

Introduction

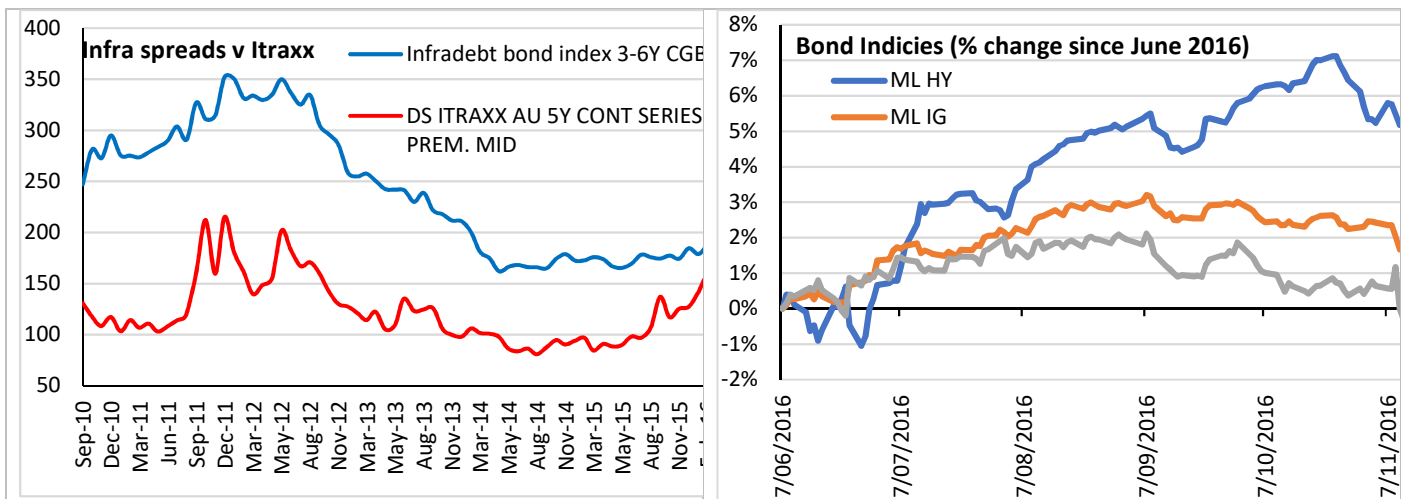
In writing this introduction it feels like a lot has happened in such a short time. Despite commentators calling for economic armageddon upon a Trump victory, markets rallied. In the days to follow the ‘Trump Reflation’ trade would begin, with the Dow and S&P500 reaching all time highs. For bonds rates, the sell-off has been spectacular – the Aussie 10 year has moved almost 100 bps from 1 October to 16 December. Not even the outcome of the Italian referendum could dent enthusiasm – Deutsche Bank equity has rallied over 60%, despite no significant change in its underlying fundamentals – It’s Christmas and all is well!

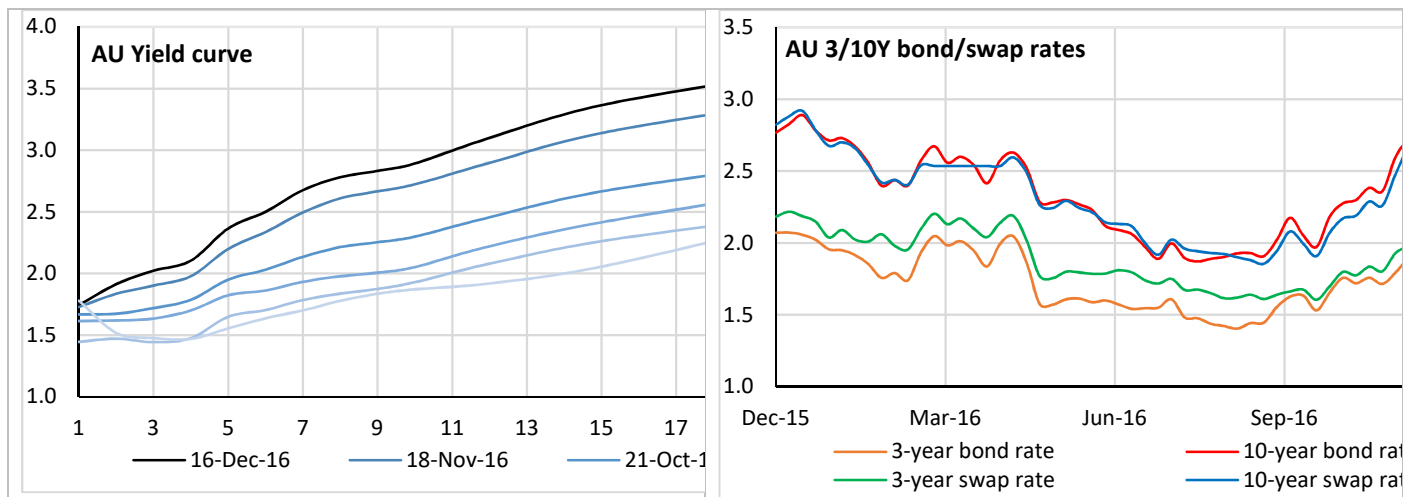
This quarter has seen a lot of infrastructure transactions in both the debt and equity space. In this quarter’s newsletter we have two articles, the first picks up on the recent moves in base rates and considers the relative sensitives across different infrastructure sub-sectors. The second article looks at asset allocation within Member Investment Choice (MIC) options with a particular focus on conservative options.

