



FEATURE ARTICLE: HAS THE INFRASTRUCTURE DEBT SHIP SAILED?



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No one can dispute that infrastructure is an asset class back in vogue. The onset of the global financial crisis (GFC) exposed the unstable capital structure of many infrastructure assets and also helped redefine what is truly infrastructure as opposed to late stage private equity. Burdened by significant debt, many infrastructure and 'infrastructure-like' assets struggled through the financial squeeze of 2008 and 2009. However, since then, with balance sheets in better positions and investors clearer as to what constitutes infrastructure, capital has been pouring back into the asset class as investors search for stable cash flows in a low yielding investment environment.

As expected, this flow of capital in recent years has led to equity investments in infrastructure assets to be very fully priced at present. Unless interest rates remain permanently and significantly lower than long term averages (not our central case, but possible) we consider it's likely that in years to come 2015 won't be looked back upon as an attractive vintage year. Whilst we still see some value in smaller, boutique infrastructure equity investments, unless we see a correction in pricing, by and large the equity infrastructure investment ship has sailed. However, we are of the opinion that there is still attractive returns on offer through investing in infrastructure debt.

As a result of Basel III and Solvency II, some institutional investors (particularly banks) have less scope to fund long-term illiquid investments such as infrastructure debt. This restriction on capital coupled with a funding gap in infrastructure debt markets has resulted in credit spreads for infrastructure debt opportunities to be currently at or above long-term rates, meaning that the expensiveness of current infrastructure equity markets has not transferred over to the debt sector.

However, whilst infrastructure debt investments display attractive characteristics such as lower default rates to other corporates as well as superior recovery rates in default

events, investing in this asset class is not without risk. In addition to understanding the quality of the counterparty and how credit spreads can expand and contract over time, given the extraordinary low interest rates in today's markets, investors need to be acutely aware of duration risk when investing in this asset class.

1.1 Infrastructure: The Rise of the Asset Class

To the detriment of the sector, some traditional providers of financing for infrastructure projects (such as banks) have stepped back over the last several years due to changing regulatory requirements post-GFC (discussed in greater detail later in this report). However, demand from large institutional investors (comprising superannuation and pension funds, insurance companies, foundations and family offices and sovereign wealth funds) has increased, and is expected to continue to do so in the future due to two factors: bridging the gap between their current and target allocations to the asset class over the short term, and the increase in target allocations over the medium to longer term.

Institutional investors are currently underweight infrastructure versus their target allocations. Figure 1 shows that the amount currently under allocated to the sector stands at around 0.6% and 1.7% of total funds under management (FUM) for insurance companies and pension and superannuation funds respectively, and a current under allocation of over 2% for foundations and family wealth offices. This represents a substantial amount of capital to be invested into infrastructure in order for these investors to meet their targeted allocations. Furthermore, analysis conducted by the Organisation for Economic Co-Ordination and Development (OECD¹) notes that a number of large institutional investors are establishing new (higher) target allocations to infrastructure, which may increase the gap between the current and target allocations, supporting ongoing deployment by these investors. As noted in Figure 2, 50% of institutional investors currently have a targeted

¹ "Annual Survey of Large Pension Funds and Public Pension Reserve Funds: Report on Pension Funds' Long-Term Investments", OECD (2014).

allocation to infrastructure under 5%, and given the correlation benefits of the asset class coupled with the stable returns on offer, many

large investors are looking to increase this allocation in the future.

Figure 1: Average Institutional Investor Allocation to Infrastructure

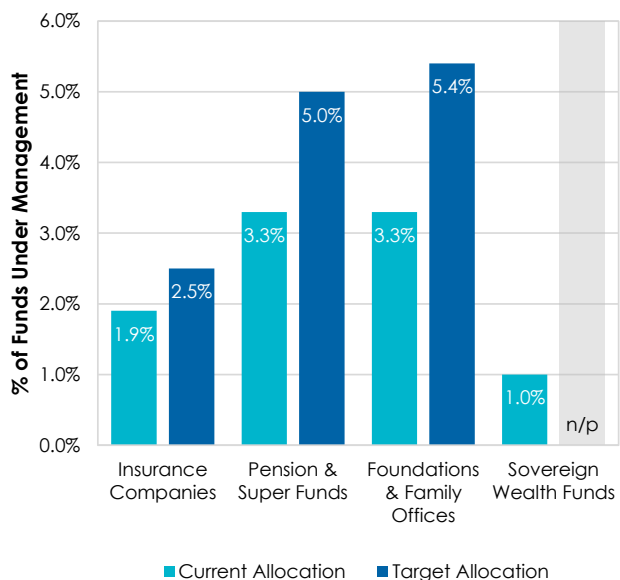
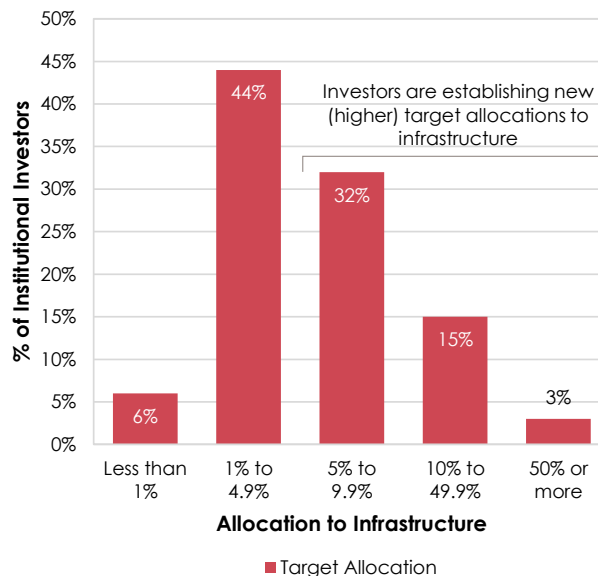


Figure 2: Institutional Investor Target Allocations



Source: European Investment Bank/Inderst Advisory (2013), CBRE Clarion Securities (2014)

In supporting this increasing allocation to the sector, there has been a large amount of capital raised by infrastructure equity fund managers. Research compiled by Infrastructure Investor² shows that almost US\$50 billion was raised by

equity funds during 2014, with 53 funds closing during the period. The figures below provide a time series of the infrastructure equity raising activities that have occurred between 2008 and 2014.

² "The 2014 Fundraising Review", Infrastructure Investor (January 2015).

