Russell Investments Research

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Structuring a listed infrastructure portfolio

As a real asset category, infrastructure offers risk, return and diversification characteristics distinct from those of other asset classes, and thus merits consideration for allocation in a diversified portfolio. Infrastructure investments generally feature steady cash flows derived from tangible, long-lived assets with monopolistic-like pricing power; many are regulated and may feature income linked directly to inflation. The non-competitive position of the assets is driven by high barriers to entry, due to the considerable fixed costs required in development as well as a high degree of regulation. "Pure play" infrastructure assets—which include toll roads, regulated utilities, airports, seaports and cell phone towers—are essential to the fluid, effective functioning of societies, and accordingly feature highly inelastic demand patterns.

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Introduction

Infrastructure investment can be implemented through both listed and unlisted (or direct) vehicles. The distinction between listed and unlisted infrastructure is akin to that between listed and unlisted real estate: listed instruments offer daily liquidity, lower fees, lower leverage and generally better transparency, while unlisted investments tend to have lower volatility and lower correlations versus other major asset classes.

While the global infrastructure universe can be analyzed in a variety of ways, the space can be disaggregated into the following categories: transportation infrastructure, utilities, pipelines and communications infrastructure. *Transportation infrastructure* assets include toll roads, bridges, ports (sea and air) and rail. *Utilities infrastructure* includes electricity distribution and generation, gas distribution and storage, water and renewable energy. The *pipelines* sector comprises companies involved in the storage and transportation of oil and gas. *Communications infrastructure* features cable networks and satellite systems. Some subsectors—such as power generation—may be ignored altogether by "orthodox" investors looking to minimise volatility and correlations to global equities, while other sectors that are only indirectly related to infrastructure—such as mobile telecom companies—may be attractive to “thematic” managers looking for enhanced returns (managers willing to invest in higher-beta, competitively exposed companies).

While there is a clear relationship between listed and private segments of infrastructure, we focus this discussion on the listed side. Listed infrastructure falls within a real assets mandate and is readily available to both retail and institutional investors, though available implementation options will vary with portfolio size.

Diversification is the key advantage of infrastructure ownership in a portfolio context.

Rationale for inclusion in a portfolio

Diversification is the key advantage of infrastructure ownership in a portfolio context. For the period from December 31, 2001, through December 31, 2017, the S&P Global Listed Infrastructure Index (“GLI”) had a 0.42 correlation with the Citigroup Global Bond Index, a 0.84 correlation with the EPRA NAREIT Global Property Index and a 0.87 correlation with the Russell Global Index.

Table 1: Correlations

31/12/2001– 31/12/2017

Index	Russell Global Index	EPRA NAREIT	Citi Global Bond	S&P GLI
Russell Global Index	–			
EPRA NAREIT	0.83	–		
Citi Global Bond	0.17	0.34	–	
S&P GLI	0.87	0.84	0.42	–

Russell Capital Markets Forecasts 10-year Correlations

Effective 31/12/2017

Index	Russell Global Index	EPRA NAREIT	Citi Global Bond	S&P GLI
Russell Global Index	–			
EPRA NAREIT	0.74	–		
Citi Global Bond	0.30	0.23	–	
S&P GLI	0.73	0.76	0.25	–

Indexes are unmanaged and cannot be invested in directly. Past performance is not a guarantee of future results.

In addition to diversification, infrastructure is expected to provide an attractive total return, a relatively high yield and some degree of inflation protection over the long term. From December 31, 2001, through December 31, 2017, the S&P GLI had an annualised since-inception return of 10.59% and an annualised standard deviation of 14.48%; by comparison the Russell Global Index delivered an annualised return of 7.99% with an annualised standard deviation of 15.39%. Over the long term, we expect that listed infrastructure will deliver annualised returns marginally lower than those of global equities, with comparably lower volatility.

Table 2: Compound annual total returns, volatility 31/12/2001–31/12/2017

Index	Return	Standard deviation	Dividend yield (as of 9/30/2010)
Russell Global Index	7.99%	15.39%	2.17%
EPRA/NAREIT	10.01%	18.34%	3.80%
Citi Global Bond	4.74%	6.77%	2.50*%
S&P GLI	10.59%	14.48%	3.74%

*Refers to current yield.

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Distinct from other asset classes

Two of the key characteristics differentiating infrastructure from other asset categories are the long lives of the assets and the significant amount of capital required to develop them. Infrastructure projects can be massive undertakings: as an example, the project to replace New York State's Tappan Zee Bridge cost around $20 billion. Because these projects involve such large financial commitments, many, including the Tappan Zee, are funded by governments as public projects. Yet in recent years, tight budget constraints and voter and legislative reluctance to increase taxes has made public funding of projects more difficult. Consequently, governments have increasingly turned to private markets to finance infrastructure projects.