We’d like to thank all the people that have contributed to the many topics we’ve covered this year – we certainly value and appreciate all views, and to those people who proofed particular topics we’d like to extend an extra big thanks! From the team here at Infradebt, we wish all of you a merry Christmas and a safe, relaxing break – enjoy the good times that this time of year brings!

Markets update

It’s been a big quarter for fixed income, as noted above, base rates have moved significantly with the Bloomberg Composite (duration approx. 5) delivering losses. The yield curve is substantially steeper relative to last quarter, on top of this margins on infrastructure debt transactions have continued to widen with spreads quite attractive relative to history. It was a big quarter for infrastructure debt issuance with circa \$20 billion in bonds and loans.





New issuance and refinancing

The table below provides a list of publicly available deals.

Date	Borrower	Instrument	Size (m)	Term (Yrs)	Curr.	Pricing
Oct-16	Transurban Qld	Bond	200	7	AUD	Swap + 185 bps
Oct 16	APA	Bond	200	7	AUD	Swap + 180bps
Oct-16	Mlb Airport	Bond	200	10	AUD	Swap + 167bps
Oct-16	VCCC	Loan/Bond	450	11.5/24	AUD	
Oct-16	DBNGP	Loan	500	7/10	AUD	
Oct-16	Port of Melb	Loan	4,580	3/5/7	AUD	BBSY+110/135/170
Dec-16	Sapphire Wind	Loan	330	7/12/17	AUD	
Dec-16	Ausgrid	Loan	12,000	3/5/7	AUD	~BBSY+105/130/165
Dec-16	WestConnex	Loan	400	5/7	AUD	BBSY+200/225

