



© Casper Shaw Image via Getty Images

Making a better match between institutional investors and infrastructure investments

Matching up infrastructure projects and institutional investors is difficult. Better knowledge of how infrastructure assets will behave and new ways to monitor performance can help.

Frédéric Blanc-Brude,
research director,
EDHEC-Risk Institute

Why is it so difficult to match long-term money with long-term investment projects such as new infrastructure? Policy makers have certainly made a priority of the search for new ways to finance long-term growth.¹ At the same time, institutional investors have recognized the need for alternative long-term instruments to help meet long-term commitments such as pension payouts or insurance policies. Yet matching investment demand (for new infrastructure) and supply (from institutional investors) remains elusive.

Simply put, better matchmaking requires creating new knowledge about the expected behavior of underlying infrastructure assets and portfolios. Infrastructure investing today is not yet a relevant

asset-allocation question for institutional investors, and until it becomes one, the relative size of their investment in infrastructure will remain marginal.

There are several reasons why matching up institutional investors and infrastructure projects is difficult:

- The *first generation of infrastructure-investment products* was not well suited to long-term investors' needs and has prompted a backlash among the largest investors.
- More important, a *knowledge deficit* about what "investing in infrastructure" actually means prevents investors from examining such long-term investment decisions at the relevant strategic asset-allocation level.² This gap also

tends to reinforce the view among regulators that infrastructure investment is highly risky.

- Needed *performance monitoring* is lacking.

In fact, long-term investment in unlisted and highly illiquid assets like infrastructure projects significantly increases investors' demand for performance monitoring in ways that the private-equity and debt sectors have been unable to respond to so far. The task is to overcome a substantial collective-action problem to standardize reporting and improve benchmarking.

The infrastructure story so far

Investing long term in illiquid infrastructure assets is a strategic asset-allocation decision. Ideally, investors should make it based on an investment benchmark that allows them to take a robust view on the expected performance of such investments. However, such benchmarks do not exist for infrastructure assets. The paucity of relevant data and the absence of a clear definition of what is meant by "infrastructure" mean that only remote proxies can be used as benchmarks. Moreover, the kind of reporting that private-equity managers typically use, focusing on internal rates of return and investment multiples, is fundamentally inadequate for the purpose of benchmarking investments in an asset-allocation context.

In the absence of adequate investment benchmarks, investors' growing interest in infrastructure assets stems from what we call the "infrastructure-investment narrative."³ The notion is that infrastructure assets uniquely combine the following characteristics:

- low price elasticity of demand, therefore low correlation with the business cycle
- monopoly power, hence pricing power, hence an inflation hedge

- predictable and substantial free cash flow
- attractive risk-adjusted cash yield, available over long periods
- the opportunity to invest in unlisted assets

In other words, infrastructure investment *implies*:

- improved diversification
- better liability hedging
- less volatility than capital-market valuations

The narrative is itself a model in that it describes the characteristics of the average infrastructure project. It is also a benchmark (albeit one that does not rely on any empirical observations) upon which investors must rely to form their expectations about such investments, and thus make allocation decisions.

However, this infrastructure-investment story has not so far proved easy to buy. First, most free cash flow in infrastructure projects goes to debt instruments (predictable cash flows tend to lead to significant balance-sheet leverage), and few infrastructure-debt investment solutions existed until very recently.

Another reason is that gaining exposure to infrastructure equity has been mostly limited to two routes: the so-called listed infrastructure and unlisted private-equity funds, or "infrastructure funds," the immense majority of which are clones of leveraged-buyout funds with similar investment time frames, fee structures, and use of fund-level leverage. As we at EDHEC have pointed out,⁴ in our opinion, neither listed nor unlisted infrastructure-equity products have delivered the "narrative" suggested above (exhibit).

A knowledge deficit

It should surprise no one that the disconnect between the investment narrative and the

Exhibit

Research findings about the performance of infrastructure equity show listed and unlisted products have not followed the narrative.

Expected behavior	Listed infrastructure	Unlisted infrastructure private-equity funds
Low risk	No	No
Low correlation with business cycle	No	No
Long term	No	Exits after 5–7 years
Excess returns	No	Yes, but fund-level leverage
Limited drawdown	No	No (credit cycle)
Inflation protection	No	No

Source: Frédéric Blanc-Brude, *Towards Efficient Benchmarks for Infrastructure Equity Investments*, EDHEC-Risk Institute, Jan 2013, edhec-risk.com

observed performance of available investment products occurs because there is little clarity about what “infrastructure investment” means in the first place. The definition of the underlying asset often remains vague and is subject to considerations about “real” assets and assumptions about the characteristics of firms in certain sectors. As a result, descriptions of the infrastructure sector often employ a series of industrial classifications such as utilities, transport, energy, water, public buildings, and so on, but no widely agreed-on definition. Observers and practitioners alike rely on the proverbial wisdom that they shall know it when they see it.

