Inframation News
An Acuris company

GLOBAL

Sector: Environment
Power
Renewables
Social Infrastructure
Telecommunications
Transport
Other

Published: 05 September 2017

Author: Frederic Blanc-Brude

Opinion: EDHECinfra benchmarks show the promise of portfolio diversification

05 September 2017 | 18:06BST

Frederic Blanc-Brude explains how the EDHEC Infrastructure Institute's new infrastructure benchmarks measure performance, asset pricing, and are able to show the benefits of diversification for investors. Such data, he says, will help the asset class to mature.

The EDHEC Infrastructure institute has has recently released broad market investment benchmarks of private debt and equity for investors in European infrastructure. The benchmarks go back 17 years, and are the result of two years of data collection from asset owners, managers and other sources. Six of the indices are now available via Bloomberg, tracking the European private infrastructure equity (EIPEE) and debt (EIPDE) markets, as well as the project finance (EIPEEPF, EIPDEPF) and private infrastructure corporates (EIPEEC, EIPDEC) sectors.

The benchmarks, of which these are the first version, have the capacity to be an important tool in how investors measure performance of infrastructure assets.

Two key methodological issues had to be addressed to create the benchmarks: sampling and valuation.

First, index constituents have to be reliably representative of the markets being proxied. This had been a major limitation of previous efforts to measure the performance of private infrastructure assets. Data contributed by a few asset managers could not be trusted to be free of selection, survival and reporting biases.

Second, the well-known, twin issues of 'stale pricing' and 'volatility smoothing' found in private asset valuations also plagued previous attempts. Infrastructure assets seldom trade and reporting financial performance on the basis of appraisals typically fails to

represent the evolution of market values and to provide investors with a reliable measure of risk-adjusted returns.

Fifteen people worked on these two problems for several years at EDHECinfra, with the aim of producing financial metrics that could help bring private infrastructure investment out of its infancy and into the next phase of its development.

For each national market tracked by EDHECinfra indices, a top-down approach is taken to ensure that index constituents will make a representative set of 'investable' infrastructure firms. Once a comprehensive list of each privatised utility, port or airport, and of each SPV used to finance PPP concessions, LNG projects or IPPs has been identified (in the national company registry) and categorised, a representative set was built taking sector, business model and corporate structure types into account. This aimed to cover 50% of any national market by book value in each year, going back to 2000.

We identified close to 3,000 investable infrastructure firms in 14 European markets and designed a representative sample of 400 firms. Data for these 400 firms was then obtained from investors, managers, lenders, and other sources. This data was manually processed by a team of corporate analysts specialised in the infrastructure sector, reconciled and integrated in a database that is designed to answer the second challenge: asset pricing.

A second team of EDHEC researchers developed a series of models to predict the value and volatility of each stream of equity and debt pay-outs, as well as discount factor models that could address the 'stale pricing' issues mentioned above. Term structures of discount factors are estimated for each future pay-out stream, taking into account future changes in pay-out risk, the evolution of the term structure of interest rates at the relevant horizon, and improving the calibrations using observable secondary market transactions.

The result is a quasi-market valuation of each firm tracked in the EDHECinfra indices: the index represents what a theoretical investor holding a representative set of the investable infrastructure of Europe in each year since 2000 would receive, assuming that they adjust the valuation of their investments to take into account any change in cash flow risk, at the constituent level, the evolution of interest rates, and the evolution of investor preferences in each year. Table 1, shows the performance metrics of the EDHEC All European Infrastructure Indices on both the debt and equity sides.

Cinfra Broad market indices (as off 31 August 2017)				
Europe				
	3-year	5-year	10-year	Hist
	10.36%	11.02%	11.88%	11.19%
	8.59%	8.67%	9.19%	10.64%
	1.39	1.42	1.33	1.1
Europe				
	3-year	5-year	10-year	Hist
	4.91%	6.72%	6.80%	8.31%
	4.34%	4.29%	4.32%	5.67%
	1.5	1.9	1.7	1.56

Returns are time-weighted. Volatility is the standard deviation of returns. The Sharpe ratio is equal to excess returns divided by return volatility. In some years, the risk-free rate used to compute excess returns can be negative. Debt returns are computed on a cash-basis i.e. the "effective" rate of interest of each instrument is taken into account whether it is a fixed rate or variable rate instrument. In other words, flexible rate debt is assumed to benefit from a base rate swap.