Figure 3: Infrastructure Equity Capital Raised (2008 to 2014)

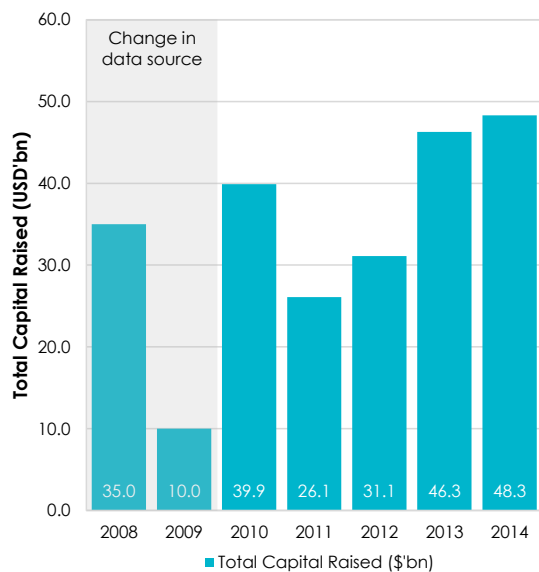
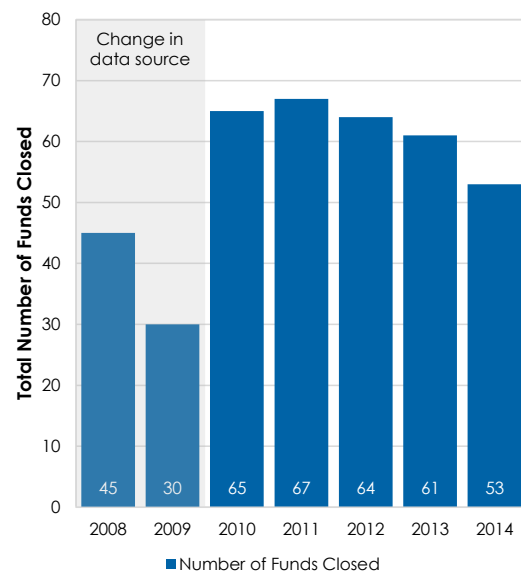


Figure 4: Infrastructure Equity Funds Closed (2008 to 2014)



Source: Infrastructure Investor (2013, 2015)

Importantly, the trend in fund raising within the sector looks set to continue in the near term, with expectations that Global Infrastructure Partners and Brookfield Asset Management may target equity funds this year in the order of US\$12 billion and US\$10 billion, respectively.

1.2 Attractive Characteristics of Infrastructure

The significant investment in the asset class has been underpinned by the attractive characteristics of infrastructure investments. These assets typically exhibit stable, inflation-linked cash flows underpinned by large, tangible assets. Accordingly, the infrastructure asset class offers a number of compelling underlying qualities, including:

- Long-life assets that provide essential services;
- Limited or no competition and high barriers to entry;
- Lower price volatility than the wider market, providing diversification benefits to traditional portfolios;

- High operating margins and low maintenance capital expenditure;
- Asset-backing, providing valuable and enduring security; and
- Predictable cash flows, often with explicit or implicit inflation protection.

The benefits associated with these characteristics, insofar as they relate to investing in infrastructure debt and equity, include the following:

- **Stable cash flows:** the essential nature of infrastructure assets, together with the often-limited competition generally results in stable cash flows (and therefore greater certainty regarding distributions to debt and equity investors, and a buffer to operational and financial shocks). The stable cash flows can also provide infrastructure assets easier access to longer-term borrowing and hedging, providing an investor with high confidence that an infrastructure asset can service and refinance its debt, as it falls due.

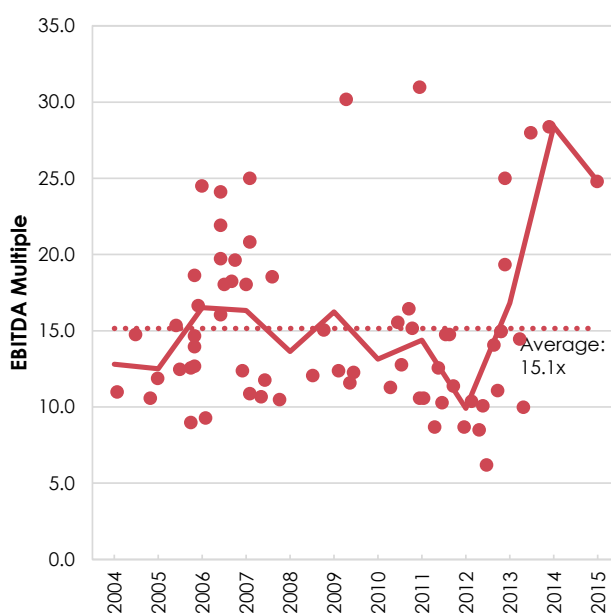
- Inflation protection:** infrastructure investments often include either explicit or implicit inflation linkages in the underlying cash flows (for example, toll road concession agreements often allow for an increase in tolls by at least CPI on an annual basis). This characteristic of the infrastructure asset class helps provide inflation-linked earnings for equity investors and allows it the ability to issue debt with inflation-linked coupons (although most debt issuances, infrastructure or otherwise, do not include an explicit inflation adjustment).
- Low correlation with traditional investments:** infrastructure assets tend to be towards the defensive end of the investment spectrum, given the low risk characteristics of the infrastructure sector (due to the provision of high margin essential services). Well-specified infrastructure investments may offer relatively low exposure to market-wide risks, and as such, exhibit low correlation with traditional investments and therefore provide portfolio diversification benefits.

1.3 Infrastructure Equity Valuations – Where there's smoke, there's fire

The increasing allocations to the asset class by institutional investors (and the higher fund raising activity by equity fund managers undertaken over the last several years) has not completely coincided with a larger opportunity set of possible investments. New infrastructure projects, and privatisation of existing, government-owned assets are often mired in political debate and frequently not constructed, or, are not brought to market as investment opportunities. For example, this has included the shelving of US\$28 billion (A\$37 billion) of infrastructure privatisations in Queensland following the state election win by the Labor Party in early 2015.

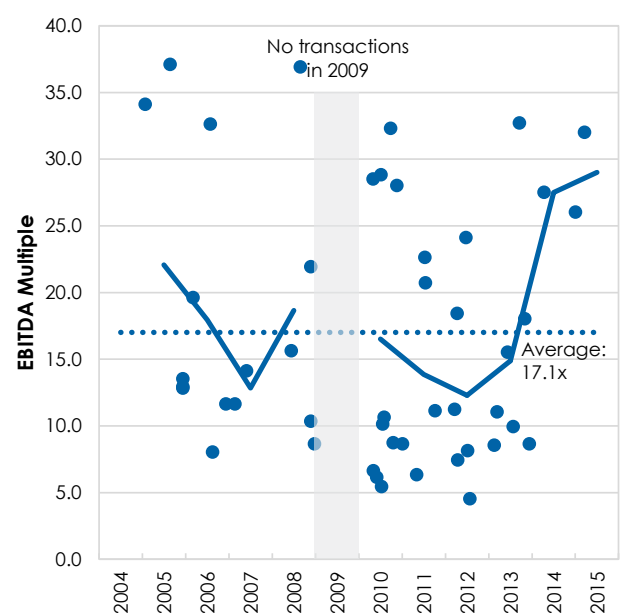
As a result, with the large demand from equity investors, together with the constrained supply of new opportunities (and the unprecedented quantitative easing and zero interest policies by central banks), has led to large increases in the prices that investors are willing to pay to secure these assets. The two charts below show the development of transaction prices for global port (Figure 5) and toll road (Figure 6) transactions over the last several years (presented on an EBITDA multiple basis).

