

The Interest Rate Market and Factors Affecting It.

What Clients Need To Know

This information aims to provide Executives and Finance Professionals within Western Australian Government Agencies an overview of the relationships between market ‘reference rates’ and pricing for Western Australian Treasury Corporation (WATC) loans to assist in making informed decisions when considering debt finance from WATC.

Australian Market Interest Rates – Key Reference Rates

In the Australian market, there are four principal indicator or ‘reference’ interest rates.

RBA Target Cash Rate

This is the target yield (interest rate) that the Reserve Bank of Australia (RBA) sets for funds placed overnight on the Australian money market. The RBA uses this as a target for monetary policy by virtue of its control over the supply of funds that banks use to settle transactions among themselves.

90-day Bill Rate

The yield on 90-day bank bills, also known as the Bank Bill Swap Rate (BBSW), is anchored by the official RBA cash rate but is affected by market news and participants’ views. It is therefore subject to change on a daily basis and can also provide an indication as to the direction of monetary policy. For example, if the official RBA cash rate is 1.5% but there is a strong market view that the RBA will ease monetary policy in the next month or two, the spread between the cash rate and 90-day BBSW will trade significantly lower (potentially even negative) as the market builds in its “expectation” of an easing. Therefore, the position of the 90-day bank bill yield in relation to the cash rate is an important indicator of the easing or tightening bias of monetary policy.

3-year Bond Yield

The 3-year bond yield for Australian Government Securities (AGS) stands at the dividing line between the influence of monetary policy and broader macroeconomic factors. It is not unusual to see the 3-year bond trade significantly above or below the RBA cash rate. Because of its pivotal position in the yield curve, the spread (difference) between 90-day BBSW and the 3-year bond yield or the spread between the 3 and 10-year bond yields are favourite market indicators

about the likely future direction of monetary policy and the broader economic outlook. For example, where the general market consensus is that the economic outlook is positive, the yield curve is likely to be ‘steep’, meaning the 3-year bond rate is well above the cash rate and the 10-year bond yield much higher again.

10-year Bond Yield

The 10-year bond yield for AGS primarily reflects market participants’ perceptions of the long-term economic outlook of both the domestic and global economy. The three major influences on the level and changes in the 10-year bond yield are:

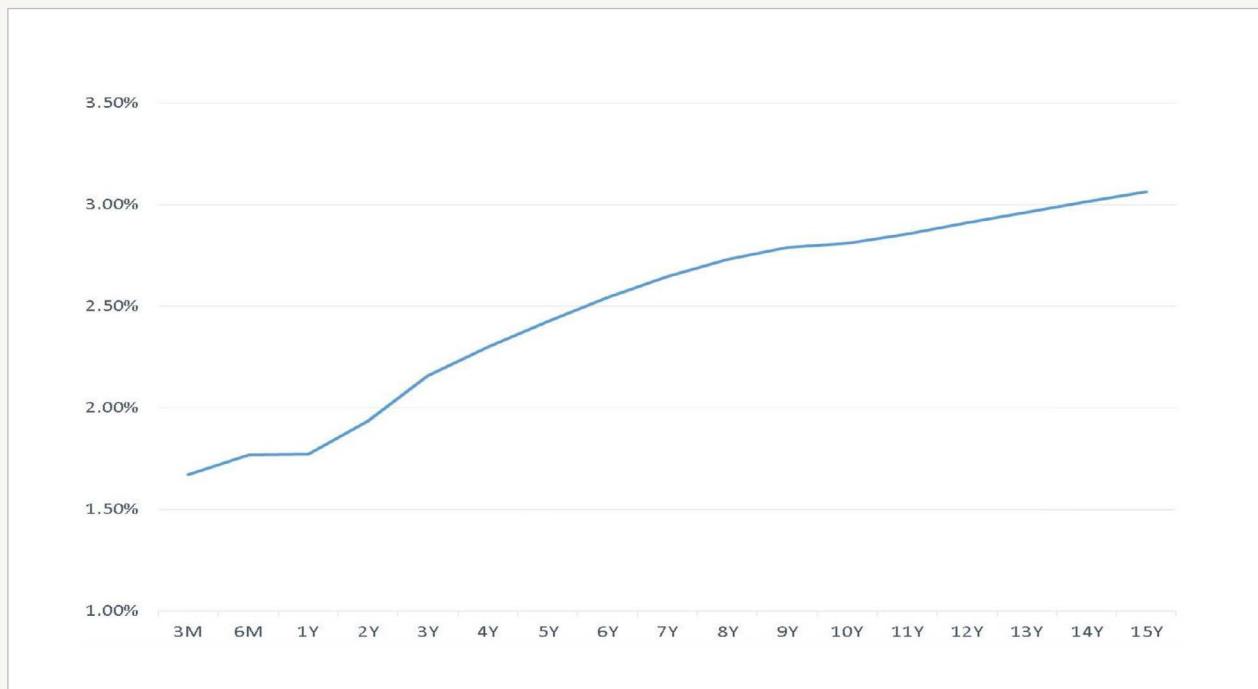
- **Domestic economy economic outlook** - The more positive the outlook the greater the upward pressure on the 10-year bond yield.
- **The level and expected direction of domestic inflation** - Inflation directly affects the time value of money and hence the attractiveness of investing in a long-term asset. A higher rate of inflation (or expected future inflation) reduces the time value of any income flowing from a bond and hence the market will demand a higher yield to compensate for this risk.
- **Movements in the US bond market** - In a globalised marketplace fund managers are able to shift large portfolios around the world at minimal cost and effort, and the direction of the US bond market is critical for determining movements in smaller markets such as Australia.