Equity and other news

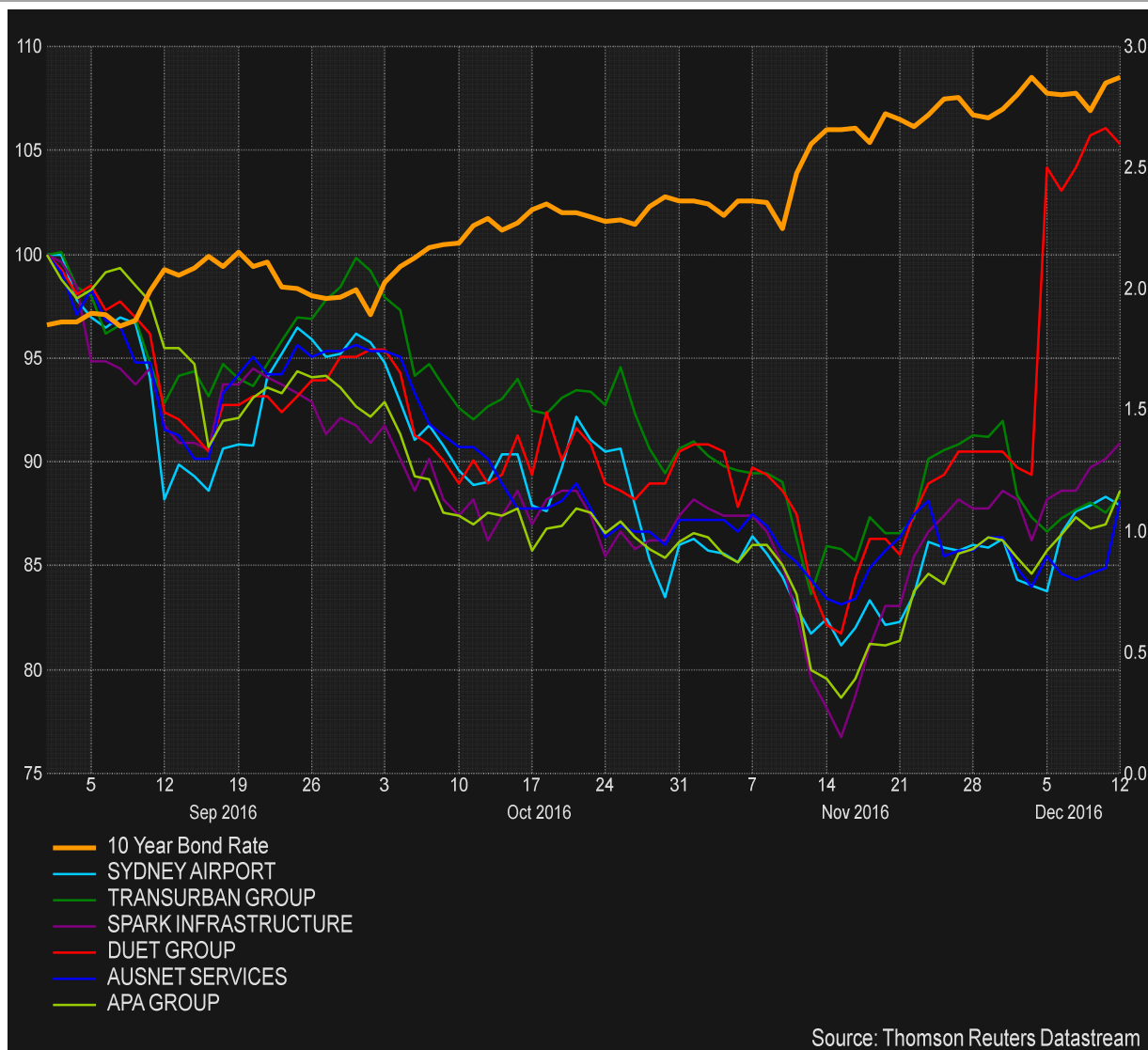
- AGL has announced that they are aiming to sell \$500m of assets, and that the company is halfway through their planned asset divestments. AGL also announced during the quarter that they have successfully transferred the Broken Hill and Nyngan Solar Farms to the Powering Australian Renewables Fund at a value of \$257m. The sale includes a 10 year PPA at \$95 MWh real for the first 5 years, falling by \$10 MWh real in the second 5 years..
- The media has reported that Origin Energy is testing debt and equity investor support for its \$220m Darling Downs solar farm. Origin is also moving closer with the sale of its greenfields Stockyard Hill wind farm – this will be the largest wind farm in the country upon completion.
- Adani Abbot Point Terminal announced a tender offer for its fixed rate AU\$ notes due in 2018. The offer was for the purchase of up to AU\$85m of notes at a maximum purchase spread of 500 bps. AU\$32.323m was accepted. This is the second time this year the issuer has bought back bonds outstanding.

- Duet Group received an unsolicited, indicative, non-binding AU\$3 per share cash takeover offer from Cheung Kong Infrastructure. The offer is at a 28% premium to Duet's last traded price, and values the company at ~AU\$7.3bn. It has been rumoured that China's State Grid and Singapore Power are believed to be working on a counterbid.
- AMP Capital Community Infrastructure Fund successfully acquired the Kalgoorlie-based Eastern Goldfields Regional Prison Redevelopment Project from Lend Lease and MLC. The concession period is approximately 28 years, which comprises the construction period plus 25 years of operations. The project value was \$232 million.
- AMP Capital bought a 5.2 percent stake in the Victorian Desalination PPP project from Pacific Partnerships, the project finance arm of CIMIC Group.
- IFM Investors and AustralianSuper have acquired a 50.4 percent stake in a 99-year lease of Ausgrid, an electricity distribution business in New South Wales, for \$4.6 billion. This represents a RAB multiple of 1.41x. As part of the transaction, Ausgrid's debt of \$12.0b was refinanced.
- Macquarie teamed up with Genesee & Wyoming to buy Glencore's coal haulage business for \$870m.
- John Liang has acquired a 30% stake in Hornsdale Wind Farm Stage 1. The project is underpinned by a 20 year offtake from the ACT Government.
- The Victorian Government has announced a \$1.8bn road upgrade project that will be structured as a PPP under a 20 year concession.
- Plenary and Partners Group consortium was the successful winner of the Victorian Government's High Capacity Metro Trains PPP. The Project value is circa \$2 billion.
- EnergyAustralia announced that it planned to purchase 500MW of wind and solar (circa \$1.5 billion of PPAs) from projects located on the East Coast of Australia. The first project was the 42.6MW solar farm at Manildra NSW (First Solar) with a 13 year PPA.
- Partners Group has invested \$250m in the 270MW Sapphire Wind Farm. The Wind Farm last year was successful in the second round of the ACT Government's renewables reverse auctions securing a 20 year offtake for 100MW. It is understood the balance of the project (170MW) will be merchant.
- Engie has announced the closure of the Hazelwood Brown Coal Fired Generator in March 2017. It will be interesting to see how this affects spot prices in both Victoria and South Australia.