Figure 5: Global Port Transactions (2004 to 2015)



Source: Various

Figure 6: Global Toll Road Transactions (2004 to 2015)



Source: Various

Recent acquisitions within these sectors have transacted at earnings multiples considerably higher than the longer-term average. Australian east coast ports (Ports Botany and Kembla, Port of Brisbane and Port of Newcastle) were sold at EBITDA multiples between 25.0 and 28.4 times (April 2013 to April 2014), while Associated British Ports was sold at around 25 times earnings in May 2015. This compares to the long-term average EBITDA multiple for port transactions of around 15 times earnings. Similarly, recent North American toll road transactions (Circuito Exterior Mexiquense and Indiana Toll Road) occurred at EBITDA multiples between 26 to 32 times – significantly higher than the long-term average of 17 times earnings. We acknowledge that a simple EBITDA multiple can be misleading if one is comparing a high growth asset versus a mature asset. That said, it is our view that current pricing of many of these large assets is very expensive and can't be justified unless very optimistic growth forecasts are assumed.

With the influx of capital deployed in the infrastructure sector, there is substantial competition between buyers for low risk, high yielding investments. Given the supportive economic environment (low interest rates), the prices paid for infrastructure equity investments have escalated well above the long-term average, and the resulting expected returns to investors has fallen.

Whilst we still see some value in smaller, boutique infrastructure equity investments, unless we see a correction in pricing, by and large the equity infrastructure investment ship has sailed. However, for those investors still wanting to obtain an exposure to this asset class, there still remains value in infrastructure assets, albeit higher up the capital structure.

1.4 Infrastructure debt versus other sectors – a superior choice?

Infrastructure debt shares many of the similar attractive characteristics as infrastructure equity. However, there are some key points of differentiation (in comparison to general corporate debt) that specifically benefit infrastructure – these being low default rates and high recovery rates in the event of default. These two factors warrant further investigation.

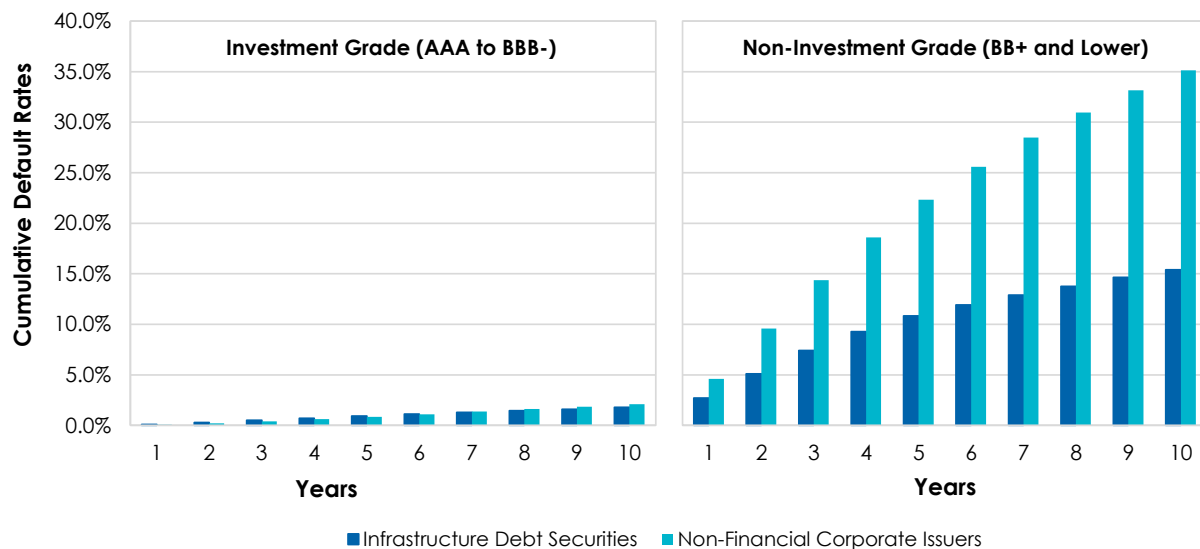
Low default rate

The high cash flow stability observed for well-defined infrastructure investments translates to a lower incidence of non-performance/default when compared to other corporate debt issues at given ratings levels, as evidenced by Moody's research³. The figures below set out the cumulative default rates on corporate debt issuances (at both the investment grade and non-investment grade level⁴) over a ten year period.

³ "Infrastructure Default and Recovery Rates (1983-2014)", Moody's (March 2015).

⁴ Investment grade comprises credit ratings from AAA to BBB-, while non-investment grade refers to credit ratings below BB+

Figure 7: Cumulative Default Rates: Investment Grade and Sub-Investment Grade Corporate Issuances



Source: Moody's Infrastructure Default and Recovery Rates (1983-2014)

Over the longer term, infrastructure debt performs better (with fewer defaults) than non-financial corporate debt issuances at the investment grade level. Furthermore, the performance of the sub-investment grade infrastructure issuances is materially better than non-financial corporate issuers across all time periods. In addition, the recovery rate for non-performing debt investments, in the event that default occurs, varies significantly by industry and can act as a mechanism to subdue losses, as discussed below.