As a result, 10-year bonds reflect both an Australian and global market view on economic and monetary conditions 12 months forward and beyond.

The Yield Curve

Interest rates span a wide range of maturities – from the RBA overnight cash rate to 10-year securities and longer.

Figure 1: Australian Government Securities yield curve at 31 January 2018



When interest rates for different maturities are plotted on a graph, a 'yield curve' is constructed. The essential point is that different factors influence the interest rate for each maturity along the yield curve. Specifically, the influence of the RBA cash rate is more important at the short end of the curve and diminishes as we move along the curve, whereas the influence of the domestic and global economic outlook is more important at the long end. As noted, the 3-year bond usually acts as a pivot between these competing factors.

In the absence of market expectations on future changes in interest rates (often referred to as 'all other things being equal'), the yield curve is expected to be upward sloping, implying the longer the maturity the higher the expected yield on an interest rate instrument. This phenomenon is known as 'liquidity preference theory'. Liquidity preference theory reflects an expectation that investors demand a higher yield for holding interest rate securities with longer maturities.

Historical evaluation of Australian interest rates confirms the above expectation, with the average yield on short-term securities being less than for long-term securities, illustrated by the average differential between overnight money market interest rates and 10-year AGS yields being in the order of 80 basis points, or 0.8 percent¹.

¹ Approximate long-term average between July 1993 and December 2017.

WATC Interest Rates

WATC-issued securities trade in the Australian debt market. These consist primarily of:

- **Short-term inscribed stock**, also known as commercial paper, which is generally issued for terms of 1 to 6 months and priced relative (at a 'margin') to money market rates for the same tenor. The key reference rates used to provide indicative pricing are 90-day BBSW (as outlined previously) and 180-day BBSW.

The margin at which WATC short-dated securities trade to the market benchmark (e.g. 90-day and 180-day BBSW) is reasonably small and not volatile on a daily basis. It has been maintained within the range of -0.1% to 0% for a number of years (i.e. WATC securities have historically traded slightly below the market benchmarks).

Long-term WATC securities, consisting of:

- **WATC benchmark bonds**, typically issued in recent years for terms between 4 to 12 years, paying a fixed interest rate (coupon) every six months. Priced at a margin to AGS for which the 3-year and the 10-year AGS are the key anchor points.

