AMP CAPITAL

EQUITY INFRASTRUCTURE VALUATIONS: LEADS, LAGS AND CONTROVERSIES

Global institutional demand for infrastructure assets has risen substantially during recent years and with portfolio allocations to infrastructure expected to rise, global demand is likely to remain strong over the medium to long term. During the past two years, we have seen high prices paid in some segments of the infrastructure sector, raising concerns as to whether value remains. This paper focuses on valuations for unlisted and listed infrastructure equities, and explores some of the challenges and controversies that emerge when considering valuations.

KEY POINTS

- Demand for unlisted infrastructure has been robust, especially for large cap assets
- Listed infrastructure valuations have improved
- Differing valuation approaches across managers and market segments create comparability challenges
- The cashflow of Infrastructure assets can support defined benefit pension funds and members of defined contribution super funds

INSIGHTS.IDEAS.OUTCOMES.

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Exposure to infrastructure assets can typically be gained by investing in infrastructure equities (listed or unlisted) and infrastructure debt (listed or unlisted)[1]. Each market is segmented to some extent and, consequently, can exhibit differing returns, volatilities and correlations. This segmentation can result in valuation leads and lags, creating interesting opportunities within the infrastructure complex.

Institutional appetite for low-risk, high-yielding assets has been exceedingly strong, particularly for large cap assets.

UNLISTED INFRASTRUCTURE VALUATIONS

Unlisted infrastructure valuations are typically based on discounted cashflow analysis (DCF) analysis where the discount rate applied is based on the risk-free rate plus an appropriate risk margin. Longer-dated government bonds are typically used as proxies for the risk-free rate. During the past five years, government bond yields have declined to historic lows. This would usually be expected to lower the discount rates applied to infrastructure, which, in turn, would increase valuations.

However, unlisted infrastructure valuers have been concerned about the longevity of the ultra-low bond yield environment, and have tended to embed an additional 'alpha factor' in discount rates. This has effectively created a buffer and moderated the rise in unlisted valuations.

Unlisted infrastructure demand has been robust

Demand has been driven by a number of factors:

1) The ongoing **global search for yield** together with lower fixed income yields has seen investors favour infrastructure assets that have bond-like risk characteristics and can deliver attractive margins above long-dated bonds. Of particular note are Public Private Partnerships (PPPs), which exhibit many bond characteristics including stable cashflows.

   Institutional appetite for **low-risk, high-yielding assets** has been exceedingly strong, particularly for large cap assets. Preqin surveys[2] indicate that major institutional investors have increased their target allocations to infrastructure assets from 2.5% in 2010 to 5% at the beginning of 2015.

2) On the supply side, Preqin surveys of major infrastructure funds also confirm that **new investment in direct infrastructure equity** has been flat at about US$100 billion during the past five years. During this period the average deal size has increased significantly.

3) As allocations have increased, large investors have turned towards **direct or co-investment models** rather than relying solely on traditional infrastructure funds.

4) New strategic investors are entering the market. Of particular note, China's 'Go Global' policy, which aims to invest up to US$1.3 trillion offshore by 2020 and its targets include **large cap marquee infrastructure assets.** The Port of Newcastle, the world's largest coal exporting port, was purchased in 2014 by Chinese and Australian investors for a high EV/EBITDA multiple of 27.

High prices have been paid for assets that have been privatised, particularly in Australia. While this reflects the strong demand dynamic, the higher prices transacted also reflect an expectation that the private sector will deliver early efficiency gains.

Our view of current unlisted infrastructure prices

We believe that transaction prices paid, as measured by our estimates of multiples of EV/EBITDA[3], have been high for some segments of unlisted infrastructure, primarily for large cap (>$US1 billion) marquee assets. This is captured in Figure 1, which compares the estimated transaction EV/EBITDA against the historical sector ranges.