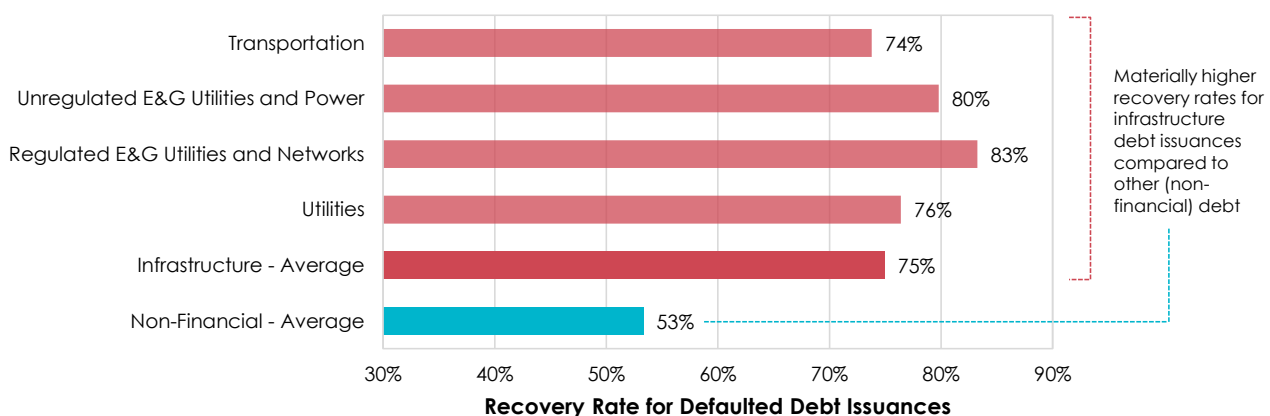
Superior recovery in the event of default

Infrastructure investments are capital intensive. While this factor generally results in high barriers to entry (and therefore lower competition), it also means that infrastructure

debt is often backed by a substantial amount of tangible and valuable assets. As a result, in the event of default (noting that this occurs less frequently than for debt in other sectors with a comparable rating) infrastructure debt investors generally achieve significantly higher recovery rates than other industries. That is, in the event of a default, infrastructure debt investors can typically expect the return of a larger proportion of their initial investment given the substantial asset backing relative to other industries, albeit still at a discount to face value.

Figure 4 below provides the recovery rate for senior secured debt issuances across a sample of infrastructure sub-sectors, versus the average non-financial corporate debt issuance.

Figure 8: Recovery Rates for Defaulted Corporate Debt Issuances – Senior Secured Debt



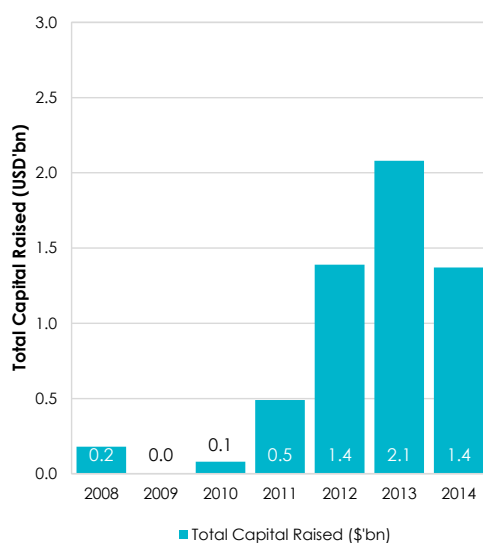
Source: Moody's Infrastructure Default and Recovery Rates (1983-2014)

Not only do fewer infrastructure debt issuances default in comparison to non-financial issues (as previously discussed), in addition, for those that do, the recovery rates for investors are materially higher than other sectors.

1.5 Fund Raising by Infrastructure Debt Managers

While the quantum of fund raising by debt fund managers is materially lower than equity fund

Figure 9: Infrastructure Debt Capital Raised (2008 to 2014)



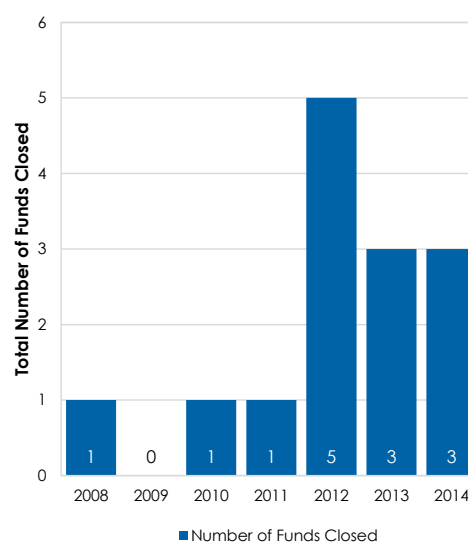
Source: PDI Research & Analytics (2015)

However, notwithstanding the relatively small size of the debt fund raising last year, this represents a substantial increase over prior years. Similar to the expectations for equity funds, debt fund raising is set to continue. For example, Global Infrastructure Partners are currently seeking to raise a US\$2.5 billion infrastructure debt fund – this fund alone would eclipse the total amount raised for debt funds during any of the last several years.

While the infrastructure equity sector is demonstrably fully priced (with the prices paid for recent transactions meaningfully above the long-term average, see Figure 5 and Figure 6), it is not clear that this is also shared by infrastructure debt investments to the same

extent. There are a number of critical points of differentiation between the market for infrastructure equity and debt investments (such as the moderately different investor bases, differing impact of regulatory changes etc.) that have the potential to stem the rising tide of prices in the infrastructure debt sector.

Figure 10: Infrastructure Debt Funds Closed (2008 to 2014)



extent. There are a number of critical points of differentiation between the market for infrastructure equity and debt investments (such as the moderately different investor bases, differing impact of regulatory changes etc.) that have the potential to stem the rising tide of prices in the infrastructure debt sector.

1.6 Have debt investors missed the boat?

One metric to assess the price of debt investments (expensive or cheap) relative to long-term measures is to assess the credit spread observed for debt securities over time. The credit spread represents the additional

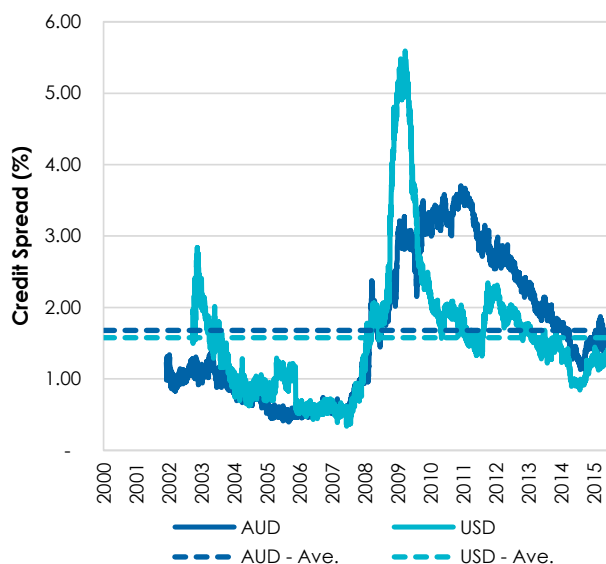
⁵ "Private Debt Investor Annual Review 2014", PDI Research and Analytics (March 2015)

premium demanded by investors to take on the credit risk associated on corporate debt (versus debt issued by, say, governments that are traditionally considered to have no risk of default).