Lacking a clear definition of what “infrastructure” actually is, it’s also not surprising that no clear picture emerges from the evidence on the performance of existing infrastructure-related investments. These strategies do not stem from well-identified mechanisms at the underlying level corresponding to remunerated risk factors.

They are simply ad hoc asset-selection schemes in the listed and unlisted spaces.

Since investors remain largely ignorant about how infrastructure equity and debt portfolios might behave, it is virtually impossible to understand infrastructure investment from a strategic asset-allocation standpoint. Assembling the necessary ingredients to take a long-term view on infrastructure investing requires the ability to document expected returns, risk measures, and correlations. That can only start with a clear and well-accepted definition of underlying assets and a transparent proposal about the investment strategy, including the use of leverage and the effective number of bets that a portfolio of infrastructure assets can be expected to correspond to.⁵

In effect, meeting investors’ needs for better knowledge of the performance of infrastructure assets and investment strategies determines the

extent to which they are able to invest in such assets. Moreover, the absence of knowledge about performance also leads to a regulatory dead end: when faced with unknown quantities, prudential regulation penalizes long-term unlisted bets, further distorting allocation decisions.⁶

Of course, this lack of knowledge about the performance of infrastructure assets is not new. It was also not a particular problem as long as investing in long-term unlisted assets played a minor role in the (relatively small) alternative investment allocations that large institutional investors made. Until recently, most of them did not invest in alternatives at all.

However, once investors consider making substantial allocations to infrastructure investment, ranging from a few percentage points to almost a fifth of their assets in some cases, the absence of better knowledge about long-term unlisted investments becomes an impediment to new investment. This partly explains why investors have remained mostly on the sidelines rather than making greater forays into the infrastructure sector.⁷

Wanted: Long-term performance monitoring

What we know about the long-term behavior of illiquid assets is likely to evolve and improve. As a result, long-term investors need more than just a benchmark to make their initial asset-allocation decisions; they also need to be able to monitor performance in order to continuously update and enhance their knowledge. Long-term

investors tend to be more active shareholders and require greater monitoring. However, in the case of infrastructure investment, the failure to deliver adequate performance measurement and monitoring has led to an unfortunate retreat from the delegated-investment model.

Wide-ranging academic research documents how investors' demand for firm monitoring is an increasing function of their investment horizon.⁸ But if long-term equity investors tend to be active shareholders, they are also passive investors whose asset-allocation decisions require forming long-term expectations about risk and returns—that is, investment benchmarks. In the case of frequently traded assets, market prices provide the basis for forming these expectations. In effect, private monitoring efforts by large block holders contribute to market efficiency, since these efforts also benefit other stockholders. In turn, the market also provides monitoring benefits to long-term investors by processing information that is not available privately.⁹

Likewise, investing in infrequently traded assets requires a long investment horizon. But without the feedback of market prices, forming long-term expectations about risk and returns is less straightforward. It follows that investing in unlisted equities like infrastructure further increases investors' demand for monitoring. As with listed firms, a long-term investment horizon creates incentives to monitor performance to preserve or improve shareholder value, but the illiquid nature of unlisted firms creates a second motive for monitoring: investment benchmarking.



Investing in unlisted, illiquid firms with a long-term horizon also requires specialist knowledge and should typically lead investors to delegate this process to investment managers. Unfortunately, the current delegated model of private-equity investment mostly fails to respond to investors' monitoring needs. This is most apparent with the kind of performance reporting offered by private-equity managers.

For example, two associate professors at the Saïd Business School in Oxford and HEC Paris, respectively, propose a comprehensive critique of the performance monitoring of typical private-equity funds.¹⁰ They show that pooling individual investments and internal rates of return (IRRs) for funds creates misleading results, because IRRs cannot be averaged; IRRs are grossly inadequate for the purpose of asset allocation.

With private-equity managers unable to deliver satisfactory performance measurement and monitoring, a number of large institutional investors have ceased to delegate their investments in unlisted firms. Instead, they have brought in-house the function of acquiring and managing infrequently traded assets such as infrastructure. Canadian pension funds, a few large European pension funds, and sovereign-wealth funds are leading this trend of investing directly in illiquid assets.

Bringing investment and monitoring functions in-house is not necessarily an improvement, however. Delegating monitoring tasks to a specialist agent should boost efficiency. But a number of large investors have decided to exit delegated private equity altogether because information asymmetries between investors and managers can be so large that the benefits

of delegation go unrealized. Nevertheless, bringing the function in-house creates other costs. In particular, it can be difficult to create a well-diversified portfolio of large illiquid assets such as infrastructure-project equity.¹¹ Investors are now engaged in individual project selection even though they still haven't answered the asset-allocation question. Moreover, this approach is only available to very large investors that can bear the full cost of deal sourcing and the ongoing management of their portfolio companies.