Figure 1: Large cap direct transactions are estimated to be significantly above sector range

DATE	TRANSACTION	COUNTRY	VALUE (US$)	EV/EBITDA*	SECTOR RANGE
Aug 2015	Indiana Toll Road	US	$5.7bn[1]	32	10~20
Mar 2015	Fortum Distribution	Sweden	$6.8 bn[1]	20	10~14
Feb 2015	Gladstone Gas Pipeline	Australia	$5.0 bn[2]	14	10~14
July 2014	Queensland Motorways	Australia	$5.5 bn[2]	27	10~20
Apr 2014	Port of Newcastle	Australia	$1.5 bn[3]	27	10~15
Feb 2014	Port of Brisbane	Australia	$1.5 bn[2]	25	10~15
Apr 2013	Sydney Ports	Australia	$4.8 bn[3]	25	10~15

*AMP Capital estimates
Source:
1. Reuters
2. Queensland government media releases
3. NSW government media releases

By contrast, mid-cap infrastructure assets (<$US1 billion) have traded at transaction prices consistent with historical valuations, suggesting that value remains in this segment. We base this view on detailed analysis undertaken by Greg Maclean, AMP Capital's Global Head of Research, Infrastructure, on unlisted airports, which spanned multiple jurisdictions and 127 transactions. The period of analysis was 2005 through to the September quarter 2015. We concluded that mid-cap valuations were broadly consistent with history. We observe, however, that since the start of 2016, a couple of mid-cap transactions appear to be priced above historical valuations.

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In short, we believe value varies across direct infrastructure and we favour mid-cap over large cap assets.

LISTED INFRASTRUCTURE VALUATIONS

Listed infrastructure is a r**elatively young asset class**, subject to a variety of valuation approaches from the investment community. This creates **pricing anomalies** and **market inefficiencies**, which we discuss later in this paper. AMP Capital's Global Listed Infrastructure team apply a similar long-term valuation approach as a direct investor. We value listed infrastructure securities using an equity internal rate of return (IRR) approach that analyses the future cashflows of an infrastructure company over a 20-30 year period.

The team employs this approach because of the cashflow and revenue profile characteristics of infrastructure projects. For instance, when an infrastructure company undertakes a capex project such as a pipeline, revenue is not generated while the project is being built. It is only after the project has been built and capex declines that cashflows and earnings appear attractive. By mapping out the **expected cashflows during the entire period**, an assessment of the project's merits is more appropriately captured.

Current drivers of demand

Global pension funds are increasingly seeking to invest in listed infrastructure. We expect that, over time, pension funds and other institutional investors will increase their portfolio allocations to listed infrastructure, most likely funding out of global equities but also potentially out of unlisted infrastructure and bonds.

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The listed infrastructure market is **large and liquid**. Consequently, pension funds and other institutional investors can gain listed equity exposure to infrastructure assets relatively quickly. There are approximately 300 listed infrastructure companies with a combined market capitalisation of US$2.1 trillion as at 31 December 2015[4]. Compared against the combined market capitalisation of Global REITS, the listed infrastructure market is approximately US$1 trillion larger. Data from Preqin[5] indicates that the total investable universe for direct infrastructure is much smaller, with assets under management for direct infrastructure managers approximately US$300 billion (as at June 2014). This suggests the investment opportunity for listed infrastructure is currently seven times the size of direct infrastructure.

Large pension funds that are seeking to invest in direct infrastructure and have the capital available, but unable to find available assets to buy, are increasingly investing in listed infrastructure initially on a temporary basis until the direct assets become available. This 'dry powder' in direct infrastructure is estimated to be approximately US$105 billion[6] and has contributed to increasing demand for listed infrastructure equities.

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The market volatility observed at the start of 2016 has seen a further improvement in valuations and we estimate that global listed infrastructure is approximately 20% undervalued relative to long term history.