During times of greater demand, investors may be willing to accept this risk on corporate bonds for a lower premium (that is, a lower credit spread). Therefore, if the high pricing observed in the infrastructure equity market was also transferred to the infrastructure debt market, we would expect to see a contraction in credit spreads relative to their long-term measures. The figures below set out the credit spreads

observed for AUD, USD, GBP and EUR corporate bonds over the last 15 years (noting that the spreads are presented relative to the relevant swap rate for each currency). BBB benchmarks solely including infrastructure are not available for all currencies over the long-term (with the exclusion of USD denominated instruments). Therefore, for the purposes of our analysis, we have focussed on bonds within the BBB credit rating bracket as most infrastructure debt issuances are often at, or around, this credit rating level. However, by way of comparison, we have also presented the credit spread for USD BBB utilities versus the BBB corporate composite (Figure 13).

Figure 11: AUD and USD Credit Spreads (January 2000 to June 2015)



Source: Bloomberg, Whitehelm analysis

Figure 12: GBP and EUR Credit Spreads (January 2000 to June 2015)

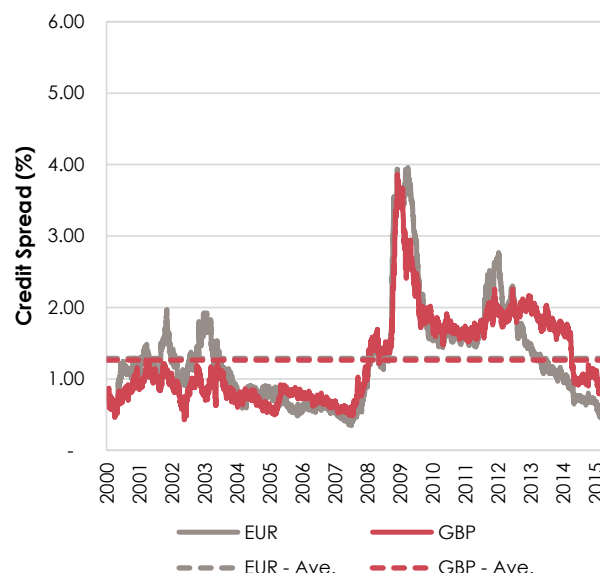
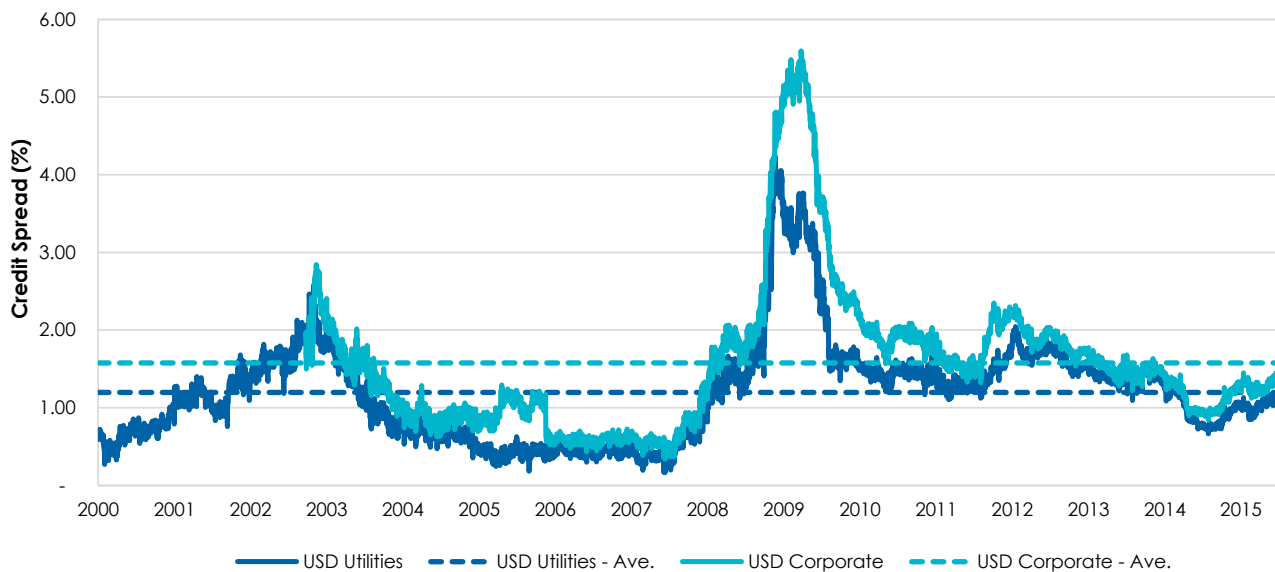


Figure 13: Credit Spread Comparison: USD BBB Utilities vs USD Corporate Composite (January 2000 to June 2015)



Source: Bloomberg, Whitehelm analysis

As the figures show, credit spreads for USD, GBP and EUR debt securities, have over the long term (with the exception of the GFC), exhibited a relatively similar credit spread (averaging between 1.3% and 1.5%). Credit spreads for AUD denominated debt investments have generally traded at a premium, albeit noting that the Australian debt market is significantly smaller and less liquid than the overseas counterparts, introducing additional risk with these debt securities. Of note in Figure 13 is that the utilities bonds have generally traded at a discount to the broader corporate composite, despite the matching credit rating. We consider this supports the evidence that infrastructure type investments have generally offered investors lower default rates and better recovery rates in the event of default, than in comparison to the typical corporate issuer

Importantly, while spreads traded at a discount to the long-term averages over much of 2014, more recently credit spreads are at or above these long-term rates, with the exception of EUR denominated debt. This suggest that the ‘price of risk’ associated with debt securities is not below long term measures, and therefore, the expensiveness of the infrastructure equity markets has not transferred over to the debt sector.

1.7 Reasons for Robust Yields

Despite this increase in demand (as implied by the level of capital being raised by infrastructure debt funds), pricing remains reasonable relative to long-term expectations due to several factors which are discussed further below.

Regulatory Requirements

As a result of Basel III and Solvency II, banks have less scope to fund long-term illiquid investments. As a result, institutional investors (for example, superannuation funds, pension funds and insurance companies) have started to provide alternative funding sources for infrastructure projects, as traditional financiers have withdrawn from the market. These changes to regulation have helped put a floor under pricing for more lowly rated credits as is evidenced by the enduring large, and volatile, spread between BBB and BB credits, despite the surfeit of capital being provided to markets as a result of quantitative easing. While total yields are historically low, spreads for infrastructure debt remain higher than the peak observed in 2006/2007.

