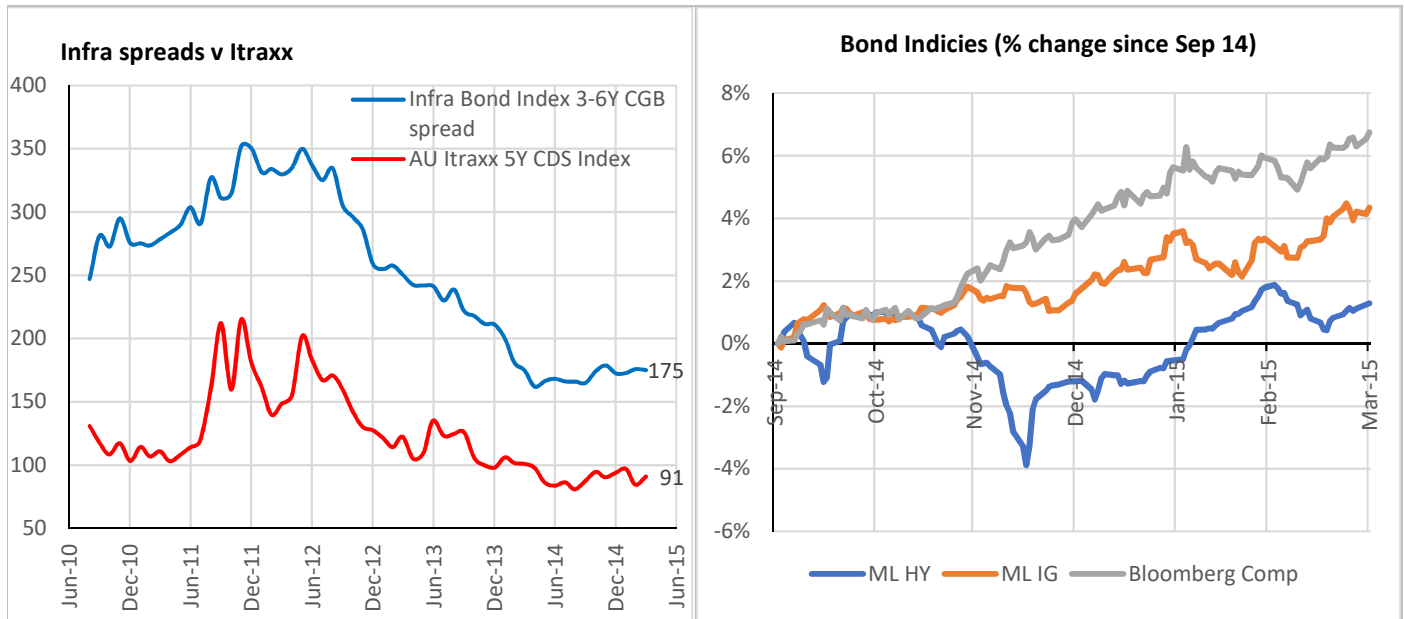


## Introduction

In this issue we provide the usual market update together with two articles, one considering risk versus return, whilst the other article considers interest rate assumptions underpinning infrastructure investment in today's environment.

## Markets update

Spreads have continued along the same path/trend that they have demonstrated in the last few quarters. Probably the most interesting trend has been the move in base rates, with a fall of circa 100 bps. Also of note/interest, high yield spreads have somewhat recovered post the widening activity of November/December last year.



## New issuance and refinancing

The table below provides a list of publicly available deals.

Date	Borrower	Instrument	Size (\$m)	Tenor	Pricing	Comment
Dec-14	Northern Beaches PPP	Loan	690	4	200	Cons facility. On COD a portion paid down by NSW Health
Dec-14	DBNGP	Loan	40	3		Corporate purposes
Dec-14	Envestra	Bond	325	6	160	
Dec-14	Mundaring Water PPP	Loan	305	3	160	Refinance – Operating PPP
Feb-15	RNSH PPP	Loan	1,044	5	< 160	Bank debt + CPI swap
Feb-15	ConnectEast	Bond	150	7	165	
Feb-15	ConnectEast	Loan	1,035	3/4/5		Refinance
Mar-15	Transurban	Loan	755	3/5		Hills M2