Faced with a retreat by such large accounts as the Canadian pension industry, why are private-equity managers not offering to improve their monitoring and reporting so that investors can benefit from delegation while making well-informed asset-allocation choices? In effect, some managers are already evolving toward new private-equity models that allow investors to gain the kind of longer-term exposure they require. Moreover, the tendency for institutional investors to create large or very large unlisted equity allocations is a recent development; the need to monitor and benchmark performance has only recently become more pressing.

The failure of the private-equity industry to provide satisfactory monitoring for large investors is also a problem of collective action. Most of the necessary information is private. Dissemination and data collection, when it exists, is ad hoc and relies on existing practices instead of promoting data collection according to the requirements of robust asset-pricing methods. Private-equity managers could be more transparent and aim to provide performance measures that are more relevant to long-term investors. Taken individually, however, not one has access to enough information to answer the private-equity asset-allocation question.

Direct investment in infrastructure projects is not a panacea for institutional investors, even large ones.

Clearly, there is a role to play for policy makers and academics in overcoming this collective-action problem and supporting the standardization of data collection and the creation of adequate investment benchmarks for the purposes of long-term investing in unlisted assets. Without such improvements, it will remain considerably more difficult for long-term investors to make allocations to infrastructure-related products.

The way forward

Effectively and efficiently matching up long-term institutional investors with long-term illiquid infrastructure assets will require two actions that must work in concert: preserving the benefits of delegation to a specialist manager who can act on behalf of an active asset owner, and enforcing sufficient long-term performance monitoring and benchmarking to allow a passive investment stance, which can be justified as a strategic asset allocation.

Direct investment in infrastructure projects is not a panacea for institutional investors, even large ones. Instead, the benefits of delegation should prove significant if the information asymmetry between investors and managers can be reduced by creating new knowledge to inform investors' asset-allocation decisions.

We propose a step-by-step road map to help resolve the question of how relevant to investors infrastructure investment can be. Our approach requires a multistakeholder effort to reveal the characteristics of infrastructure assets at the underlying and portfolio levels and reduce existing information asymmetries between investors and managers. This road map has eight elements:

1. **Definition.** The first step on the road to relevant infrastructure-investment solutions for institutional investors is an unambiguous definition of the underlying instrument, as a financial asset.
2. **Valuation and risk-measurement methodology.** With a clear and well-accepted definition of underlying instruments, it is possible to develop adequate valuation and risk-measurement methodologies that take into account infrequent trading. By "adequate" we mean that such methodologies should rely on the rigorous use of asset-pricing theory and statistical techniques to derive the necessary input data, while also aiming for parsimony and realism when it comes to data collection. The proposed methodologies should lead to the definition of the minimum data requirement, which is necessary to derive robust return and risk estimates.



3. Data-collection requirements. While ensuring theoretical robustness is paramount to the reliability of performance measurement, a trade-off exists with the requirement to collect real-world data from market participants. In particular, proposed methodologies should aim to minimize the number of inputs in order to limit the number of parameter-estimation errors. Adequate models should also focus on using known data points that are already collected and monitored or could be collected easily. In all cases, data requirements should be derived from the theoretical framework, not the other way around. In turn, whether the necessary data already exist or not, this process will also inform the standardization of investment-data collection and reporting.

4. Reporting standards. Standardizing infrastructure-investment data collection should enable the emergence of an industry-wide reporting standard that investors and regulators alike can recognize. Such a reporting standard would increase transparency between investors and managers, who would now be mandated to invest in a well-defined type of instrument and commit to report enough relevant data for investors to benefit from their specialized monitoring.

5. Investment benchmarks. The investment profile of the underlying assets spans expected returns, risk, and market correlations. Once these have

been documented as well as the existing data allow, it is possible to design investment benchmarks to reflect the performance of a given strategy (for example, maximum Sharpe Ratio) for a given investment horizon.

6. Investment solutions. These investment benchmarks can serve as the basis for the development of various standard or tailored investment solutions by the industry, including different types of funds with explicit horizons and risk profiles.

7. Regulation. The robust performance benchmarking of unlisted infrastructure equity portfolios also has direct regulatory implications for risk-based prudential frameworks like Solvency II, the directive codifying EU insurance regulation. For example, the benchmarking should permit calibrating a dedicated unlisted infrastructure submodule in the context of the Solvency II standard formula, or usefully informing investors' internal risk models.