Basel III

Basel III is intended to strengthen global capital and liquidity regulations and improve the banking sector's absorb shocks during times of market stress. The proposals include capital reforms (such as controlling leverage), liquidity standards (coverage and funding ratios) and factors addressing systemic risk (such as higher capital for systemic derivatives).

Solvency II

Solvency II applies to European insurance companies. The directive includes new capital requirements, valuation techniques and governance and financial reporting standards. The new regulations are also indented to harmonise standards across the European Union.

Funding Gap

Funding infrastructure is a critical factor in generating and sustaining economic growth, and the global need for infrastructure funding is vast. It is estimated that total annual infrastructure expenditure of around \$3 trillion to \$5 trillion⁶ is required over the next two decades to sustain economic growth. Standard and Poor's⁷ analysis suggests an enduring annual funding gap of US\$500 billion per annum between the level of investment required compared to the capital available from public and private sources. While not all these projects will be presented to the market (that is, some of these opportunities will not go ahead), clearly, the sector needs a funding source. Accordingly, the supply of infrastructure funding looks set to remain below the level of demand.

The pull-back by some of the traditional financing sources (in response to regulatory changes), the rising need for infrastructure funding to meet the funding gap, and the relatively low level of fund raising by debt managers (in comparison to infrastructure equity managers) have all contributed to a muted demand versus supply impact. Current yields on infrastructure debt securities are not dissimilar to longer-term averages, implying that there is still some value to be had.

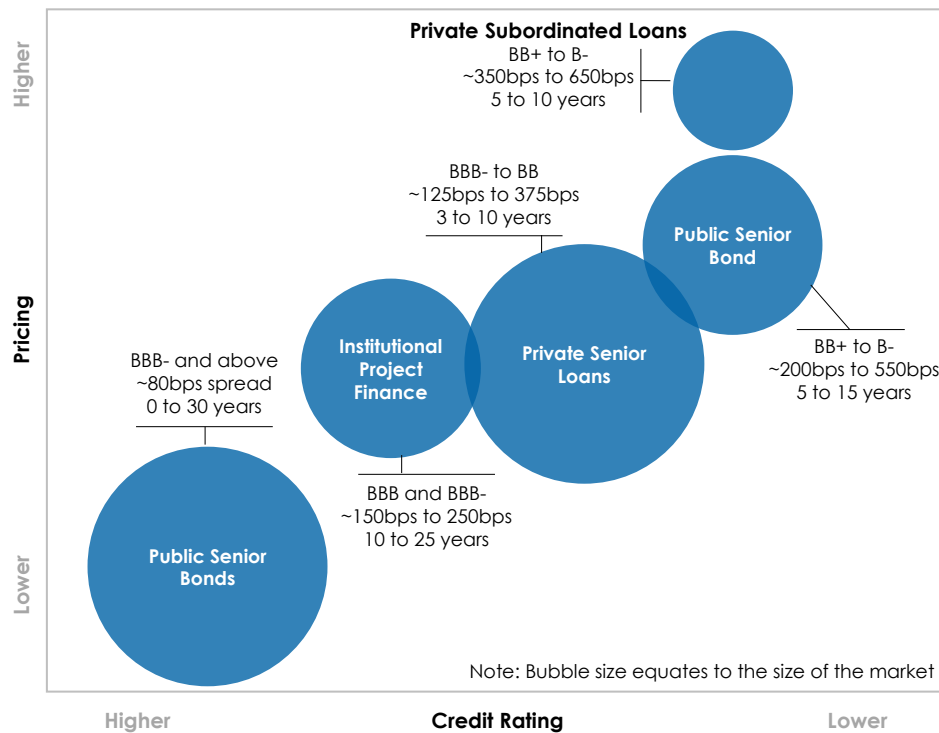
1.8 Where We See Value in Infrastructure Debt

The attractive qualities of infrastructure debt, and the availability of investment opportunities suggest that an allocation to the asset class has merit. We currently see value particularly in Euro-denominated subordinated transactions, non-core infrastructure assets that have been recapitalised and some sub-investment grade bonds where experience enables us to take a more constructive view on a credit than the ratings agencies. In addition, there is a continuing premium for extended maturities, particularly where these are longer than seven years. The range of instruments suitable for the institutional investor universe, together with some high-level metrics of each sub-class, is given below.

⁶ "Infrastructure productivity: How to save \$1 trillion a year", McKinsey Global Institute (January 2013).

⁷ "Global infrastructure: How to fill a \$500 billion hole", Standard and Poor's (January 2014).

Figure 14: Overview of Infrastructure Debt Opportunities



Source: Whitehelm analysis

Of these investments, Whitehelm Capital believes Private Senior Loans, Public Subordinated Bonds and Private Subordinated Loans are the most attractive for Australian institutional investors, given the limited competition from banks and the usual institutional providers of capital markets financing. For some investors, particularly those that have a long position in cash, an allocation to short duration Public Senior Bonds can be advisable: we would, though, advocate that these bonds be swapped from fixed to floating in the current market given the substantial risk from interest rate rises on bond prices over the long term.

Institutional Project Finance is popular among European insurers and pension funds who need to match long-dated assets and liabilities, and are looking for a small premium on senior bond returns in exchange for illiquidity. Given the shorter duration of Australian superannuation fund liabilities, there has been little interest in the provision of offshore project finance debt (not helped by the difficulties of hedging long-term transactions back into Australian Dollars), although there may be occasional opportunities within the Australian market to provide long-term financing at returns that do meet hurdle rates.

1.9 Where to from here?

Investors can choose to either invest in debt instruments that provide a fixed coupon (that does not vary as market interest rates change), or floating rate securities that provide a coupon that varies depending on an underlying base rate (but that has a relatively stable price). This means that investors trade-off price stability versus income stability.

Debt Securities Primer

Fixed Rate Debt

Pay a fixed coupon at each payment date, regardless of underlying market rates. However, the price of the security changes as market interest rates move. If interest rates increase, the price of the investment falls. As interest rates decline, the price of the security increases.