Sectoral exposure to rising interest rates

That infrastructure equity is sensitive to the level of interest rates is not surprising, especially in today's low base rate world where many investors see infrastructure as a 'bond substitute'. This article looks at the relative sensitivity of various infrastructure sub-sectors to rises in interest rates.

Listed infrastructure markets have reacted strongly to the rise in rates (see below), yet the impact on unlisted markets seems less clear. The recent Duet announcement suggests that at least some investors are looking through the recent run-up in rates in assessing value in the sector.



Not all infrastructure sectors are affected equally by rising interest rates. Across the infrastructure asset class there are differing levels of leverage, revenue models, and approaches to interest rate hedging. In the table below, we've taken a look at the more common or typical types of projects and their interest rate sensitivity. Of course all infrastructure projects are, to varying degrees, unique and there will be some projects with quite different interest rate sensitivity relative to their peers.

For each sector we have commented on:

- **Typical Leverage.** For example, patronage assets tend to have relatively low gearing (say debt of 40-60% of enterprise value), while PPPs are much more highly geared (75%-85%).
- **Revenue structure.** For most infrastructure assets there is no direct link between revenue and interest rates. One exception is regulated utilities (in Australia), where the allowable revenue is usually reset every 5 years as part of regulatory review. In general, this reset allows revenue to equal a regulated return on capital plus operating costs. This means that higher interest rates (all else equal) will feed through to higher revenues for regulated utilities (albeit with up to a 5 year lag).
- **Interest rate hedging.** Interest rate hedging strategies (i.e. what proportion and for what term, are interest rates on debt locked in through swaps, etc.) has a significant impact on new interest rate exposure. For example, PPPs typically have high leverage and no underlying growth in project cash flows. For this reason, projects typically fully hedge the interest rate exposure of their debt (or pass this risk back to the State through

the payment mechanism). This means there is no additional impact on equity from changes in base interest rates (credit spreads do have a big impact however). This contrasts with utilities where interest rates on debt

- are typically only locked in over 5 year regulatory periods.

	Patronage	Utility/Regulated	Availability/PPP
Examples	Toll road, Airport, Sea Port	Electricity distribution/transmission, Regulated gas pipeline.	Public private partnerships with a availability based revenue structure
Typical Leverage (a)	Low	Medium	High
Revenue Structure	CPI/patronage linked	Periodically reset to WACC x Regulated Asset Base (RAB)	Fixed or fixed for equity with a floating interest rate debt pass through matched to debt.
Typical Interest Rate Hedging	Fully hedged for the first 5-7 years, partial hedging thereafter.	Fully hedged aligned with 5 year regulatory resets	Fully hedged for full term or the State takes long term base rate risk.
Net Exposure	High	Low-Medium	Medium-High
	Equity exposure + unhedged debt tail	Revenues re-set every 5 years with updated base rate	Equity exposure is long-dated but usually no unhedged debt tail.
Typical Equity Duration	12-18	7-12 (b)	10-15 (c)

- Leverage is compared to other infrastructure assets – not the market as a whole
- For utilities, interest rate sensitivity is significantly affected by the RAB premium. Utilities purchased at high RAB multiples will have significantly higher interest rate sensitivity.
- This depends on the remaining concession term. Duration will shrink as a project approaches the end of the concession.

Overall this analysis suggests that patronage assets, particularly those with very long concessions and high patronage growth rates, are likely to have the highest interest rate sensitivity. Utilities, will have the lowest interest sensitivity as revenue resets will adjust for future interest rates.

The main caveat to this would be utilities acquired at a substantial premium to the regulated asset base. As the regulator's adjustment for changes in interest rates only applies to the regulated asset base – for assets purchased at a substantial premium – the premium receives no interest rate adjustment. For example, for a utility purchased at a 1.5x RAB multiple, a regulatory adjustment to the base rate will only apply to the 1.0x RAB and the other 0.5x will get no adjustment. The effect of this will all flow to equity – resulting in a quite high interest rate sensitivity.