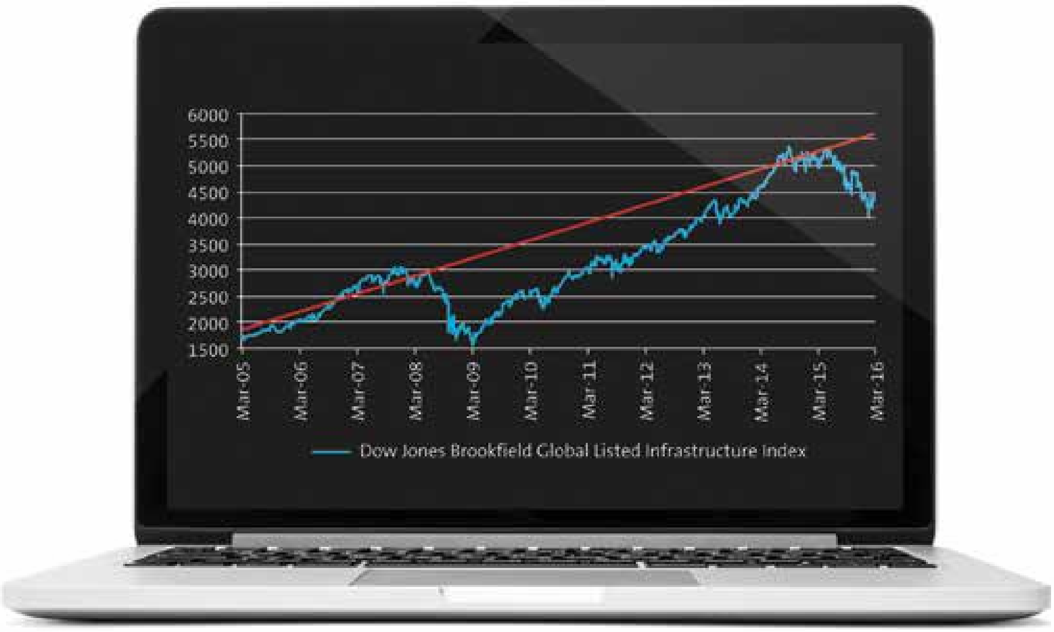
Our view of current listed infrastructure valuations

AMP Capital's Global Listed Infrastructure team observes that global listed infrastructure (as represented by the Dow Jones Brookfield Listed Infrastructure Index), delivered approximately 8.8% annualised returns in the ten years ended 2015.

In the period following the GFC, from 2008/09 through to 2014, global listed infrastructure equities were undervalued and trading below their long-term expected trajectory.
Tim Humphreys, our Head of Global Listed Infrastructure, notes that by the end of 2014 the valuation gap had most likely closed and that listed infrastructure companies were trading at their long-term valuations. This is depicted in Figure 2 where the red line represents the long term valuation average.

During 2015, the global listed infrastructure index fell sharply. However, the underlying fundamentals and cashflows of the companies were unchanged. This meant that a 'valuation gap' emerged, suggesting that global listed infrastructure was currently 15% cheap relative to its long-term expected value.
The market volatility observed at the start of 2016 has seen a further improvement in valuations, and we estimate that global listed infrastructure is approximately 20% undervalued relative to long-term history. The valuation gap in the global listed infrastructure index is broadly mirrored in the IRRs or expected long-term returns of the companies in our portfolios, which is approximately 13.5% (as at 29 February 2015).

Figure 2: Dow Jones Brookfield Listed Infrastructure Index – a valuation gap has emerged relative to history



Source: Bloomberg, as at 29 February 2016

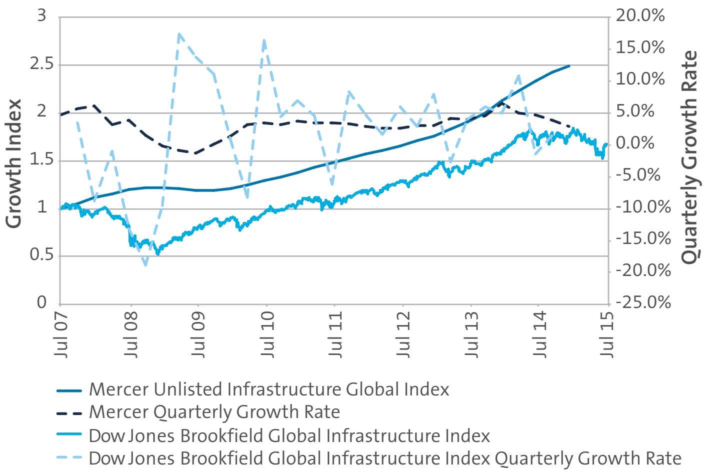
HOW DO LISTED AND UNLISTED INFRASTRUCTURE VALUATIONS COMPARE?

a) Historical capital growth rates

Historical analysis of capital growth rates in listed and direct infrastructure, conducted by AMP Capital's Greg Maclean, confirms that unlisted capital growth exceeded listed capital growth during recent years. Figure 3 shows the capital growth of the Mercer Unlisted Infrastructure Index and the Dow Jones Brookfield Global Listed Infrastructure Index since September 2007, which is the inception of the Unlisted Infrastructure Index.