The long-lived, semi-monopolistic position of infrastructure assets supports a steady cash-flow profile and accordingly, low volatility as compared with broad market equities. In a portfolio context, infrastructure tends to provide low-beta exposure (relative to the broader global equities universe), a relatively high yield, and—because tolls and user fees for many of these assets are often tied to inflation—a degree of long-run inflation protection. As a result of these exposures, infrastructure tends to underperform broader equity categories in strong share market environments and to outperform in weaker environments. The asset class is somewhat unique in tending to provide stable returns in both dividend yield-driven and (to a lesser extent) inflation-driven environments. Through the global financial crisis, infrastructure companies saw smaller earnings downgrades than broader equities (see Exhibit 1).

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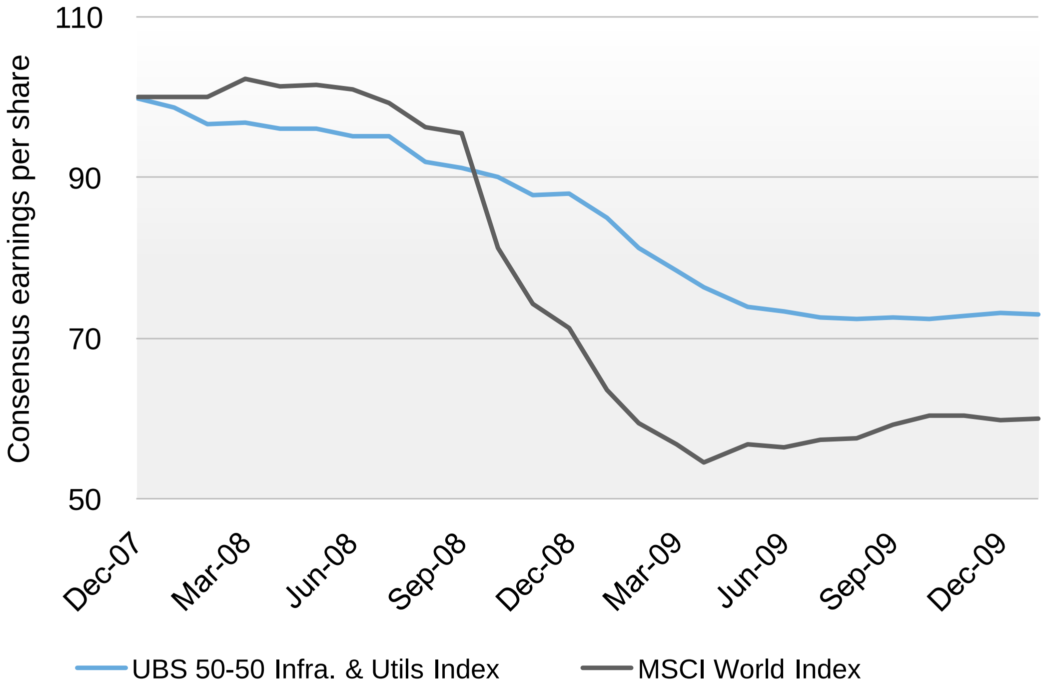
Exhibit 1: Consensus earnings per share



Rebased to 100 at 31 December 2007
Sources: Lazard Investment Management, Bloomberg, Institutional Brokers' Estimate System (IBES).
Past performance is not a reliable indicator of future performance.

Listed infrastructure companies often have lower levels of leverage than unlisted vehicles and feature straightforward tax structures.

Infrastructure is classified as a real asset because the underlying assets are physical, with real use to a functioning economy—much like real estate. Infrastructure has elements of property investing; of real usage commanding a fee; of inflation protection due to index-linked fees; and of diversification to financial assets that are highly correlated with market conditions. Infrastructure is the wheels and grease of a functioning economy. Inflation protection and diversification from financial assets will be more prominent in unlisted investment.

In terms of overlap with broader global equities, just 1.1% of the Russell Global Index (RGI) is in the S&P GLI, and just 23% of the market capitalization (cap) of the S&P GLI is in the Russell Global Index. It should be noted that most of this overlap comes in the form of mega-cap diversified utilities with exposure to generation. Most companies in the S&P GLI that do not overlap with the RGI are smaller "pure play" companies.