There are a couple of further complications worth noting:

- Is it higher inflation or higher real interest rates? If the reason interest rates are moving higher is high inflation – most infrastructure projects will benefit through inflation linked revenue. In fact, most equity in projects has a net positive exposure to inflation (that is, revenue moves 1 for 1 with inflation, but debt by less than 1 for 1, giving a net benefit).
- Interest rates versus credit spreads. The analysis above focuses on movements in base interest rates. Credit spreads are assumed to be unchanged. Higher credit spreads are unambiguously negative for all infrastructure projects (as they are all relatively highly geared). In history, higher interest rates have tended to be associated with lower credit spreads (think of an economy doing well and, in this environment, credit is relatively

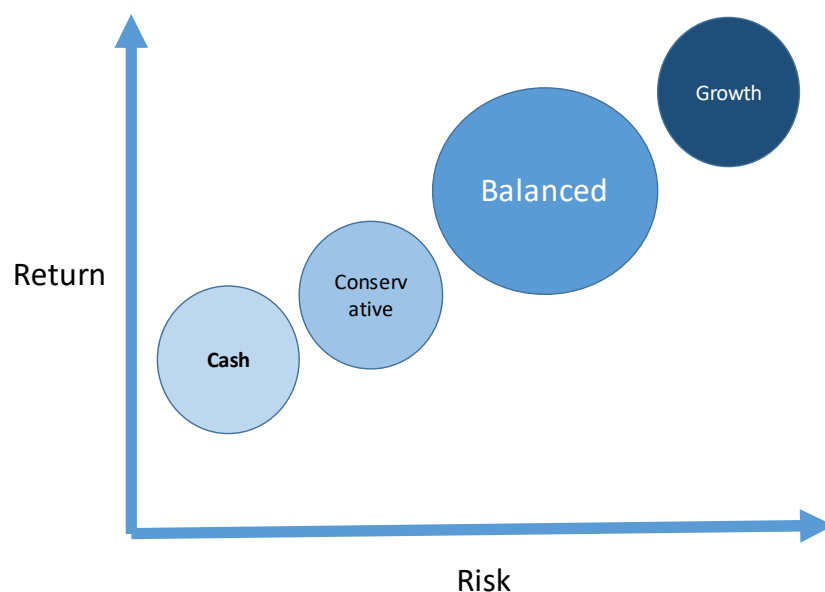
available) and vice versa (think of an economy in recession, interest rates may be low but credit margins will be high). If this negative correlation continues, this will tend to reduce the sensitivity to base rates (as there is an offsetting credit margin effect). However, in today's over indebted world, this past correlation may not be as reliable. Likewise, equity risk premia are likely to be wider, and a negative for infrastructure projects during periods of falling base rates (our analysis assumes no change in equity risk premia).

- Economic shocks more generally. The above analysis focuses purely on base rates and implicitly assumes that patronage or other revenue drivers are held constant. For economically sensitive assets (e.g. ports), changes in interest rates will be correlated with changes in patronage and this will tend to offset the impacts of interest rates.

In summary, infrastructure assets by the very nature of their low-risk long-term cash flows are sensitive to interest rates. This has been a massive and surprisingly consistent tail-wind for the performance of equity investments in the sector over the past decade. Investors should be ready for potential head-winds (or at least gusts!) over the period ahead if base rates have indeed bottomed out.

Is it time to rethink the asset allocation of conservative member investment choices?

Most Australian superannuation funds offer members a range of member investment choices (MIC). While the menu of options varies across funds, a common structure for the design of the suite, centres around the 'default' balanced choice, with other options offering different risk/return profiles relative to this default option.



The balanced choice typically has the greatest number of members and is the focus of performance surveys. A key risk with this choice is that it becomes the primary focus of attention, to the detriment of other choices/members.

The current investment environment (i.e. low base rates) raises particular challenges for the traditional approach to conservative member investment choices. It is important to review whether these options will deliver on member expectations.

Context

Members who choose conservative investment choices have made an active decision not to invest in the default balanced option. They want lower investment risk as they typically have a shorter investment horizon (typically around

3 years vs 7+ years). However, their investment horizon is not so short that they invest purely in cash. Conservative members want to earn more than cash, but take significantly less risk than balanced.

Table 1: Conservative versus balanced objectives

	Conservative	Balanced
Asset allocation (defensive/growth)	30-35%/65-70%	70%/30%
Return target	CPI + 1.5-2%	CPI + 3-4%
Negative return every 20 years	2-3 years	5 years
Minimum investment horizon	3 years	7+ years

Asset Class Building Block Approach to MIC Asset Allocation

Most funds use an asset class building block approach to constructing MIC asset allocations. That is, different MICs have different allocations to different asset classes, but within each asset class, the manager configurations are identical. For example, the fixed income bucket will contain the same fixed income fund managers in both balanced and conservative options – the only difference will be the proportion allocated to fixed income.

For the most part, this approach makes a lot of sense, it maximises the economies of scale of managing the fund, allowing individual MICs benefit from the scale of the overall fund.

One potential drawback, as noted above, is that the balanced option tends to receive the most attention. This leads to asset classes, such as the defensive asset classes of cash and fixed income, being designed in the context of balanced option asset allocations.