The Mercer Unlisted Index has grown at a compound annual growth rate (CAGR) of 7.8% versus 3.6% for the listed index (as at June 2015). Fulsome prices paid in unlisted transactions during the past couple of years have raised concerns that unlisted infrastructure may be over priced. The data suggests that while unlisted capital growth rates did peak in mid-2014, recent capital growth has moderated significantly. The spike appears to have been driven by a number of large cap Australian privatisations.

Figure 3: Comparison of listed versus direct infrastructure capital growth



Source: Bloomberg, Dow Jones Brookfield Global Infrastructure Index, Mercer Unlisted Infrastructure Global Index.
To provide an appropriate comparison with the listed index, the Mercer Index and its quarterly growth rate are shown pre fees.

b) Infrastructure equity comparability challenges

Investors seeking to compare valuations across varying investment managers and market segments should be mindful that differing approaches can make comparability a challenge.

> Dedicated versus generalist managers

Dedicated managers of global listed infrastructure funds value companies by assessing long term expected cashflows over a 20 to30-year period. Generalist equity managers, however, tend to look at short-term multiples, most commonly EV/EBITDA and PE ratios, and make investment decisions across equity sectors.

The difference in the valuation approach creates pricing anomalies and price volatility. The combined funds under management (FUM) of dedicated global listed infrastructure funds is approximately 2.5% of listed equity infrastructure market capitalisation, so the vast majority of investors are generalist equity investors. This creates both opportunities and challenges for dedicated listed infrastructure managers.

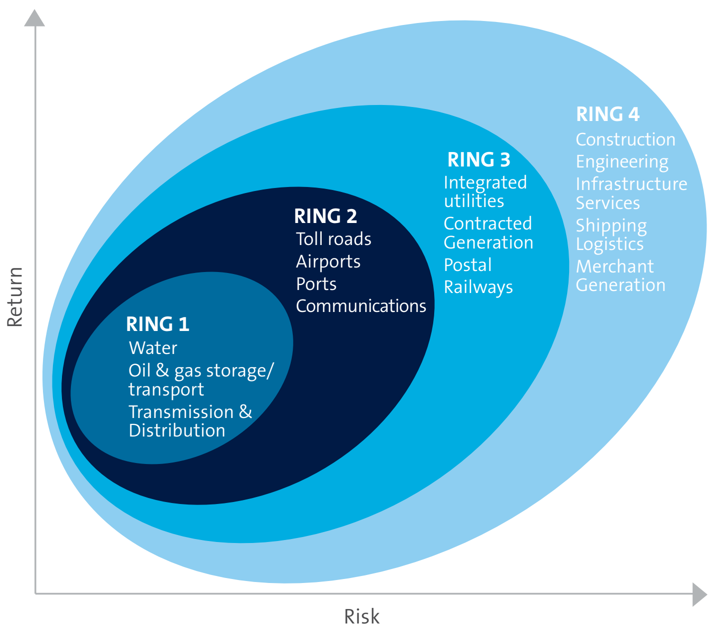
> Historical time periods

Another potential area of conflict in valuing infrastructure equity comes from the historical time period reference. Managers that focus on relatively short time periods, say five years, when comparing current valuations relative to history can reach different conclusions than a manager that looks at ten-year historical valuations.

> Core, Core Plus or any other approaches need to be defined

The universe of listed infrastructure can be categorised by managers in any number of ways. AMP Capital's Global Listed Infrastructure team considers the listed market in terms of the risk and return characteristics of the underlying infrastructure assets. Figure 4 depicts all the major sectors across the infrastructure universe, which we have allocated to a 'Ring' based on the risk and return characteristics of their cashflows. We regard Rings 1 and 2 as fundamental infrastructure sectors that generate stable, predictable and often regulated cashflows, and consider these to be Core infrastructure assets. Infrastructure assets in Rings 3 and 4 are more closely correlated to equities and could potentially represent a sizeable allocation in a Core Plus portfolio.

Figure 4: Listed infrastructure has a broad universe of assets with varying risk and return characteristics



Source: AMP Capital

c) Investment strategies can take advantage of valuation leads and lags

Listed and unlisted infrastructure equity with the same economic exposures will behave similarly to changes in the economic environment. However, valuations and returns between listed and unlisted do not always move in sync.