Mar-15	Sydney Desal PPP	Loan	1,656	1/3/5/7		Refinance. Previous terms 120/140/170 for 2/3/5
Date	Borrower	Instrument	Size (m)	Term (Yrs)	Curr.	Pricing

### Equity and other news

- AMP reached financial close on their acquisition of Royal North Shore Hospital. 70% of the investment will sit in AMP's Social Infrastructure Fund with the remaining investment sitting with one, undisclosed, investment mandate.
- The ACT Government has selected two consortiums to submit final bids for the ACT Light Rail and ACT Courts PPPs, successful tenderers will be announced in Q3/Q4 2015.
- The Victorian Government has shortlisted two consortiums for Vic Schools II, with the successful tenderer expected to be announced in Q3 2015.
- The cancellation of EastWest Link has caused significant controversy, at present, no definitive announcement has been made as to compensation/break costs for the consortium.
- NorthConnex reached financial close in March 2015 – this is the first unsolicited infrastructure proposal for NSW to reach a successful conclusion. The road project will link, via tunnels, the M1 and M2 Motorways.
- The number of brownfields economic infrastructure assets for sale in 2015 has fallen significantly post the outcome of the Queensland State election – it will be interesting to see how this shortfall in supply (relative to what was expected) impacts remaining large Australian privatisations this year.
- UniSuper increased their stake in Sydney Airport by a further \$200 million. The acquisition takes UniSuper's stake in Sydney Airport to approximately 14%.

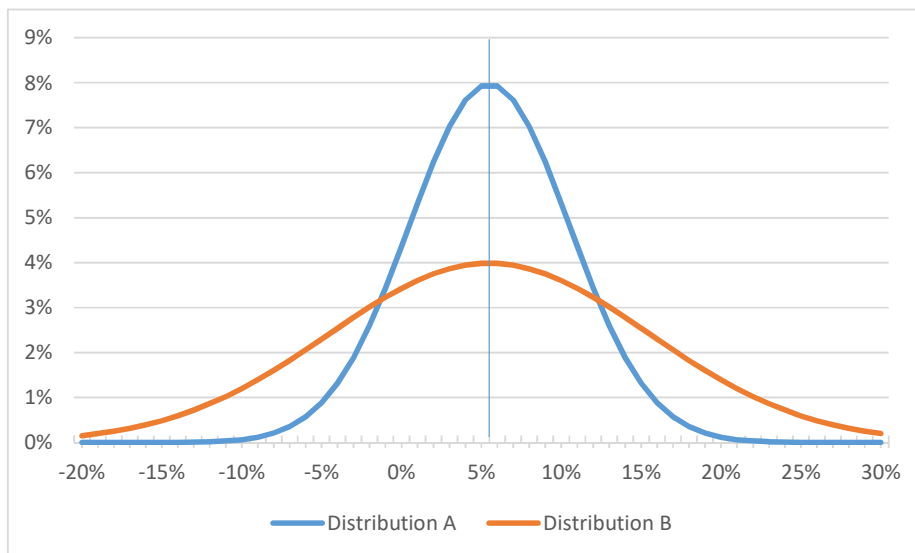
### Lower risk boosts returns

I will let you in on a little secret of investing .... a sure fire way of boosting returns over the long-term ... take less risk. This might seem a bit counterintuitive, particularly with quantitative easing driving down the returns of safe assets and encouraging investors to reach for yield and take more risk. We would recommend resisting this temptation. The time to take more risk is when risk return trade-offs are favourable (in general terms, when prices are low) rather than simply when risk free returns are poor.

Mathematically, risk or more accurately volatility, lowers long-term returns. At its simplest, this arises because large negative returns require even larger positive returns to recover. For example, to recover from a minus 50% return, you need to get +100%.

While this is most obvious at extreme levels of loss, the effect occurs more generally. For example, consider two strategies both with the same average level of return (say 5% a year) but with varying volatility (one with a 5% standard deviation, the other with 10%). The following figure shows the probability distribution of returns (for simplicity, returns are assumed to be normally distributed).