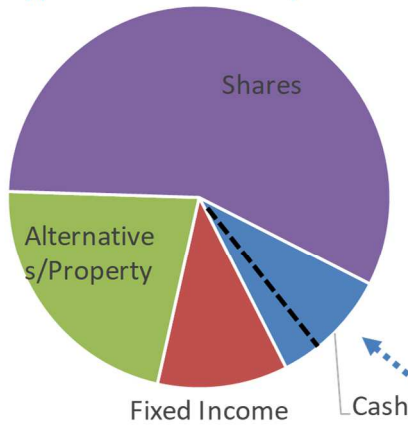
From the perspective of a conservative MIC member, this can lead to sub-optimal cash and fixed income asset allocations including:

1. Excessive focus on liquidity within the cash and fixed income asset classes;
2. Over allocation to Government bonds/duration risk;
3. Over reliance on equities/alternatives to deliver the conservative options 1.5%-2% real return objectives; and
4. Higher risks of negative returns given today's low interest rate environments.

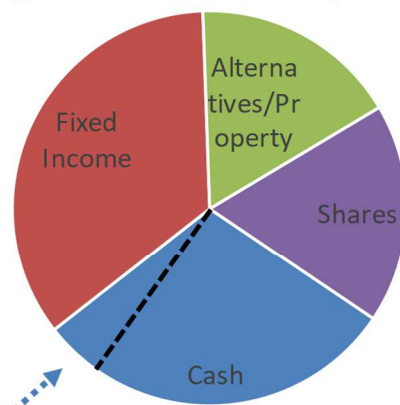
Excessive Focus on Liquidity

Most funds seek much higher levels of liquidity for their defensive assets relative to their growth asset classes. This makes sense from a balanced centric perspective. Cash is often a very small asset class, say 3 to 5%, and so what is a modest rebalancing transaction at a whole of balanced option level (say a shift in asset allocation of 2% or 3%) would be a large proportion of the cash asset class. This same approach doesn't make sense for conservative choices, where 30% allocations to cash are typical, and you are never going to rebalance 30% at once.