Listed valuations tend to respond more rapidly and tend to be influenced by general market sentiment, which results in higher relative volatility. Unlisted assets valuation cycles are typically bi-annual with fewer unlisted comparative transactions, causing lower volatility. For instance, as the economic cycle turns down, the decline in listed valuations tends to be faster and more pronounced than unlisted, providing **arbitrage opportunities**.

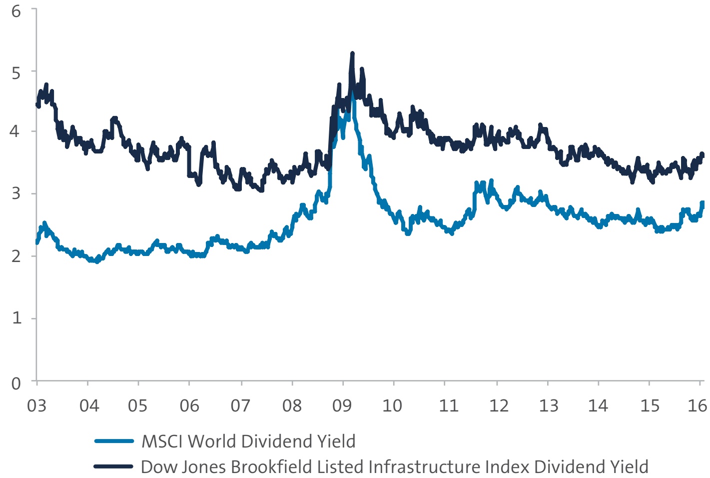
Correlation analysis of the total returns of the Mercer Unlisted Index to a range of quarterly returns for various sub-sectors of the DJ Brookfield Global Infrastructure index sub-sectors indicates that there are significant short-term negative correlations between unlisted and listed infrastructure growth rates. Greg MacLean observes that this can create significant diversification benefits for a portfolio that combines both listed and unlisted.

In addition, the listed market can provide access to many infrastructure assets that are underrepresented in unlisted infrastructure. Particularly in the US, relative to the size of the economy, there are relatively few unlisted opportunities.

d) Listed valuations versus other asset classes

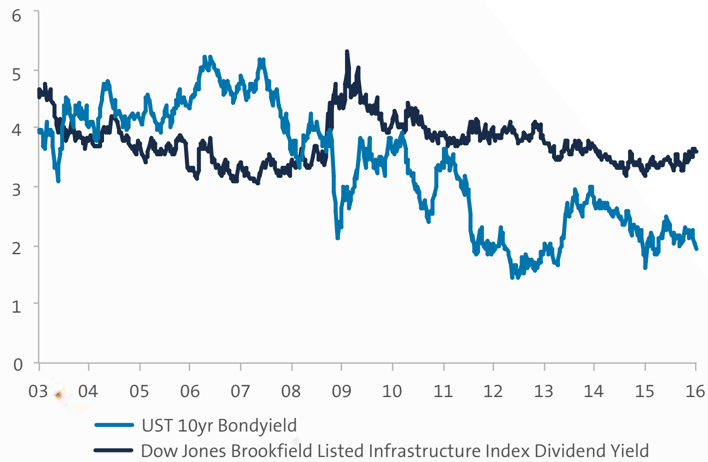
The dividend yield from listed infrastructure is superior to that from the MSCI World (Figure 5). For some time, dividend yields from listed infrastructure have been higher than bond yields, further demonstrating the relative attractiveness of listed infrastructure in delivering income (Figure 6).

Figure 5: Global Listed Infrastructure Divided Yield versus Global Equities Dividend Yield



Source: AMP Capital & Bloomberg, (as at 29 February 2016)
Note: Dow Jones Brookfield Listed Infrastructure Index median yield across stocks is calculated weekly