Now imagine you invest in one of these two strategies for 10 years. What are the characteristics of your average return over 10 years? Clearly the volatility of the average return over the 10 years will be much lower than the volatility in a single year. But if the average annual returns of each of the strategies is the same (5% in this case) surely the average 10 year return will also be equal.

No think again. Utilising Monte Carlo simulation, the lower risk strategy has a higher long term return. In fact, simply reducing risk has boosted long-term returns by 0.3% per annum.

	Average Annual Return	Annual Risk/Volatility	10 Year Risk/Volatility	10 Year Average Return
Strategy A	5%	5%	1.6%	<b>4.9%</b>
Strategy B	5%	10%	3.2%	<b>4.6%</b>

This example is an illustration of a more general result, that the average compound return is:

$$r \approx \bar{r} - \frac{1}{2} \sigma^2$$

Where

$\bar{r}$  is the average single period return; and

$\sigma$  is the standard deviation of the single period return.

Beyond the mathematical effect – a lower risk strategy is likely to be maintained or even be able to take more risk in adverse market conditions .... when expected returns are highest. By contrast, take too much risk – and you are more likely to change strategy or de-risk during market crisis. This a recipe for taking high risk when returns are bad (and hence suffering big losses) but then taking less risk during the following upswing (when market conditions are favourable).

When you look at the superannuation funds with the strongest 10+ year track records. The defining feature is much more often the smaller losses they suffered through the GFC, rather than outsized returns in the individual years since.

In conclusion – we would recommend you respond to today’s unusual market circumstances by taking less risk not more. Great long term track records are built by avoiding severe losses/mistakes rather than by simply reaching for yield.

## Infrastructure and the long-term outlook for interest rates

### Implications of Low Base Rates for Infrastructure Investors

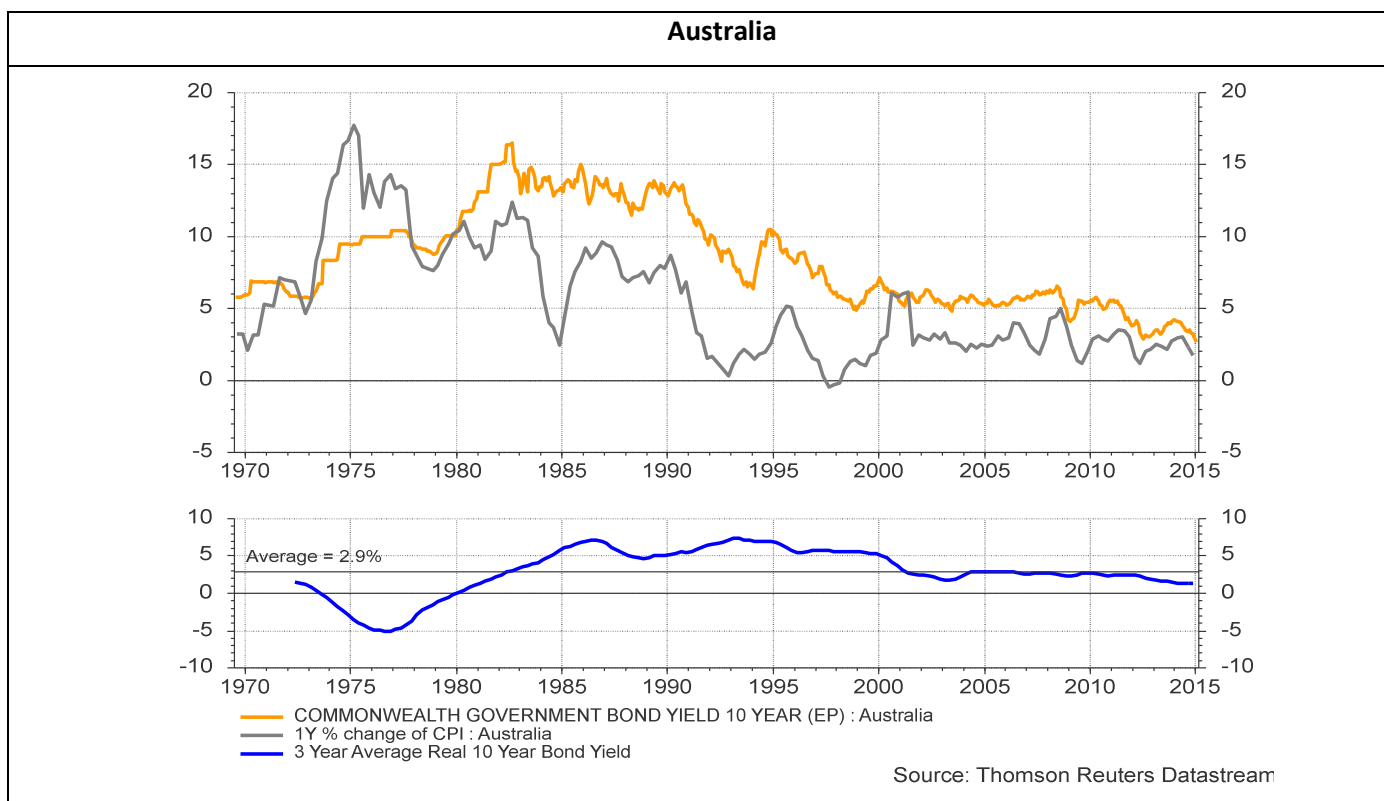
In the various discussions I have been having with Infrastructure investors over past few months, one recurring discussion topic has been the extremely low level of base or risk free interest rates.