Typical Balanced Option



Typical Conservative Option



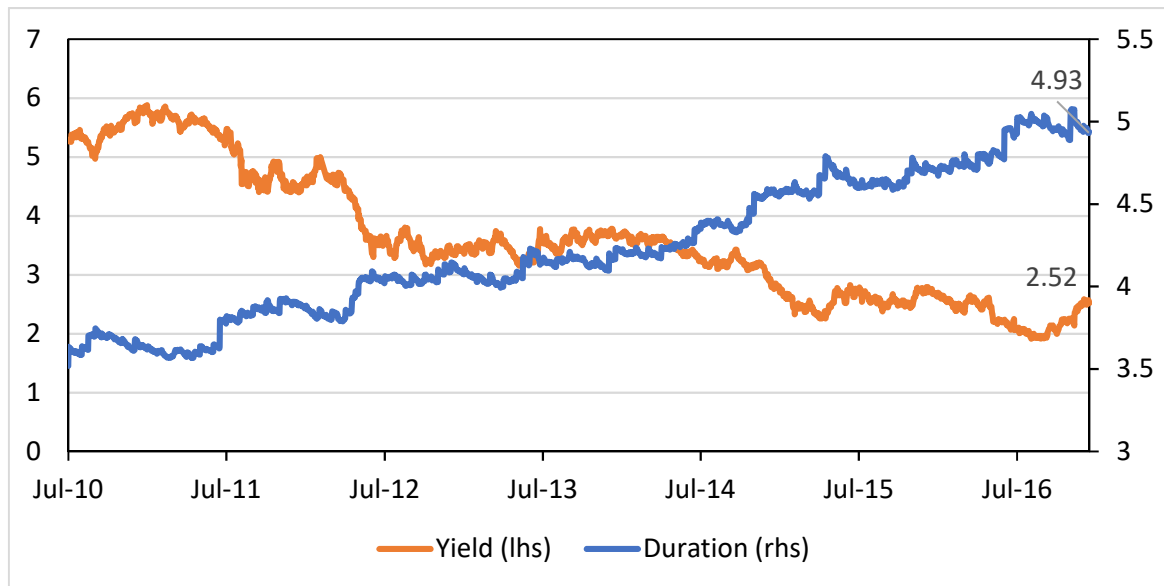
Rebalancing/Transactional requirements

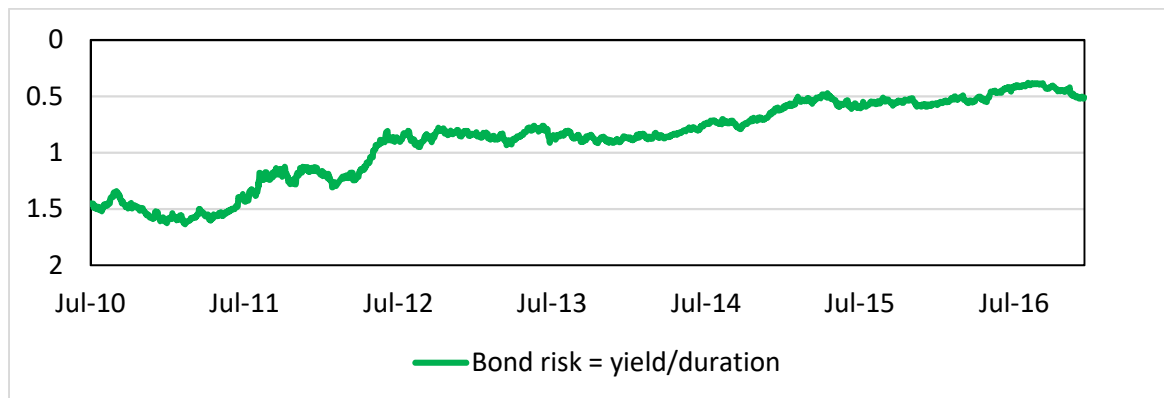
In effect, this means conservative members are sacrificing returns on their cash and fixed income investment allocations to provide liquidity they don't really need.

Over allocation to Government bonds/Duration Risk

Most fund's fixed income portfolios are dominated by long-duration government bonds. For example, in the popular Bloomberg Composite index around 90% consists of government and government related bonds.

Chart 1: Bloomberg Ausbond Composite 0+Yr Index





Within the balanced investment choice, the allocation to fixed income is motivated by low/negative correlation between bond yields and equity returns. Bonds act as a ‘hedge’ of equities risk in a balanced portfolio (see below).

Table 2: Correlation coefficients

	S&P/ASX 200 Accumulation	S&P/ASX Govt. Bond Index	Cash
S&P/ASX 200 Accumulation	1.0	-0.2	-0.2
S&P/ASX Govt. Bond Index	-0.2	1.0	0.2
Cash	-0.2	0.2	1.0

From the perspective of the balanced investment choice, it makes sense for fixed income allocations to include quite long duration bonds (i.e. high sensitivity to movements in interest rates). Long duration bonds might have a poor risk return trade off on a stand-alone basis (see below), but they are an efficient hedge of larger equity exposures because the fixed income allocation is small (10-20%) relative to the listed equity allocation (40-50%).

Table 3: Risk adjusted returns

	Modified duration	YTM	Excess return over cash	10-year std. dev.	Sharpe Ratio
Cash	0.00	1.81%	-	0.51%	-
S&P/ASX Govt. Bond Index	5.75	2.37%	0.57%	4.23%	0.13
S&P/ASX Corp. Bond Index	3.37	3.19%	1.39%	2.20%	0.63

