).

Phalippou, Ludovic. "Performance of Buyout Funds Revisited." *Review of Finance*, vol. 18, no. 1 (January): 189–218 (2014).

Schiller,R.J. "Do Stock Prices Move Too Much To Be Justified by Subsequent Changes in Dividends?" *The American Economic Review*, Volume 71, June, No.3 pages 421-435 (1981).

Glossary

Beta: A measure of the risk arising from exposure to market movements as opposed to distinctive factors

Earnings volatility: Degree of variation of corporate earnings over time.

Large Cap: Stock of a company with a large market capitalization

Price volatility: Tendency of an asset to rise and fall in price over a period of time.

Russell 2000 Index: A small-cap stock market index of the bottom 2000 stocks, by market cap, from the Russell 3000 Index.

State Street Private Equity Index: An index developed by State Street in partnership with leading academics and large asset owners. It is comprised of more than 2,800 funds representing about $2.7 trillion of capital commitments. The Index has generated quarterly results since Q3 2004 and is published approximately 100 days after quarter-end.

S&P 500® Index: A market-value-weighted index of 500 stocks that reflects the performance of a large-cap universe made up of companies selected by economists.

Small Cap: Stock of a company with a small market capitalization

Secondary Market: An exchange between investors, rather than an issuing entity.

Smoothing: A process to deliver short-term volatility protection in equity markets.

Standard Deviation: A measure of investment return deviation from the average of the probability distribution of investments.

About State Street Global Fiduciary Solutions

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