Figure 6: Global Listed Infrastructure Dividend Yields versus Bond Yields



Source: AMP Capital and Bloomberg (as at 29 February 2016)
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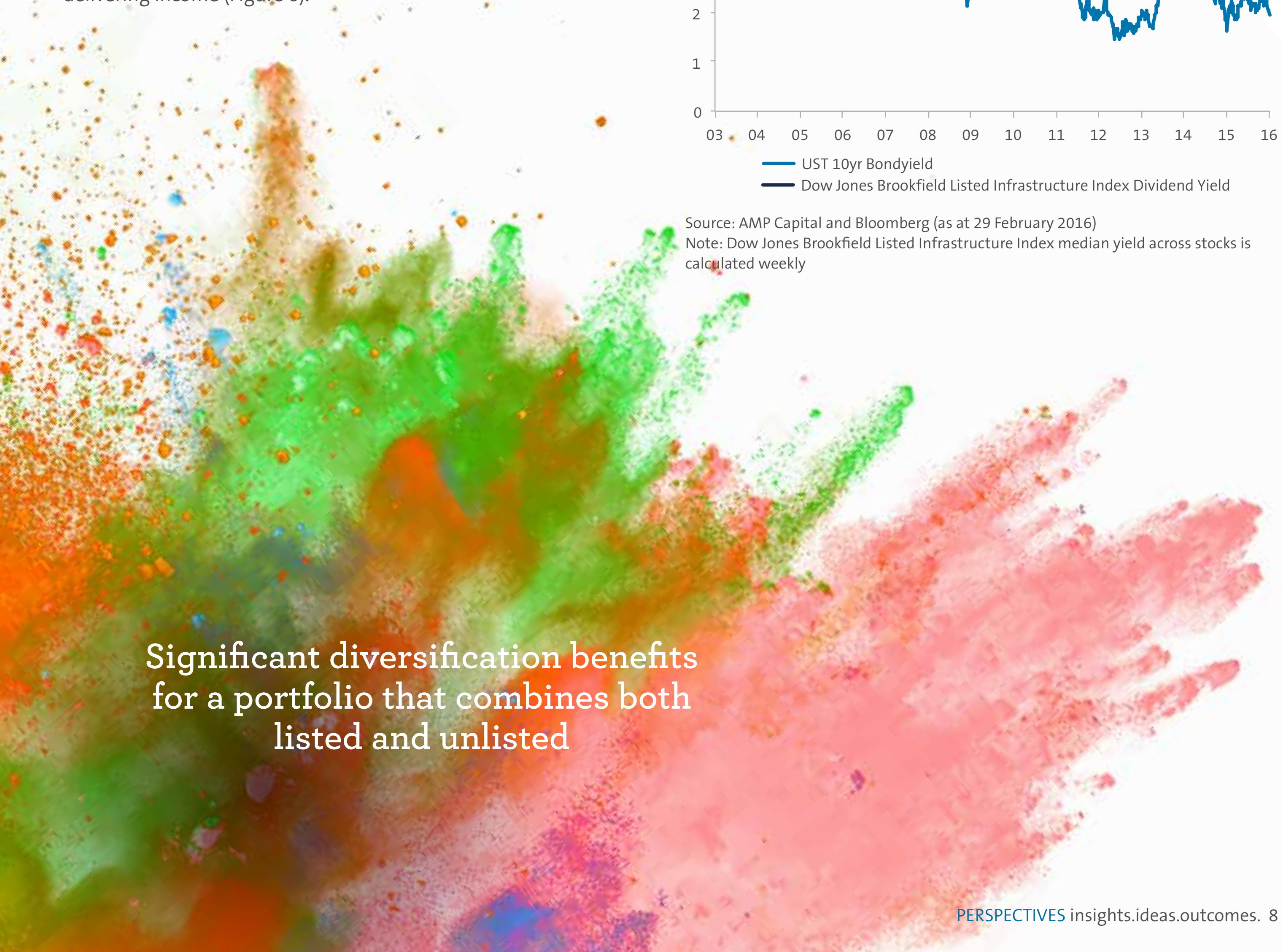

Significant diversification benefits for a portfolio that combines both listed and unlisted

INVESTMENT OPPORTUNITIES

Unlisted infrastructure equities

We expect there will be some improvement in unlisted asset availability in coming years, with the **supply of new infrastructure assets** expected to increase by approximately US$100 billion during 2016 -2020. This is a significant increase compared to previous years and is primarily being driven by the recycling of assets from the first generation closed-end funds, primarily in Europe, which will mature during the period. Another important source of new supply will come from privatisations, particularly in Australia (electricity and ports) and possibly in Japan (airports).