8. Public procurement. Finally, documenting the financial performance of unlisted infrastructure is relevant for the design of public-infrastructure tenders and contracts. It is the opportunity for the public sector to involve investors early in the design of public-infrastructure contracts with a measure of investment performance that has been validated academically and recognized by industry.

At EDHEC, we have begun following this road map. In our publications, both recent and upcoming, we propose a number of solutions to make infrastructure investment more relevant to institutional investors. As a first step, we suggest that well-defined underlying instruments can be found in project-finance debt and equity, which embody many of the aspects of the infrastructure-investment narrative and can be modeled and calibrated.¹² We also develop valuation and risk-measurement

methodologies for project-finance equity and debt that are consistent with modern asset-pricing theory, while relying on standardized data inputs that are as succinct as possible and that can be easily collected.¹³

The EDHEC-Risk Institute will continue to implement these steps with its partners over the coming years, including the creation of infrastructure debt and equity investment benchmarks. ○

¹ Long-term investment in infrastructure was a key topic during the 2013 Russian presidency of the G20 and was high on the agenda of the 2014 Australian presidency.

² Numerous research papers have demonstrated the primacy of asset allocation in investment management. Asset-allocation decisions explain most of the variability of investment outcomes. See William F. Sharpe, "Asset allocation: Management style and performance measurement," *Journal of Portfolio Management*, 1992, pp. 7–19; Michael J. Brennan, Ronald Lagnado, and Eduardo S. Schwartz, "Strategic asset allocation," *Journal of Economic Dynamics and Control*, 1997, Volume 21, pp. 1377–1403; and Roger G. Ibbotson and Paul D. Kaplan, "Does asset-allocation policy explain 40, 90, or 100 percent of performance? Authors' response," *Financial Analysts Journal*, 2000, Volume 56, pp. 16–19.

³ See Frédéric Blanc-Brude, *Towards Efficient Benchmarks for Infrastructure Equity Investments*, EDHEC-Risk Institute, January 2013, edhec-risk.com.

⁴ *Ibid.*

⁵ See Noël Amenc, Felix Goltz, and Ashish Lodh, *Alternative Equity Beta Benchmarks*, EDHEC-Risk Institute, August 2012, edhec-risk.com.

⁶ The current debate about the role of long-term investment in Solvency II, the directive that codifies EU insurance regulation, illustrates this point. See Frédéric Blanc-Brude and Omneia R. H. Ismail, *Response to EIOPA's Consultation on Standard Formula Design and Calibration for Certain Long Term Investments*, EDHEC-Risk Institute, 2013, edhec-risk.com.

⁷ For example, Australia may be a pioneering market for infrastructure investment, but Australian super funds only invest 3 percent of their assets in infrastructure.

⁸ See Andrei Shleifer and Robert W. Vishny, "Large shareholders and corporate control," *Journal of Political Economy*, 1986, pp. 461–88; Nemmara K. Chidambaram and Kose John, "Relationship investing: Large shareholder monitoring with managerial cooperation," New York University working paper, NYU Stern School of Business Research Paper Series, FIN-98-044, November 1998, stern.nyu.edu; Xia Chen, Jarrad Harford, and Kai Li, "Monitoring: Which institutions matter?," *Journal of Financial Economics*, 2007, Volume 86, pp. 279–305; Elyas Elyasiani and Jingyi Jia, "Institutional ownership stability and BHC performance," *Journal of Banking & Finance*, 2008, Volume 32, pp. 1767–81, and "Distribution of institutional ownership and corporate firm performance," *Journal of Banking & Finance*, 2010, Volume 32, pp. 606–20; and Najah Attig et al., "Institutional investment horizon and investment-cash flow sensitivity," *Journal of Banking & Finance*, 2012, Volume 36, pp. 1164–80, edhec-risk.com.

⁹ See Bengt Holmström and Jean Tirole, "Market liquidity and performance monitoring," *Journal of Political Economy*, 1993, pp. 678–709.

¹⁰ See Oliver Gottschalg and Ludovic Phalippou, "The performance of private-equity funds," *Review of Financial Studies*, 2009, Volume 22, pp. 1747–76.

¹¹ See Blanc-Brude, *Towards Efficient Benchmarks*.

¹² See Frédéric Blanc-Brude and Omneia R. H. Ismail, *Who is Afraid of Construction Risk? Portfolio Construction with Infrastructure Debt*, EDHEC-Risk Institute, 2013, edhec-risk.com, and Blanc-Brude, *Towards Efficient Benchmarks*.

¹³ See Frédéric Blanc-Brude and Omneia R. H. Ismail, *Valuation and Risk Measurement of Unlisted Infrastructure Equity Investments and Valuation and Credit Risk of Illiquid Infrastructure Debt Instruments*, EDHEC-Risk Institute, 2014, edhec-risk.com.