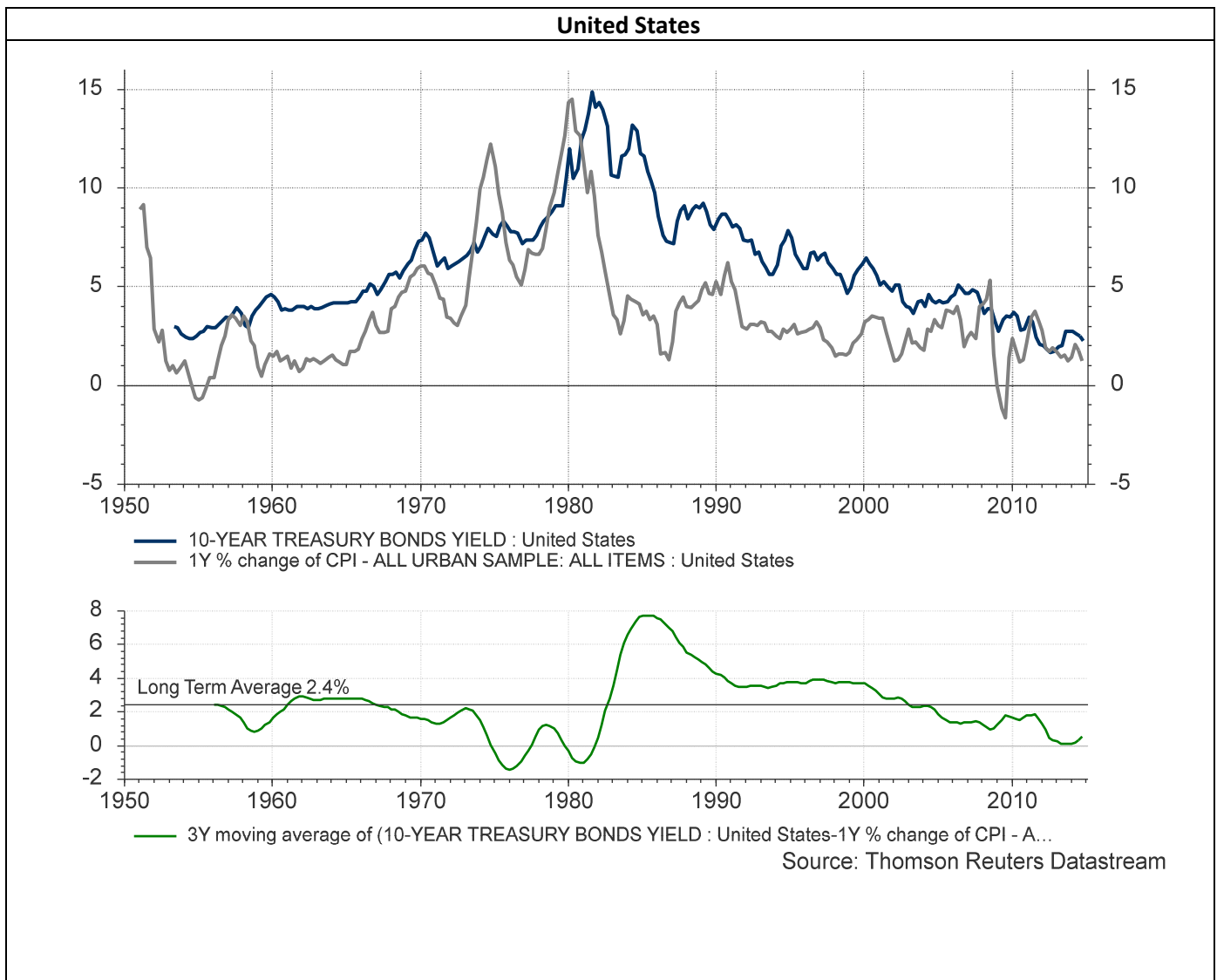
#### Why does it matter?