MAJOR ASSET CLASS SEGMENTS

Investment in infrastructure can be implemented through listed or unlisted vehicles. Listed infrastructure is a collection of infrastructure assets that have found their way onto equity exchanges. The distinction between publicly traded and private infrastructure is akin to that between listed and unlisted real estate: listed vehicles offer much greater liquidity and transparency and tend to have lower management fees than private investments. Moreover, diversification across regions and sectors may be more easily effected through listed investment, as investors are not obliged to concentrate their allocations in a handful of large assets (given the enormous size and cost of infrastructure assets, a typical private equity portfolio will comprise only a few investments). Listed infrastructure companies often have lower levels of leverage than unlisted vehicles and feature straightforward tax structures.

These advantages are offset in part by a higher correlation to broader equities, a higher level of volatility relative to unlisted assets and reduced access to assets in development, which tend to be owned by unlisted interests. Similar to real estate properties, mature infrastructure assets are often cashflow-rich, and they tend to offer higher yields than those typically available with broad market equities.

With respect to segments within listed infrastructure, the universe is usually disaggregated by sector as the primary dimension of risk; regions are considered a secondary dimension. Major sector categories include transportation, utilities, pipelines and communications. Sector breakouts for the primary listed infrastructure benchmarks are provided below. At the regional level, most indexes (and most active portfolios) have a lower exposure to the U.S. than broader global equity indexes, given that the only infrastructure companies listed in the U.S. are utilities, pipelines and cell towers/satellites.

Provision of an attractive dividend yield is a key component of the case for infrastructure investment, and infrastructure yields have been considerably higher than those in the broader market, as illustrated in Exhibit 3.

Liquidity Issues

Listed infrastructure investment offers daily liquidity comparable to that of mid/large cap global equities strategies; most of the companies in the S&P Global Infrastructure Index are highly liquid, as the methodology for constructing the index includes the largest cap names within each sector category. As a whole, the manager universe tends to have a small cap bias relative to the S&P GLI, though liquidity is an issue only with a very small subset of the companies in the universe.

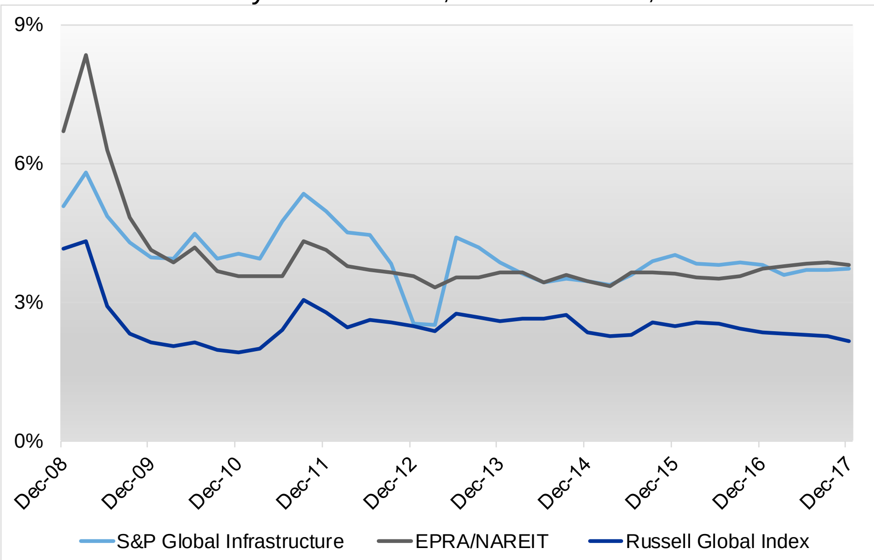
Liquidity risk in private (unlisted) infrastructure investment is highly comparable to that of other forms of private equity investment: private equity style infrastructure limited partnerships tend to have lock-up periods of 10 to 15 years. Unlike real estate, there is not yet a robust universe of open-end private infrastructure funds for U.S. investors; we are aware of only one prominent perpetual open-end fund currently available in the U.S. marketplace, although in Australia, this structure is more widespread than closed-end.

Cash flow

Because infrastructure assets often hold a government-guaranteed monopoly on the provision of essential services, cash flows may be extremely predictable. These generally predictable cash flows can support high credit ratings and result in very reasonable borrowing costs as compared with most real estate assets. On the flip side, heavy government involvement may spell close scrutiny on asset behaviour, potentially resulting in more modest returns than those offered by other private markets. Because infrastructure assets provide essential services, economic ups and downs may have limited impact on cashflows.