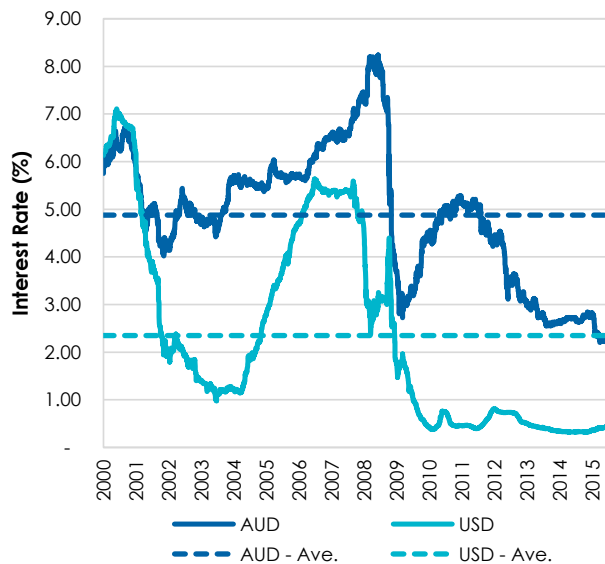
Floating Rate Debt

Provide a coupon that varies with the market interest rate. Quoted as a spread to a 'base rate'. For example, LIBOR plus 2%, or BBSW plus 1.5%. As LIBOR or the BBSW (or any alternative 'base rate') moves, so does an investor's coupon. Conversely to fixed rate debt, the market price of floating rate securities remains relatively constant.

In the current economic environment, interest rates have been heavily impacted by central banks' zero interest rate policies and quantitative easing programs. This has pushed interest rates to levels that are significantly below long-term averages and in some cases, at

all time lows. The figures below set out the six month swap rates for Australia, the US, the UK and the Euro Zone over the last 15 years, together with the simple average interest rate

Figure 15: AUD and USD Six Month Swap Rate (January 2000 to June 2015)



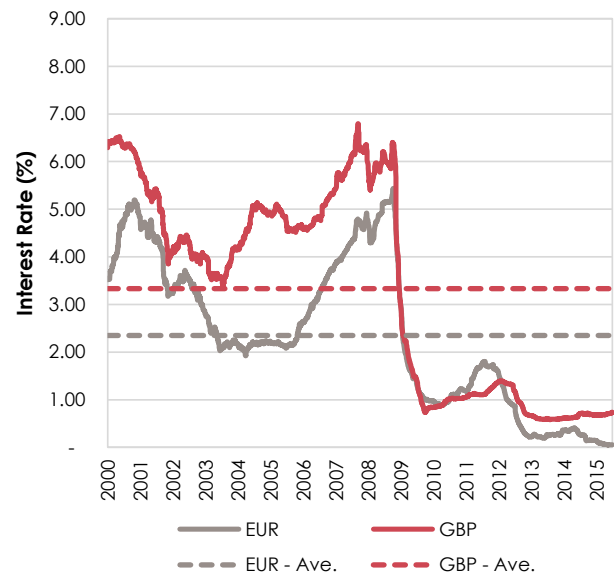
Source: Bloomberg, Whitehelm analysis

Given interest rates are significantly below long-term averages, the key risk for investors is a revision of rates back towards the longer-term level. This scenario is particularly relevant for fixed rate securities – under this scenario, there would be a price decline as interest rates increase. This is a real risk, particularly considering the improving outlook for the US economy, and the expectations that the Federal Reserve may look to start raising the Federal Funds Rate, possibly in late 2015, resulting in an increase to USD denominated interest rates.

Conversely, for floating rate securities, the price impact of market interest rate changes is small. Furthermore, in the event that interest rates increase, investors will receive higher coupons given the payments are linked to an underlying ‘base rate’ (such as the London Interbank

for each currency. As evidenced in the figures, the current interest rates are well below the long-term average rates, and have been so since the GFC.

Figure 16: GBP and EUR Six Month Swap Rate (January 2000 to June 2015)



Source: Bloomberg, Whitehelm analysis

Offered Rate, or LIBOR in the UK; and the Bank Bill Swap Rate, or BBSW in Australia).

As a result of the relative risk exposures of fixed and floating rate securities, we have a strong positive bias towards floating rate securities, to limit duration risk (discussed below). This does not preclude investing in fixed rate instruments, however, these require an interest rate swap to be implemented to essentially convert the instrument from a fixed coupon to a floating rate coupon investment.

1.10 Duration Risk

Duration risk refers to the price sensitivity of a debt instrument to a change in interest rates – this is particularly relevant for fixed rate bonds (as opposed to floating rate instruments⁸). Bonds with a high duration (often expressed in ‘years’) will exhibit a large and inverse change

⁸ As a technical aside, floating rate debt securities will exhibit durations that are, at most, equivalent to their coupon payment frequency (for example, three or six months, for bonds paying quarterly or semi-annual coupons, respectively, will have maximum durations of three or six months, respectively). After each coupon payment, the base rate for the next coupon is set

(which locks the quantum of the next coupon in) – any interest rate changes thereafter will impact price. However, this only effects the next coupon – the base rates for all the remaining coupons are yet to be set, and so they rise and fall with changes to the interest rates, having no impact on the duration of the security.

in price, relative to the change in interest rates – as interest rates rise, bonds with a high duration will experience a larger price decline than bonds with a low duration. A key factor in determining a bond’s duration is the tenor of the bond (being the term over which the bond has been issued).

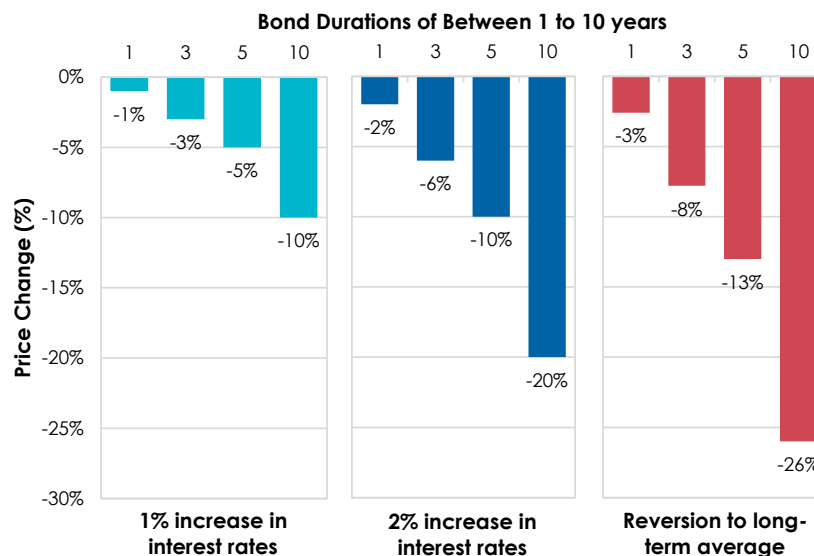
Infrastructure debt securities can be issued with long tenors, meaning that these investments can have long durations and therefore their pricing can be highly sensitive to changes in market interest rates. For example, in the UK, Porterbrook recently issued a 25-year amortising loan and South East Water a 25-year index linked note. In Australia, the debt issuances are typically shorter than this, often around five to seven years.