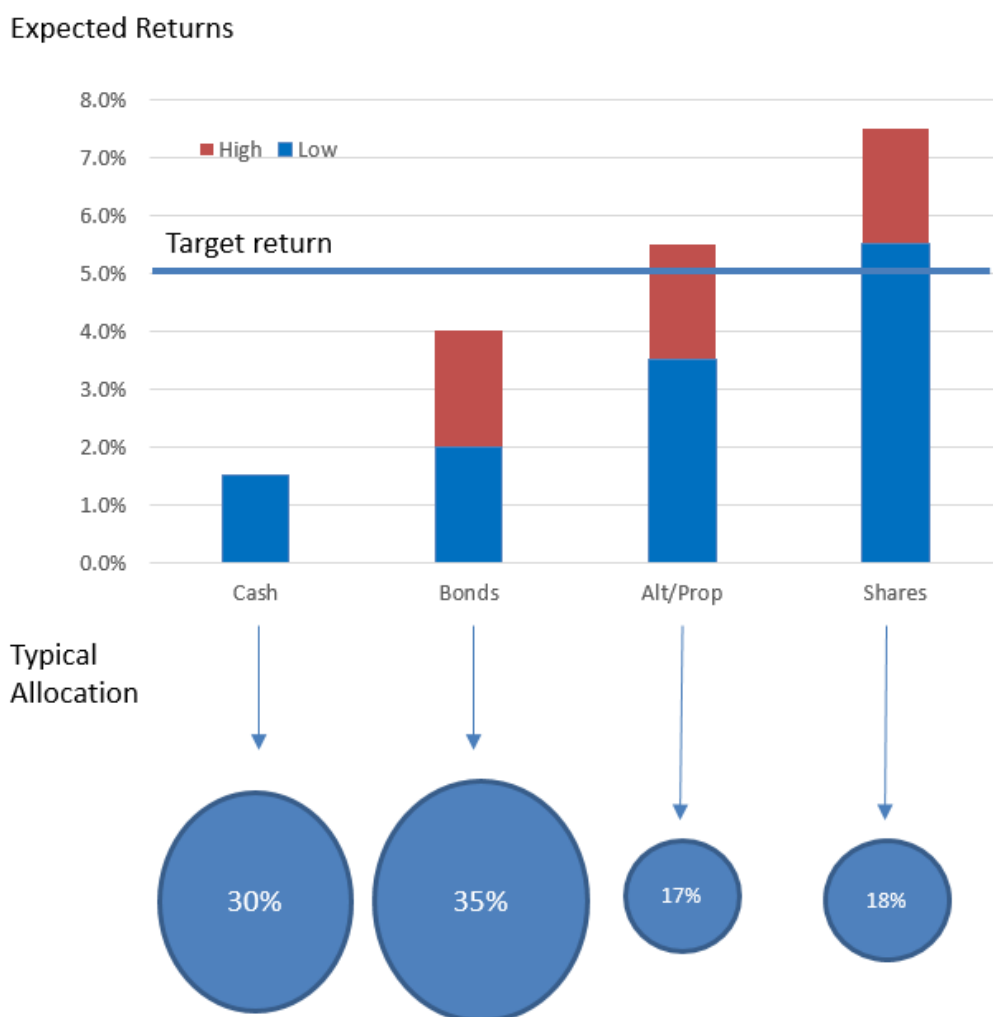
This approach to fixed income, makes sense for balanced, but does it make sense for conservative members where the fixed income allocation is doubled and the equity allocation is halved? The duration exposure is contrary to conservative member’s investment return objective (capital stability). Conservative members would be much better served by a fixed income allocation that puts greater focus on yield/income (whilst maintaining desired defensive characteristics), and less focus on long-dated government bonds/liquidity.

Over reliance on equities and risk assets to generate target returns.

Conservative MICs typically target a return of around CPI + 1.5-2%. Assuming the RBA achieves its target of inflation at 2.5% this is an all-in return of 4.0%, or a pre-tax return of around 5-6%.

In today’s return environment cash is earning 1.5% and Government bonds 2-3%. To achieve the 1.5 2% overall return objective – funds are relying on the relatively small growth allocation to deliver overall return objectives as shown in Chart 1 below.

Chart 2: Expected asset allocation returns



Is there an alternative solution to achieving the target returns for conservative members? One option is an allocation to floating rate credit which is an asset class that delivers the 1.5%-2% real return objective without the high volatility of listed equities.

Increased exposure to negative return events in low base rate environments

As interest rates have fallen, so has the natural yield provided on the defensive portion of conservative MIC options. This means there is less of a buffer to protect against negative returns, particularly compared to the period prior to the GFC where cash and bond yields were north of 5%.

To illustrate, Table 4 below looks at the breakeven position. If we assume the typical asset allocation of 65% in cash/bonds, 17% in alternatives and 18% in equities. For a range of cash/bond returns we calculate the largest loss on equities before the overall portfolio return is negative (and in the second row of the table we show the largest loss across equities and alternatives).

Table 4: Implied breakeven of equities and alternatives

Cash and bond return	5.0%	4.0%	3.0%	2.0%	1.5%	1.0%
Equities (Alternatives earn 0%)	-18.1%	-14.4%	-10.8%	-7.2%	-5.4%	-3.6%
Equities and alternatives	-9.3%	-7.4%	-5.6%	-3.7%	-2.8%	-1.9%

For example, at cash and bond yields of 5%, a conservative option could suffer a near 20% loss on its equities and still have a positive return. At today's yields that loss is now only 5%-7%. This highlights how the decline in base rates has increased the risk (particularly as measured by the standard risk measure concept of the number of negative returns) of conservative MIC asset allocations.

There is no easy fix to this – that negative returns are 'closer' when you start from 1.5-2% risk free rates is a law of arithmetic that is hard to avoid. That said, strategies that boost the yield of defensive assets while maintaining credit quality provide a way to mitigate some of the consequences of lower base rates.

Conclusion

2016-17 represents an extremely challenging investment environment with the low level of interest rates creating real challenges in meeting member real return expectations. In this situation, it is too easy to focus on the balanced investment choice, with the specific issues for other investment options, such as conservative, easily overlooked.

It is important to remember that conservative members have made an active choice (and often have high balances). They are likely to be highly engaged members and will not be happy if their investments don't perform to their expectations. For this reason, we would encourage investors to evaluate the composition of the defensive portions of their conservative investment choices.

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.