Infrastructure is often seen as a substitute for yield in investors’ portfolios – i.e. an alternative to low risk defensive assets like cash and government fixed income in investors’ portfolios.

Part of the attraction of infrastructure at the moment, and the record high prices of recent Australian core infrastructure transactions (and for that matter the gnashing of teeth amongst infrastructure investors at the cancellation of the former Newman government asset sales program), is that returns to traditional low risk sources of yield are so low.

The chart below shows the long term history of Australian 10 year government bond rates. Current yields of 2.5% are the lowest in the history I have been able to access (since 1969). This implies a zero real return (assuming inflation keeps within the 2-3% target band set by the RBA) before tax and fees. Post tax returns for superannuation investors will be negative. An unappetising prospect!





But this is also a prospect that raises a range of questions:

- Will such low real base rates persist (or could they get even lower)?
- How should portfolios be managed in light of low interest rates?

### A long term forecast for interest rates

I am not going to make any short term forecast on bond rates. In the near term, the coming year or two, rates can clearly move up or down and there are a raft of market participants who spend their lives interpreting the various central bank statements and short term economic indicators to form a view on this. In this context, current forward interest rate markets are probably as good a guess as anyone's on what might happen in the short term. And in any case, most infrastructure investors are considering investments that last decades and so decisions don't turn on the short term path for rates.

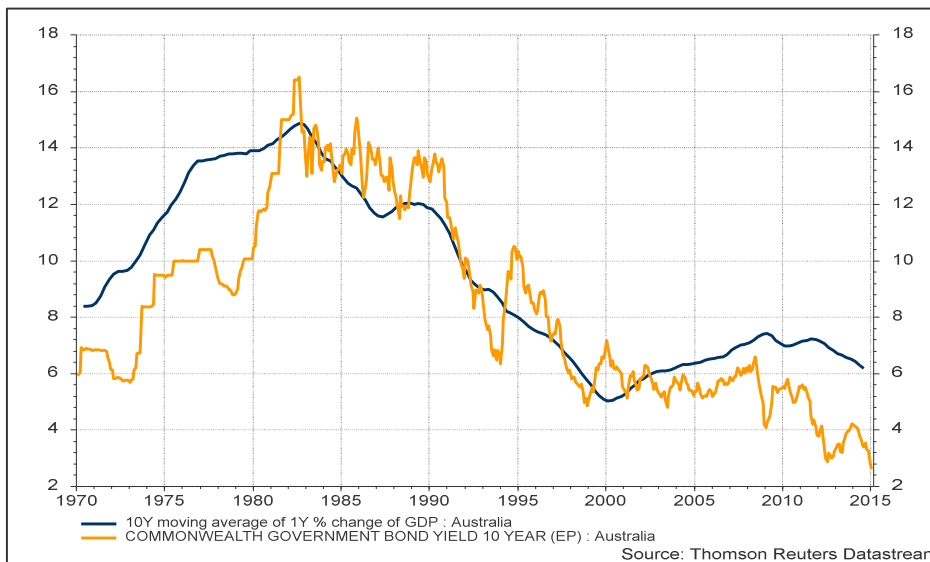
The more interesting question is the longer term – what do we think interest rates will do over the next 10 or 20 years? Are the current low real interest rates a structural shift (and in that context the high real rates enjoyed by investors over the past 20-30 years are actually unusual) or should we expect, once the short term impact of recovering from the GFC and QE work their way out of the system, that markets will return to 'normal' and interest rates will revert to more normal levels.