The risk to investing in fixed rate debt securities in the current environment (with low interest rates), is the risk of interest rate increases. Practically, there is a lower bound of zero for

interest rates (although some governments have recently been able to issue debt at negative rates, it is unlikely that significantly negative rates would prevail over time). As interest rates increase, the fixed rate debt securities (particularly those purchased during times of low interest rates) would be exposed to price falls. The quantum of the price decreases would be dependent on the duration of the securities – the longer the duration, the greater the price fall.

To provide a simple example of the degree to which prices may fall, we have considered the impact of various interest rate scenarios for bonds with one, three, five and ten year durations, assuming interest rates increase from current levels by 1%, 2% and back to the long-term average rate. The figure below sets out the price declines for each bond under each interest rate scenario.

Figure 17: Price Declines Under Various Interest Rate Changes



Source: Whitehelm analysis

Noting that debt securities typically have lower returns (relative to equities), the quantum of the negative price change can have a material impact on investment returns over the life of the instrument. While the overall return to an investor will eventually converge to the expected return on investment (bond prices will always return to par on maturity), the mark-to-market losses along the investment timeline can be severe, and in the event that the instrument is sold, the realised losses on sale can be significantly impacted by duration risk.

1.11 Credit Spreads

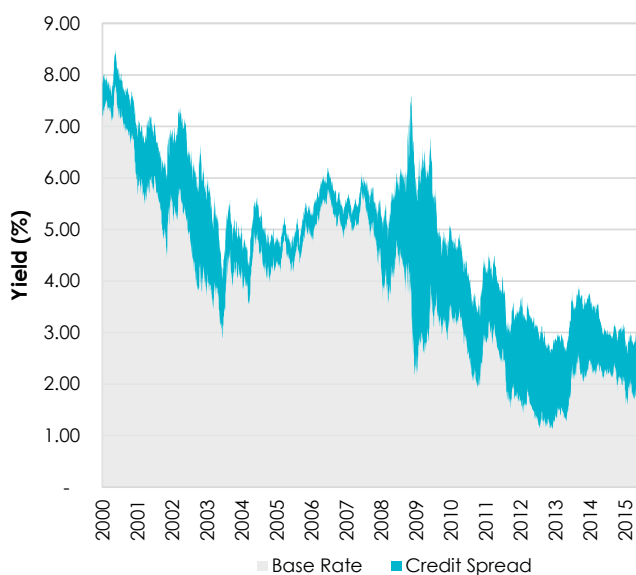
Government bonds are generally considered a measure of the risk-free rate – a key interest rate that is used to value a large range of assets using various pricing models. Theoretically, these securities are considered ‘risk-free’ as the issuer (being a government) is thought to have a zero probability of default. Unfortunately history proves this assertion wrong for some governments (for example, major defaults over

the last century included Argentina in 2001; Russia in 1998; Mexico in 1982 and Germany in 1932). Most recently, the Greek Government defaulted on a €1.5 billion payment to the International Monetary Fund (IMF), becoming the first developed nation to do so (though noting this does not technically constitute a sovereign default).

Nevertheless, traditionally, the bonds issued by credible governments are used as the risk-free rate, with extremely low default risk priced-in to these securities. Debt securities issued to investors by other entities (such as large businesses) will generally provide a higher return than a risk-free security of the same duration. This premium (the credit spread) compensates investors for the additional risk of not being repaid when compared with government issuances.

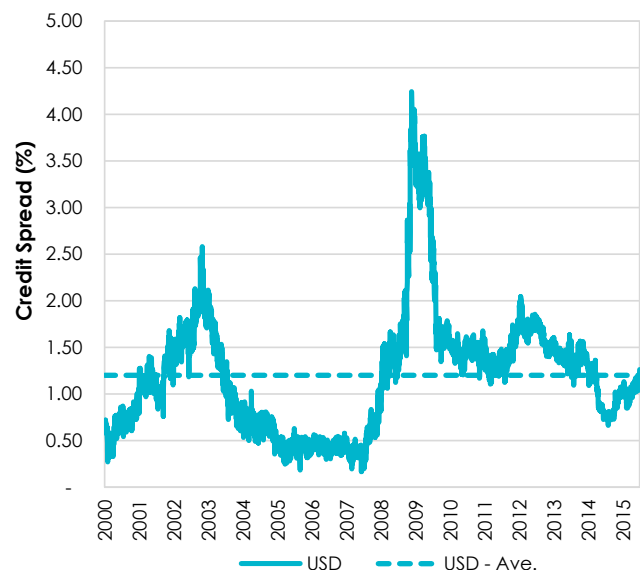
While this credit spread can remain relatively constant for long periods of time, at times of market stress, investors often re-evaluate the risks associated with holding non-government bonds and demand a higher premium. As this spread increases, the interest rate used to price these non-government securities also increases, and as was discussed above, as interest rates increase, the prices of debt securities can fall. A good example of this is the credit spreads observed for corporate bonds through the GFC. The figure below provides an overview of the total yield on BBB rated USD denominated utilities (comprising a base rate plus credit spread) – Figure 18, with Figure 19 separately identifying the credit spread observed over this period.

Figure 18: Yield on BBB USD Utilities (January 2000 to June 2015)



Source: Bloomberg, Whitehelm analysis

Figure 19: BBB Utilities Credit Spread (January 2000 to June 2015)



Source: Bloomberg, Whitehelm analysis

While Figure 19 highlights the rapid reaction of investors during the GFC, what is important to note is that this additional premium demanded by investors (increasing to more than 4% at the height of the crisis) reflects the lower prices investors are willing to pay for these investments (bond prices and yields move inversely), or alternatively, the higher discount rates (market interest rate) used to price these assets to reflect the higher perceived risk.

The risk associated with the credit spread expansion for investors holding corporate debt is the negative price impact due to this higher market interest rate. At times of market stress, there can be a material and rapid movement in credit spreads, which coincides with inverse, but equally rapid price declines.

1.12 Summary

There is clear evidence that the market for infrastructure equity investments is fully priced – there are several examples of recent transactions that have occurred at prices almost double the long-term average for the sector. This has been driven by the large and increasing allocation to the asset class in general by institutional investors, which has been supported by the fund-raising activities of the infrastructure equity fund managers. However, the expensiveness of the infrastructure equity market has not been pushed up the capital structure into debt investments to anywhere near the same extent.

Through a combination of regulatory changes, the continued need for infrastructure debt funding and the comparatively small level of fund raising activities by infrastructure debt managers, yields and pricing across the sector remain reasonable. Whitehelm Capital believes for investors who can manage the risks associated with debt investments, there is still value to be had for those wanting exposure to this asset class, be it in Private Senior Loans, Public Subordinated Bonds and Private Subordinated for Australian institutional investors or Institutional Project Finance for European insurers and pension funds