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Investors of unlisted large cap assets tend to be long-term institutional holders focused on a smaller number of larger investments. Overall, we anticipate that demand from institutions and pension funds for large cap assets will continue to exceed supply for the foreseeable future, creating persistent upward pressure on prices. In this environment, **mid cap and non-core infrastructure growth assets** can provide the best opportunities for value investors. There is also a potential early mover advantage for relatively new investors in adopting a mid cap strategy as there is a possibility of large cap multiples filtering down to smaller transactions.

Overall, we anticipate that demand from institutions and pension funds for large cap assets will continue to exceed supply for the foreseeable future, creating persistent upward pressure on prices.

As there is still momentum left for mid cap, new investors could focus on the recycled assets in Europe. Our analysis suggests direct infrastructure investment can be **complemented** with a listed infrastructure strategy. As the listed market cap is larger than direct, the investment in listed can be executed quickly.

Listed infrastructure equities

Our view is that we are in a 'lower for longer' yield environment globally and despite an inevitable first rate hike, we think the Fed will be cautious given generally weak global growth. In this weaker return environment, we expect continued strong demand for real assets that offer high and sustainable yields.

While market volatility has characterised the start of 2016, this has created interesting opportunities for dedicated infrastructure equity managers. We are focused on identifying companies that have been unfairly impacted by general market sentiment and whose fundamentals haven't changed. Of particular note, we believe there are standout investment opportunities emerging in North American infrastructure energy piplelines. Share prices for **energy pipeline companies** have fallen significantly, in some cases by 60 to 70%, but the underlying fundamentals of many of these assets have remained intact. We are attracted to companies in this sector that don't need to access capital markets, have limited counterparty risk and secure contracts in place.

Looking further ahead, security issuance is expected to continue as governments sell publicly-owned infrastructure assets into the listed market. In addition, companies that own infrastructure assets that are not valued by the market will seek to realise these assets by listing them (for instance, oil and gas exploration companies listing their pipelines and gas processing plants) and using these proceeds to reinvest back into exploration. These two trends have contributed to the number of stocks in our listed infrastructure investable universe rising by almost 50% during the past 12 years.

Goals-based perspectives

Jeff Rogers, CIO ipac, from our Multi Asset Group notes that the predictable inflation-linked cash flows and high expected rates of total return from infrastructure assets are attractive to both defined benefit pension funds seeking to match their liabilities, and members of defined contribution super funds in the retirement phase. For instance, Public Private Partnership projects typically carry limited exposure to changes in economic activity. Their revenues are contractually determined and are supported by very high quality counterparties. These projects deliver high cashflow yields for a period of 20 to 30 years before the asset is returned to its sponsor, with the income stream often tied to inflation.

This cashflow pattern is remarkably similar to the spending projections for a retiree who has a life expectancy of 20 to 25 years at retirement. Retirees are exposed to considerable inflation risk over that horizon and, given the generally low yields in fixed income, may seek higher returning assets. Retirees also need liquidity in their portfolios and this is likely to be supported by listed infrastructure market growth. A diversified portfolio of high-quality asset in Rings 1 and 2, purchased at reasonable valuations, could be an important foundation to a retirement income strategy.

We believe there are standout investment opportunities emerging in North American infrastructure energy pipelines.

IN SUMMARY

- The infrastructure market is expected to grow significantly as a proportion of investable assets in global capital markets during the next 15 years.
- While some large cap unlisted trophy assets have attracted very high prices, there still appears to be value in most mid cap and niche infrastructure assets.
- The recent declines in listed markets make listed infrastructure relatively attractive, however, listed market volatility might be a concern for some investors.
- The general characteristics of infrastructure equity – both listed and unlisted – serve to diversify risk in the growth component of pension funds in the accumulation phase.
- The specific cashflow characteristics of infrastructure equities suggests they can play a powerful role in hedging a retiree's futures cash flow needs. Meanwhile, high prospective returns and strong liability hedging characteristics can be attractive to defined benefit funds that adopt asset-liability management frameworks.
- Listed and unlisted infrastructure investments can be highly complementary so a holistic approach is likely to be beneficial.

1. Investors may also access listed funds that own unlisted equity and debt infrastructure assets,
2. 2015 Preqin Global Infrastructure Report
3. Our view is that DCF is an appropriate valuation methodology for both listed and unlisted assets, while EV/EBITDA provides an indication of relative pricing, as distinct from value.
4. Bloomberg
5. 2015 Preqin Global Infrastructure Report
6. Preqin, 2015