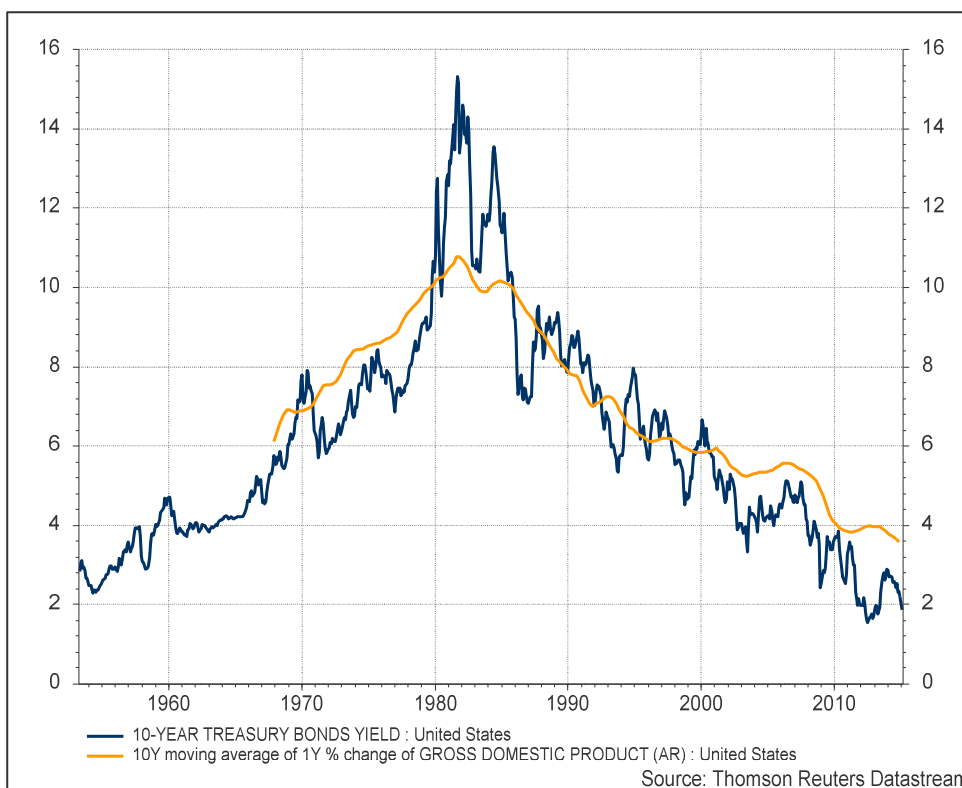
As a sidebar to this, while market participants constantly talk about the recovery from the GFC, it was seven years ago – almost the length of a ‘normal’ economic cycle – and so either the recovery is incredibly slow or perhaps what is normal has shifted or even more confusingly, both.

Economic theory suggests that in the long term growth in the economy should match the nominal bond rates. The charts below illustrate these relationships for both Australia and the United States (where longer data is available).