Provision of an attractive dividend yield is a key component of the case for infrastructure investment, and infrastructure yields have been considerably higher than those in the broader market, as illustrated in Exhibit 3. As of 31/12/2017, the yield for the S&P GLI was 3.74%, while the yields for the RGI and EPRA/NAREIT were 2.17% and 3.80%, respectively.

Exhibit 3: Dividend yield: S&P GLI, Russell Global, EPRA/NAREIT



Source: Factset, Russell.
Indexes are unmanaged and cannot be invested in directly. Data is historical and is not a guarantee of future results.

Active management potential and common strategies

In listed space, active managers often produce a purer exposure to infrastructure than published indexes. These indexes are exposed to securities with only partial or diluted exposure to true infrastructure assets. This is largely a result of the difficulty in developing a naïve formula for identifying pure-play infrastructure companies, particularly in the large and highly diverse utilities sector. Most indexes take one of two construction approaches: applying a market cap weighting methodology to 'infrastructure sectors' (in which case utilities will always dominate the index) or imposing fairly arbitrary hard caps on these sectors. In order to effectively identify companies with the pure-play characteristics outlined above, it is necessary to dig into financials and identify what percentage of earnings comes from competitively exposed versus regulated lines of business. Essentially, active management affords not only the classic alpha opportunity, but also a "better beta" opportunity, in that active managers are able to screen the investment universe for companies that have pure-play infrastructure characteristics.

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While listed infrastructure investment styles cannot be as elegantly defined as those of broader equities managers—with factor exposures clearly delimiting a growth or value approach—there is a degree of variation, based largely on the approach to universe definition taken by the manager. Some managers take an absolute-return, "orthodox" view of the space, considering only stocks with the most stable cash flow patterns and lowest correlations to broader equities for portfolio inclusion. This philosophy is founded on the belief that listed portfolios should replicate—to the extent possible—the types of assets investors would get exposure to through a "core" direct investment strategy and generally ignore infrastructure benchmarks. This approach tends to favor pure-play infrastructure sectors, including toll roads, airports, seaports and highly regulated, low-beta utilities (notably transmission and distribution companies). On the other end of the spectrum, some managers operate under a much less constrained definition of the space, with a "thematic" view of what constitutes infrastructure and, as a result, a much larger opportunity set (in some cases benchmarked against a broad equities index such as the Russell Global Index). Such portfolios may include "infrastructure-related" companies such as shipping, diversified communications, power generation and the like. In between, a number of managers are explicitly aware of risks relative to a listed infrastructure benchmark (such as the S&P GLI), but also sensitive to preserving a robust infrastructure beta profile.

There is an enormous need for private-sector investment in infrastructure globally, both in developed and developing economies.

As with real estate securities, there is also some variation in the approach to investing from a geographic perspective: some managers restrict investment to Organization for Economic Co-operation and Development (OECD) countries, while others are willing to take material exposure to emerging economies.

Model weights within the asset class

Within the listed infrastructure asset class, we believe it is very important for investors to get exposure to pure-play infrastructure companies offering steady, low-volatility cash-flow streams supporting strong diversification with other asset classes. We also believe it's important for investors to achieve this through diversification across the sector categories comprising infrastructure, including transportation, utilities, pipelines and communications. Accordingly, for clients taking a benchmark-aware approach to investment, we believe balanced sector indexes are preferable to capitalisation-weighted indexes as benchmarks for listed portfolios.

Given the significant liquidity restrictions (long lock-ups for closed-end funds, and absence of open-end options) and limited sector/regional diversity associated with unlisted infrastructure investment, we believe most clients should have exposure to listed infrastructure as a component of their overall infrastructure allocation. We also believe the ratio of listed to unlisted should be lower for large institutional investors (who tend to have more liquidity flexibility) than for mid-market and smaller investors. For retail investors, given the dearth of private options, the entirety of infrastructure exposure will likely come from listed securities.

Conclusion

There is an enormous need for private-sector investment in infrastructure globally, both in developed and developing economies. In 2016, *McKinsey Global Institute* estimated that modernising and expanding global infrastructure will require approximately $49 trillion USD through 2030.[1] Given the essential role of infrastructure assets in serving as the backbone for economic growth, and in light of the growing trend in privatisation of these assets, the sector is very much an emerging asset class in its own right, offering investors a strong source of diversification, yield and attractive total returns in a portfolio context. Listed infrastructure in particular offers a sound anchor and immediate entry point into the asset class, particularly for investors sensitive to liquidity and management fees.

[1] *MCKInsey analysis; McKinsey Global Institute "Bridging global infrastructure gaps" 2016*

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