Unsmoothing Returns of Illiquid Assets

Performance measurement of illiquid assets such as private equity and private debt needs to be "unsmoothed" to discern portfolio risk.

Otherwise, volatility will be underestimated, and diversification benefit overstated.

The appraisal process used to value illiquid assets such as private equity and private debt smooths their reported returns. This Viewpoint addresses how unsmoothing reported returns should lead to better estimates of volatility and to better asset allocation decisions.

Unlike publicly traded assets, the illiquid asset valuations are based on appraisals. Because the appraised values of the funds' holdings do not change much from quarter to quarter, the funds' reported returns are "smoother" than public market prices. As a result, calculations that use the reported returns understate the assets' volatilities and correlations. Using these biased statistics can lead to underestimating total portfolio risk and overallocation to the asset classes that exhibit the most smoothing.

Developing realistic risk estimates of private investments' volatility, and similar illiquid asset classes, requires a process to unsmooth the reported returns.

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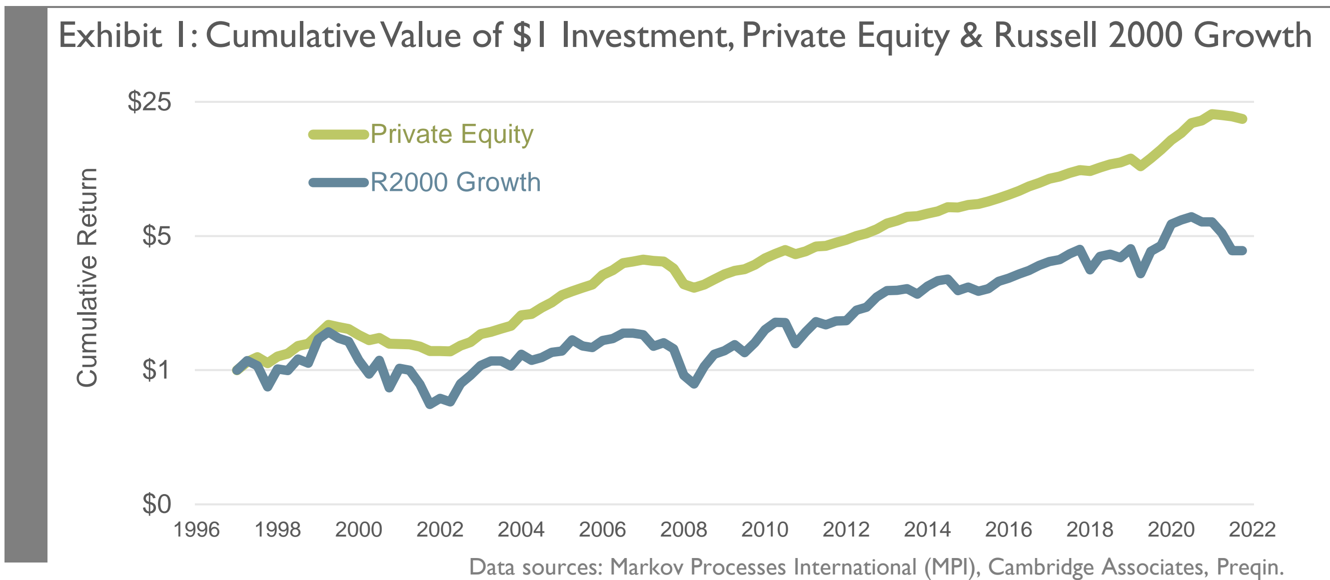
Evidence for Smoothing

Exhibit 1 shows the cumulative returns of Private Equity and the Russell 2000 Growth Index. Because both indices present the returns of similar types of companies, they should exhibit similar risk. However, a cursory examination of the chart shows that the returns of the Russell Index were much more volatile than were private equity returns (the line for the Russell index has much larger variation around its trend).



Data sources: Markov Processes International (MPI), Cambridge Associates, Preqin.

We observe this pattern in other private asset classes as well.

Appraisal-Based Valuations Smooth Returns

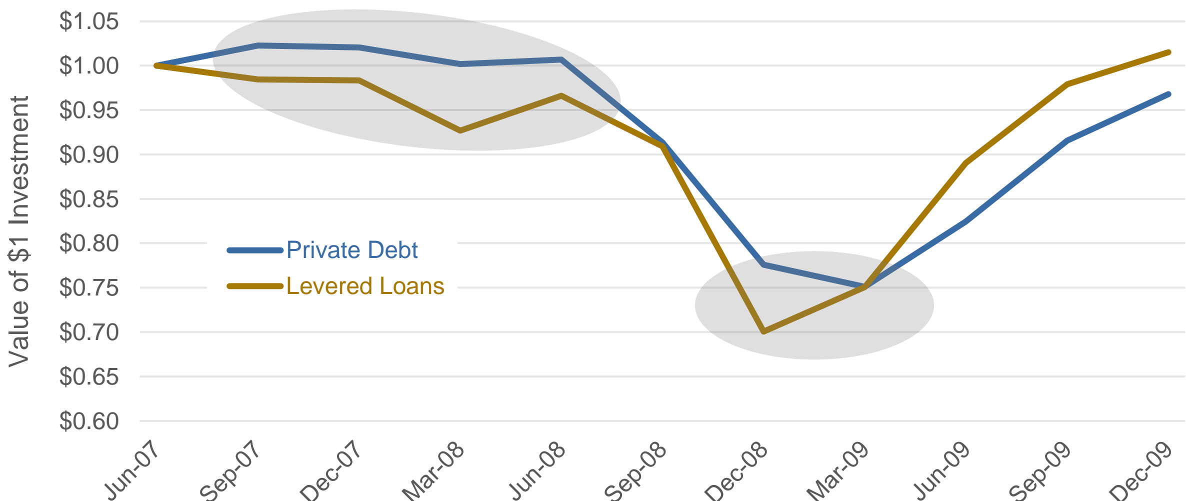
There are various reasons behind "smoothed" returns:

- While news and events are quickly reflected in the prices of publicly traded securities, it can take several quarters for the information to impact appraisal-based valuations. That delay leads to smoothing of private assets' returns.
- Appraisals are intended to reflect an asset's fair value (i.e., liquid market price), yet the appraisal process tends to be conservative, waiting for evidence before writing up or marking down an asset's value.
- Much of the volatility of public markets is due to investors changing the discount rates they apply to their investments (e.g., P/E ratios and interest rates). Yet the appraisal process is slow to apply the changes to private investments.
- The appraisal process relies on input from the funds' portfolio managers, and they tend to believe that because of their expertise, their investments are less sensitive to market and economic events than the average publicly traded security.

One cause of smoothing is that public markets tend to anticipate the effects of news while private markets tend to wait for evidence. We illustrate the point by using the relative performance of publicly traded loans versus private debt. At the start of an economic slowdown, the prices of publicly traded loans fall. That is because the anticipated slowdown makes investors less confident that the borrowers' will be able to meet their debt obligations, which results in wider credit spreads and lower prices for the loans. Even though both types of loans are exposed to the same risks and valuation policies require private funds to reflect where their loans would trade if there were a market, the valuations of private loans tend to fall less. The funds tend not to mark down the prices of their loans by as much as would be implied by the change in public market spreads. One explanation is that because they conducted the underwriting, the portfolio managers are inclined to believe that their loans are of higher quality, and less likely to require restructuring. As a result, they will tend to wait until there is evidence of distress before marking down a loan. Subsequently, private debt funds tend to fall less than publicly traded loans in the early stages of an economic downturn. As the slowdown continues, the economic impact will become apparent, the private debt funds' loans will be marked down, and their performance will catch up with the public market.

Exhibit 2 shows the returns of Private Debt and the Credit Suisse Levered Loan Index during the Global Financial Crisis (GFC). It shows that returns of levered loans started falling in the third quarter of 2007, but the value of private debt portfolios went up during the quarter. It took another quarter before private loans saw markdowns. At the bottom, the market value of levered loans started to recover in the first quarter of 2009, while private loans were still being marked down. The relative behavior of public and private credit both at the start and at the end of the GFC illustrates that it may take several quarters for the valuations of private investments to fully reflect the news and events that move public markets.

Exhibit 2: Performance of Private Debt and Levered Loans during the GFC



Data sources: Preqin, MPI.

Exhibit 2 illustrates the smoothing process in private debt during the GFC, and the related discussion describes how the appraisal process and the behavior of portfolio managers contributes to it. Similar stories could describe the behavior of private equity and private real estate funds. Publicly traded stocks' prices move because of changes in expected earnings and P/E ratios. The appraisal process will apply the "new" P/E ratios slowly. And, portfolio managers will be slow to adjust earnings expectations. Similarly, valuations of properties in private real estate funds will be slow to adjust to new cap rates and changes in expected rents and occupancy.

What is Unsmoothing?

There are statistical techniques to address these issues described above. The objective of unsmoothing is to produce a time series of returns that behave as if public market and fund-specific information had been incorporated into the funds' valuations in one quarter rather than spread over several. Estimating asset class volatilities and correlations using the unsmoothed returns improves asset allocation modeling, which should lead to better investment decisions.

Exhibit 3 illustrates the effects of unsmoothing. It shows risk calculated using reported (smoothed) returns and unsmoothed returns for private equity (PE) and private debt (PD) indices. Statistics for comparable public market indices are shown for reference. The annualized volatility of 25 years of reported quarterly private equity returns was 10.5% per annum. By comparison, the volatility of the Russell 2000 Growth Index for the same period was 25.3%. When we unsmooth the returns, the volatility is 17.9%. PE's beta versus the S&P 500 goes from 0.48 to 0.93 (versus 1.33 for the Russell index). Unsmoothing increases the volatility of private debt from 6.4% to 10.0%, and its beta relative to the S&P 500 Index from 0.24 to 0.37. Because stock market volatility is the primary risk in most institutional portfolios, both the higher asset volatilities and higher betas have an impact on estimates of the expected risk of clients' portfolios.

Exhibit 3: Observed versus Unsmoothed Risk Statistics

	Volatility	Beta vs S&P 500
Reported PE Returns	10.5%	0.48
Unsmoothed PE Returns	17.9%	0.93
Russell 2000 Growth Index	25.3%	1.33
Reported PD Returns	6.4%	0.24
Unsmoothed PD Returns	10.0%	0.37
CS Levered Loan Index	8.0%	0.29

Data Source: Alan Biller and Associates.

While Exhibit 3 shows the impact of smoothing on estimates of asset class risks and correlations, the objective of the exercise is to develop better estimates of funds' risk. When we use unsmoothed returns, the predicted volatility of our less-liquid representative portfolio is 9.8%. If we had used reported (smoothed) returns to estimate the asset class risks and correlations , the predicted volatility of the portfolio would be only 7.6%. That understates volatility and potential losses by 30%!

Summary

Reported returns obscure the true risk of private assets. Instead, illiquid asset performance needs to be unsmoothed to discern portfolio risk. Otherwise, volatility will be underestimated, and illiquid assets' diversification benefits overstated.

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