**Australian 10 Year Bond Rates versus Nominal GDP Growth**



**United States 10 Year Bond Rates versus Nominal GDP Growth**

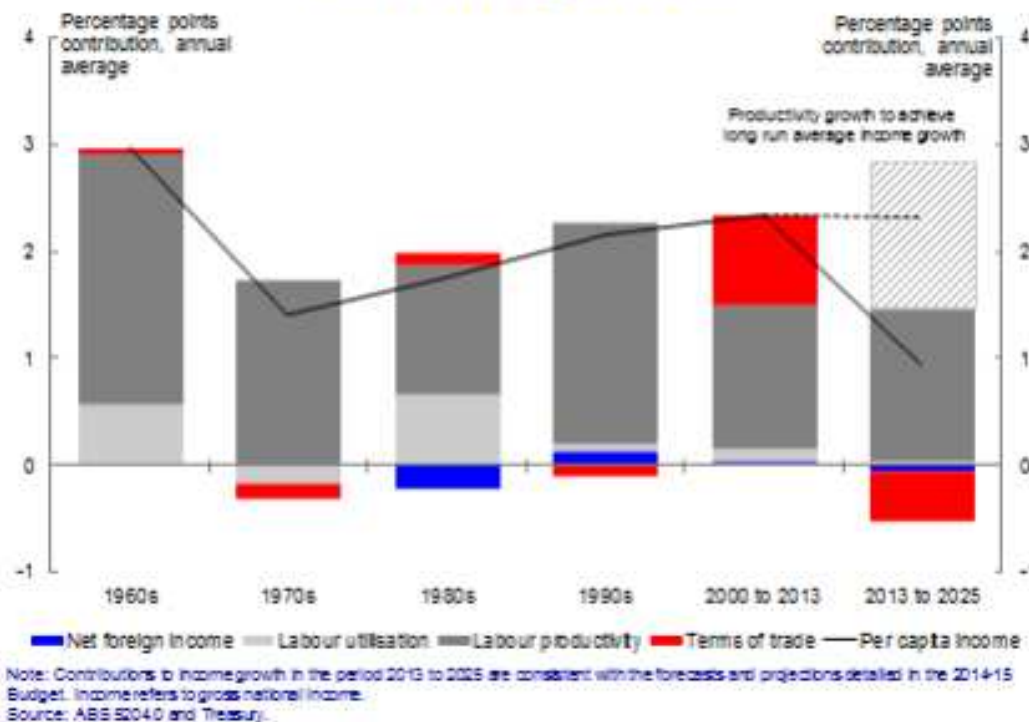


These charts show the relationship works pretty well – albeit recently both countries have had significantly lower bond rates than nominal GDP growth. This is particularly apparent in Australia where nominal GDP growth has been running at over 6% for the past decade (which is basically a mining boom/terms of trade story).

If you accept this relationship, that 10 year bonds should roughly equal nominal GDP growth, what does the future hold for nominal GDP growth?

Future real GDP growth in Australia is likely to be significantly lower than over the past couple of decades. Australia won't benefit from another mining boom. Population growth will be slower. There won't be the same benefit from increased female participation in the workforce. The following chart, extracted from a speech by Martin Parkinson last year, gives an interesting decomposition of these effects.

## Contributions to annual per capita income growth



My view is that real GDP growth will be weaker – probably in the 2%-3% range – rather than the 3%-4% which has been ‘normal’ for Australia over the past few decades. A key risk to this is productivity growth – which is assumed to match prior periods – and could easily disappoint.

Adding to this is inflation, which will probably track at 2-3% - albeit from a nominal GDP perspective it is likely to be at the lower end if you assume a continued reversal of the mining boom terms of trade effect.

This suggests a 4%-5% nominal GDP growth rate and by implication bond rate. This would be a real bond rate in the 2%-3% range. This is significantly higher than rates today – but in my view lower than the long term history of circa 3% real.

In the US both growth (probably 1.5%-2.5% real) and inflation (1-2%) will be lower suggesting a lower US 10 year bond rate in the 2%-3% range. And this isn't that controversial – US bond markets currently have a forward interest rate of around 2.5% from around 2020 onwards. It just takes a while to get there from current zero rates!

It is Australia where the gap between market views (which has cash rates getting back up to 3% in 2021 and basically tracking in the low 3% range from there) and the outlook for nominal GDP is most stark. To reconcile the two would require either much weaker expectations of economic growth or inflation.

