Benchmarking: Moving away from NAVs, IRRs

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Current metrics for benchmarking infrastructure are not fit for purpose. **Frederic Blanc-Brude** *explains the importance of standardising data collection*

In recent years, there have been frequent calls to step up data collection in infrastructure investment, but it is often unclear what data should be collected, how it should be collected, and to what end.

In a new paper (Blanc-Brude et al 2015), we propose a template for collecting and reporting infrastructure investment data for the purpose of building investment benchmarks corresponding to reference portfolios of privately held infrastructure debt or equity.

To establish what data needs to be collected, we look at why infrastructure investment benchmarks are in demand and list the key questions that benchmarks should answer.

Asset allocation. Documenting the risk-adjusted performance of infrastructure investments versus other public or private assets includes deriving measures of expected and realised returns, return volatility and of the correlation of these returns with the market. This determines whether there is such a thing as an infrastructure asset class, which could improve existing asset allocation policies, or what combination of investment factors infrastructure debt and equity correspond to.

Prudential regulation. The current treatment of privately held infrastructure is debatable and certainly contradicts the investment beliefs that draw investors to these assets. Without adequate measures of extreme risk and calibration of existing prudential frameworks, institutional investors are less able to invest in infrastructure.

Liability-driven investment. Infrastructure investments may have the potential to contribute to asset-liability management objectives – even if they do not correspond to a well-identified asset class. Different duration and inflation hedging measures of infrastructure investments will play a key role in their integration in the asset-liability structure of investors. Arriving at such measures is firmly part of the objective to create infrastructure benchmarks. The questions are important to the future of infrastructure investment by long-term investors – in particular, investors with a liability profile and subjected to prudential regulation, such as insurance firms.

Market proxies are ineffective. Looking for estimates of expected performance and risk of privately held infrastructure investments in the market for publicly traded securities has not so far delivered meaningful results. Listed infrastructure equity and debt indices tend to exhibit higher risk than broad market indices (higher maximum drawdown, higher VaR) partly because they are highly concentrated in a few large constituents. Crucially, they do not suggest any persistent improvement of investors' existing portfolios (see Blanc-Brude 2013; Blanc-Brude, Wilde, and Witthaker 2015 for a review and quantitative analysis).

Existing research using private data is too limited. Existing sources and studies on the performance of infrastructure private equity funds suffer from major limitations and cannot be considered representative of the performance of underlying assets. In fact, it is because infrastructure private equity funds are not representative that a number of large asset owners have gradually opted to invest directly. Likewise, information from rating agencies about infrastructure debt is insufficient to answer questions about the performance, extreme risk and effective duration of reference portfolios of private infrastructure debt.

Reported metrics are inadequate. The metrics currently reported in infrastructure investment are not fit for purpose. Appraisal-based net asset values (NAVs) suffer from the usual stale pricing issues that lead to smoothing and underestimating the volatility of returns, and the use of constant internal rates of return (IRRs) precludes building portfolio measures, identifying sources of return (factors) or computing the correct duration measures with risk profiles that are expected to change over time, which is the case with infrastructure projects.

In June 2014, Blanc-Brude (2014) put forward a roadmap for the creation of infrastructure investment benchmarks, as part of a research project supported by infrastructure investors Natixis, Meridiam and Campbell-Lutyens. The roadmap integrates the question of data collection up front, including the requirement to collect information known to exist in a reasonably standardised format and limited to what is necessary to implement robust asset-pricing and risk models.

Several recommended steps have been taken and the framework required to define and launch the data collection process now exists. Defining infrastructure investments from a financial perspective, the only relevant perspective to build investment benchmarks was a necessary first step.

A clear distinction had to be made between infrastructure as a matter of public policy – where the focus is rightly on industrial functions (water supply, transportation, etc) – and that of financial investors, who may be exposed to completely different risks through investments in firms providing exactly the same industrial functions (for example, a real toll road and an 'availability payment' road*).

Good progress has been made in identifying the characteristics that can systematically explain the financial performance of infrastructure investments. Particularly encouraging is the growing consensus around the limited role of industrial sector categories in explaining and predicting performance, and the much more significant role played by contracts and by different infrastructure business models, such as 'merchant' or 'contracted' infrastructure, or different forms of utility regulation.

A first result has been identifying limited-recourse project finance as a major and well-defined form of investment structuring for infrastructure projects. Benchmarking project finance debt and equity by broad categories of concession contracts, financial structures and life-cycle stage is one way to create reference portfolios that can be used as benchmarks, including for prudential regulation, as the recent EIOPA consultations suggest. In time other approaches can complement this first step to integrate other types of underlying infrastructure business models in a broader benchmarking exercise of privately held infrastructure investments.

With the financial instruments corresponding to infrastructure investment usefully defined, the second necessary step was to design a performance and risk measurement framework that can provide robust answers to the questions identified above.

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Privately held infrastructure equity and debt instruments are not traded frequently and cannot be expected to be fully 'spanned' by a combination of public securities. Hence, they are unlikely to have unique prices that all investors concur with at one point in time. A two-step approach to measuring performance is therefore necessary:

• Documenting the statistical distributions (mean and variance) of debt service and dividends to address the fundamental problem of unreliable or insufficiently reported NAVs or losses given default (LGDs);
• Estimating the relevant (term structure of) discount rates, or required rates of returns, and their evolution in time.

Recent EDHEC research provides a framework addressing both steps, taking into account the availability of data, while applying best-in-class models of financial performance measurement. The result is a list of data items required to implement adequate methodologies and answer the right questions. This list includes base-case and revised-cash-flow forecasts for equity and debt investors, as well as realised debt service and dividends, and key financial ratios – in particular, debt service and equity service cover ratios, and their determinants. Finally, modelling cash flow requires knowledge of loan covenants, expected and realised investment milestones.

Once the expected value and volatility of cash flow to creditors and investors is known, the relevant term structure of discount rates can be estimated to derive past and forward measures of performance, risk and liability hedging.

Starting from a distribution of cash flow, several approaches are available, such as factor extraction from initial investment values, following Ang et al (2013). Blanc-Brude and Hasan (2015) provide an application to infrastructure project equity.

A second option is the risk-neutral valuation approach described in (Kealhofer 2003). Blanc-Brude, Hasan, and Ismail (2014) provide an application to private infrastructure debt that integrates the Black and Cox (1976) extension of the Merton (1974) structural model, and allows for debt restructuring post-default, hence valuing the option available to infrastructure lenders to restructure project debt.

Implementing these methods requires collecting a set of data items, including initial investment values and credit spreads, all of which are observable.

Having clear definitions of underlying assets, and having built robust, state-of-the-art pricing and risk models that avoid the pitfalls of existing practices (such as averaging IRRs), which are designed to deliver the answers needed by investors, regulators and policy-makers, it is time to collect the relevant information.

With the data collection template defined by EDHEC, which has been designed to correspond to the requirements of the relevant asset pricing and risk models, a rationale exists to collect data effectively and efficiently to build infrastructure investment benchmarks.

Collecting this information requires co-operation between investors, creditors, academic researchers and the regulators who can help make such reporting part of a new standard approach to long-term investment in infrastructure by institutional players.

* A road project company receiving a fixed compensation from the public sector in exchange for the delivery of the construction, operations and maintenance of a road up to a pre-agreed output specification.

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