One of the most striking results from the benchmarking exercise is the role that portfolio diversification could play in infrastructure investors' portfolios.

At the individual constituent level, we find plenty of risk. A number of infrastructure firms defaulted and went bankrupt during the last 17 years in Europe. Private firms with concentrated ownership like infrastructure projects also tend to have more erratic dividend policies than listed firms: they can pay dividends more irregularly and of very variable sizes. They can be 'in lock-up' (bared from paying dividends by their creditors following a covenant breach) for several years and then start paying out dividends again. Long duration also means that large interest rate fluctuations can have a significant impact on value. The business risk of certain projects can also change and become more volatile over time (traffic risk post-recession, expiring power purchased agreements, etc.)

Unlike the smoothed volatilities resulting from NAV appraisals, the return volatility of individual constituents in the EDHECinfra indices can be substantial as shown on figure 1, which shows two histograms of the return volatility of individual assets (left hand side): the range of volatilities for individual investments, while concentrated in the 10-30% range, can go as high as 130-150%.

It is only once these assets are assembled in relatively large portfolios that the potential of infrastructure investment really becomes apparent: the covariance between individual asset returns is low (infrastructure businesses tend not to be correlated) and, as a result, most of the individual return volatility could be diversified in large enough portfolios.

Here, the infrastructure investment narrative is clearly visible: relatively high excess returns per unit of risk are available (e.g. the EDHEC All Infrastructure Europe Broad Market Equity Index has a Sharpe ratio of about 1.3x) but not because we failed to measure risk properly at the firm level. Instead, portfolio diversification is the key reason why this narrative becomes apparent.

This opens up a number of questions about portfolio construction for direct investors and fund design for asset managers that will be addressed by future research and applications of the EDHECinfra benchmarks. These indices will reach global coverage by 2020 and be continuously updated.

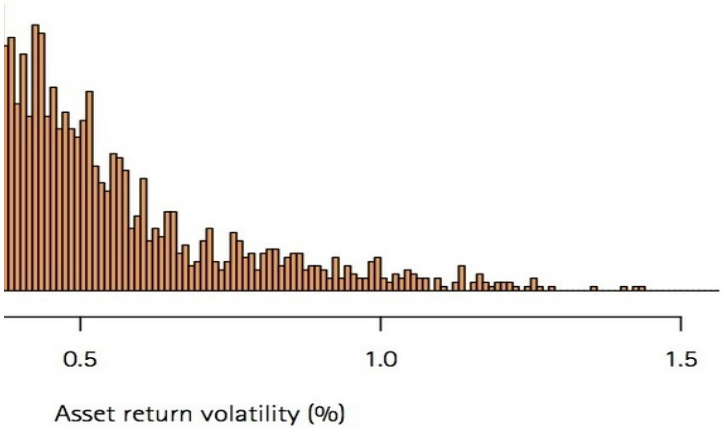
With better data and methods, infrastructure investment can gradually evolve towards a more transparent, better understood and adequately regulated asset class, and join other alternatives in maturity.

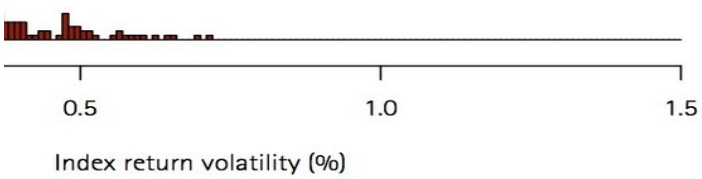
Alternative asset classes often start off as exotic, undocumented propositions. Hedge funds, venture capital, commodities, even private real estate once were considered opaque forms of investments that only sophisticated asset owners would consider; perhaps because they shared unusual investment beliefs with an asset manager.

A few decades later, the same alternative asset classes are practically as established as stocks and bonds. Products have been standardised and, crucially, enough data has been aggregated to create a track record. Pooling information about illiquid, private assets was a good idea for everyone involved. As a result, regulators were able to integrate these products into a framework that makes them accessible to institutional and even retail investors.

The time has now come for private infrastructure investment to do the same.

Figure 1: Volatility of EDHEC All Infrastructure Equity constituents (top) and of value-weighted index returns (bottom) for Europe 2000-2016.


0.5
1.0
1.5
Asset return volatility (%)


0.5
1.0
1.5
Index return volatility (%)