

Do you know the fair value of your infrastructure investments?

New asset valuation technology and data opens an era of transparency and better risk management for investors in infrastructure.

Assuming a post-Covid recovery of air traffic levels, investing in airports today could be a very good idea. But only at the right price. Indeed, the market value of an airport today must reflect both its future expected cash flows, which may well remain largely intact over the next few decades, and a risk premium that has increased by 300 basis points on average as of Q4 2020*, to reflect the heightened uncertainty with which these cash flows may be paid since the start of the pandemic. This is simple maths: airports must be cheaper now than they were a year ago.

The market price of risk matters...

More generally, fair value simply means using asset valuations reflecting the market price of risk, which is necessary to take any informed investment decision.

For instance, accurate market valuations are essential for secondary market investments, especially 'continuation' funds, which allow managers to pass the investments made by previous funds to newly raised ones. As long as the assets are transferred to the new fund at their fair value, this kind of deal is completely unproblematic.

Fair valuations are also the starting point of adequate yield management. For many investors, infrastructure investment is equivalent to holding bonds with an attractive yield, until maturity. Entering at the right price point is therefore important, since cash yields do not only depend on cash flows but also on the acquisition price of these cash flows. You cannot know the current yield without knowing the latest market price.

...even when holding the asset to maturity...

In fact, all financial assets create risks of losses. Being a long-term, buy-and-hold investor does not change this reality: future cash flows may be paid over a long period but knowing their present market value is necessary to ensure prudent and compliant risk management. Even if the short-term volatility of infrastructure investments is not a concern for long-term investors, their prudential and fiduciary responsibilities require to conduct impairment tests and to know the liquidation value of their assets, as is the case for any financial assets held in connection with financial liabilities. Long term investment should not mean blind investment.

...to make consistent decisions across all asset classes.

Investing in financial assets also represents opportunity costs that have to be taken into account in allocation choices and arbitrage decisions. Without updated market valuations, both the actual and the optimal weight of illiquid assets in the portfolio are unknown, preventing strategic allocation decisions or rebalancing. For example, corporate bonds are a form of illiquid assets, just like infrastructure, and are systematically marked to market by investors. This allows taking into account the opportunity cost of holding these assets relative to the market parameters that determined the allocation. Likewise, investors can arbitrage unlisted infrastructure with other illiquid asset classes, and the opportunity cost of doing so can only be appreciated at its fair market value.

Should you invest the whole portfolio into infra?

These issues have long plagued illiquid investments because of the lack of data reflecting the value of unlisted assets like infrastructure equity. This is the well-known problem of 'stale' valuations. In effect, the discount rates used to value unlisted infrastructure tend to be somewhat ad hoc and very 'smooth' i.e. they do not change much between valuation dates. It follows that unlisted infrastructure is often de facto booked at cost and values reported by investors do not reflect the fair market value of these assets. Today, many investors in unlisted infrastructure do not know the market value of their portfolio.

This point is made abundantly clear by looking at the volatility of appraisal valuations in unlisted infrastructure portfolios: given the returns, the reported NAV volatility implies a wildly unrealistic risk/return profile as shown in table 1, which describes the appraisal NAVs of 13 unlisted infrastructure equity portfolios representing USD23.4bn of investments in 2020. Ergo, appraisal NAVs are smooth and do not capture the fair market value of infrastructure investment.

We know from empirical research in finance that expected returns are better proxied by risk levels than by historical returns. If the risk level implied by the volatility of infrastructure appraisals in these portfolios was true, infrastructure would represent a huge risk-free arbitrage opportunity with a Sharpe ratio of 3.

Any rational investors taking this data at face value would need to invest most if not all of their portfolio in infrastructure... but of course they do not. Serious investors understand that this data does not reflect the risks of infrastructure investments. Without a clear sense of the fair value of these assets, investors have instead invested very little in infrastructure, with large pension plans allocating 2% on average according to the OECD and smaller investors even less.

Table 1: The Unbelievably Smooth Risk and Return Profile of Infrastructure Appraisals

	3-year	5-year	10-year
Appraisal NAV Total Returns	8.72%	9.65%	9.24%
Appraisal NAV Total Returns Volatility	2.73%	2.68%	2.85%
Implied Sharpe Ratio	2.79	3.19	2.86
Volatility of Appraisal NAVs only	2.34%	2.48%	2.38%

Source: Quarterly appraisal reports, NAV of assets for 13 funds of unlisted infrastructure equity representing USD23.4bn of investment in 2020

Table 2: The Realistic Risk and Returns of the EDHECinfra Broadmarket Equity Index

	3-year	5-year	10-year
Total Returns	5.65%	8.49%	15.01%
Returns Volatility	9.45%	9.59%	12.23%
Sharpe Ratio	0.53	0.81	1.13

Source: EDHECinfra Broadmarket Index represent USD230bn in 2020, available at indices.edhecinfra.com

Thanks to new data and technology investors can do better

Investors in unlisted infrastructure can now do much better than relying on stale values. Since 2019, EDHECinfra has been measuring the fair value of hundreds of unlisted infrastructure companies each quarter by relying on high quality data and advanced asset pricing technology using machine learning to extract the latest price of risk from recent secondary market transactions.

Our research shows that while infrastructure companies are different, they are exposed to common pricing factors such as size or leverage and that we can estimate the risk premia of these factors over time as we observe actual secondaries and their financial characteristics. Once we know the price of each factor, we can compute the market discount rate of any other infrastructure firm that does not trade in that period but is also exposed to the same factors: size, leverage, etc. As well as the latest market risk premia, the fair market value of unlisted infrastructure assets must reflect its duration and the evolution of the term structure of risk-free rates at the time of the valuation.

These results allow investors to access realistic data and to understand the evolution of the fair value of their infrastructure assets. Valuation predictions are very accurate: within an interval of 5% of observed transaction prices, which do indeed reflect the market price of risk.

With accurate mark-to-market valuations, investors can have access to market returns, including the true cash yield of infrastructure assets, as well as a realistic estimate of return volatility, as shown in table 2. Infrastructure has an attractive risk-return profile once properly measured.

Thanks to this innovation, we can produce market discount rates, risk premia and valuation metrics for numerous segments of the unlisted infrastructure market. Investors can use this data to assess the fair value of their existing assets, review new transactions prices, understand the risks and the true yield of the infrastructure asset class. Crucially, they do need to wait for an exit to find out what the fair value of their infrastructure assets actually is. With credible fair market value estimates, EDHECinfra creates indispensable information for investors to take sensible and prudent investment decisions.

* EDHECinfra Global Airport Index, available at indices.edhecinfra.com



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