The one factor, which is important, but doesn't figure in a nominal GDP growth based analysis is the high level of debt across the world at present. Debt, except when invested in productive capacity, is future consumption brought

forward. The current debt overhang will be a drag on growth for a substantial period ahead. This, directly or indirectly, will be a cap on sharp rises in interest rates – as in the absence of defaults and write downs – many parts of the world cannot afford higher interest rates with today’s debt burden (Japan, for example). All this suggests to me that the path for rates might be somewhat lower than a raw analysis of nominal GDP growth would suggest.

**What does that mean for infrastructure investors?**

Infrastructure is a long duration asset. A material share of the strong performance of infrastructure over the last decade is attributable to declining bond rates. If you believe rates will rise over the medium term, then this will be a drag the future performance of infrastructure assets from today’s valuations. An exception to this is infrastructure debt, which in floating rate form, would benefit from a rise in rates.

Look under the hood. Interest rates have direct and indirect impacts on infrastructure valuations. Much of the focus has been on target equity returns and multiples. However, it is important to recognise that base rates have material impacts through the cash flow impact of debt costs.

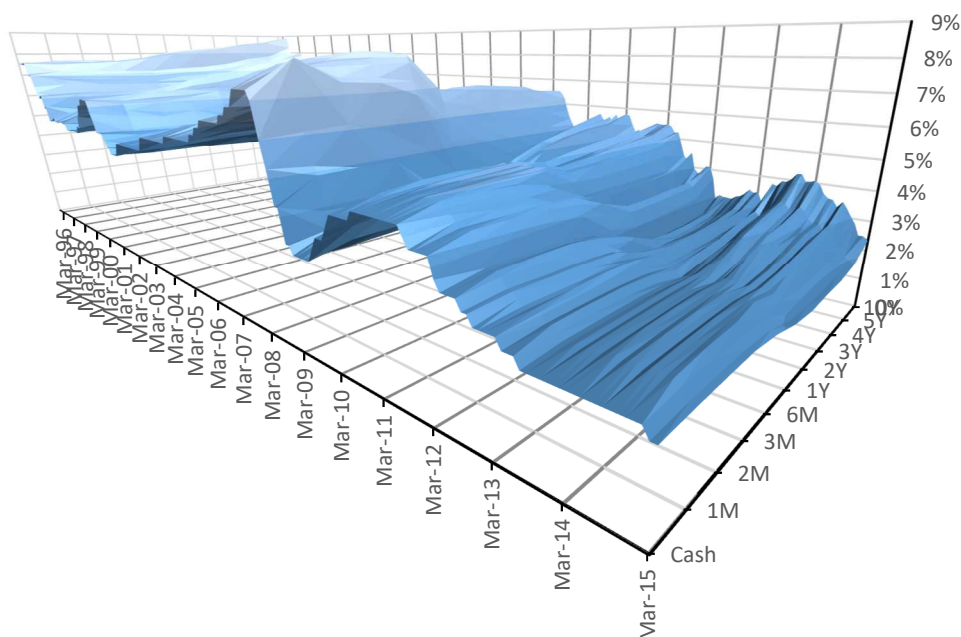
While many investors talk of their ‘discipline’ by not reducing target equity returns in light of lower base rates, the reality is that their investment bankers (and managers) forecast the cost of debt service using market implied interest rates. While the front end of this might be locked in through interest rate hedging, the long-term is usually not. This creates a substantial inconsistency between a static equity hurdle and equity return forecasts that include the benefit of cheap debt service costs.

Be consistent. Whatever your view on base rates is – you should be consistent in terms of forecasts of inflation and, for patronage/economic infrastructure assets, revenue projections. In a world where bond rates remain low it seems highly likely that inflation and economic growth outcomes will be much lower than history.

A follow-on question from this discussion is whether low interest rates ‘justify’ the record EV/EBITDA multiples for recent Australian core infrastructure transactions .... but that’s a question for another article.

## Australian Yield Curve

Whilst the Australian yield curve is not necessarily a news item, this chart has certainly given us (and the people attending investor presentations) pause for reflection and generated some animated discussion.





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## Contact Us

We're always happy to chat (and learn new things!) if you want to know more, contribute more on a particular topic, or wish to discuss any of the above topics in greater detail feel free to drop us a line. Also, please don't hesitate to send us ideas for future articles.