- **WATC floating rate notes**, typically issued for terms between 3 to 6 years maturity, paying a variable interest rate every three months at a fixed margin to 90-day BBSW.

Factors Influencing WATC Security Pricing Relative to Market Benchmarks

Both of the WATC long-term security types actively trade in the Australian debt (or 'capital') market following their initial issuance. The key factors influencing the 'margin' at which WATC interest rate securities trade relative to the market benchmarks are:

- **Demand for State government issued securities -**
These are known as 'semi-government bonds' as a general class of securities. Investor demand (both Australian and international) relative to AGS can be influenced by a wide range of economic factors. For example, in periods of heightened global economic uncertainty or crisis, demand for semi-government securities relative to AGS will generally fall and therefore the difference in these interest rates (i.e. the 'spread') will increase.
- **Strength of the Western Australian Government's financial position and the WA economy in general -**
This impacts the credit rating of the State which in turn determines the credit quality of WATC issued securities, as these are guaranteed by the Western Australian Government.

- **Market expectations around the volume of supply from each of the issuers of semi-government bonds -**
The larger the borrowing program of a state relative to its peers the more likely that a state will be required to pay a higher rate to meet its funding requirements. This is particularly the case for longer tenors.

Current WATC Long-term Debt Securities Trading on the Australian Debt Market

Table 1 below lists the long-term debt securities on issue by WATC as at 6 February 2018 that are actively trading in the Australian debt market. The 'Coupon' is the interest rate paid per \$100 'face value' on interest payment dates. The 'Current Yield to Maturity' is the effective interest rate per \$100 face value that a purchaser would receive as at 6 February 2018. If the Coupon is higher than the Yield to Maturity it implies the security is trading 'above par' in the debt market – implying an investor will pay more than \$100 to receive \$100 face value. Conversely if the Coupon is lower than the current Yield to Maturity the security would trade lower ('at a discount') per \$100 face value.

The Coupon rate, which is set at the time of issuance, is typically close to the prevailing market rate at the time. Whilst the Yield to Maturity for a security is expected to decrease as it gets closer to maturity, based on a "normal" yield curve, the impact of the overall level of interest rates,

Table 1: WATC issued long-term debt securities, actively trading as at 6 February 2018

Issue date	Maturity Date	Coupon Benchmark Bonds	Yield to maturity at 6/2/18
31 May 2001	15 Oct 2019	7.0%	1.99%
5 Feb 2015	22 Jul 2020	2.5%	2.2%
11 Nov 2002	15 Jul 2021	7.0%	2.40%
19 Apr 2016	20 Oct 2022	2.75%	2.64%
1 Mar 2005	16 Oct 2023	6.0%	2.75%
18 Nov 2016	23 Jul 2024	2.5%	2.97%
21 Oct 2013	23 Jul 2025	5.0%	3.04%
31 May 2017	21 Oct 2026	3.0%	3.26%
2 June 2016	21 Oct 2027	3.0%	3.36%
Floating Rate Notes			
9 Dec 2015	18 Mar 2019	90-day BBSW + 0.22%	90-day BBSW + 0.02 %
12 Nov 2013	19 Nov 2019	90-day BBSW + 0.21%	90-day BBSW + 0.07 %
22 Feb 2017	3 Mar 2020	90-day BBSW + 0.14%	90-day BBSW + 0.09 %
2 Mar 2016	10 Mar 2021	90-day BBSW + 0.30%	90-day BBSW + 0.16 %
22 Feb 2017	3 Mar 2022	90-day BBSW + 0.23%	90-day BBSW + 0.20 %

as show in Figure 2, can also have a very large impact on the difference at any point in time between the Coupon rate and Yield to Maturity as evident in Table 1 for existing WATC securities.

Historical Data on Key Reference Rates and Relationship to WATC 10-year Bonds

Figure 2 below clearly indicates the extent to which 10-year AGS bond yields can move well in advance of variations in the cash rate, and also exhibit volatility over time due to the impact of changing perceptions on the economic outlook and movements in global interest rates, most importantly in the US. The most recent direct influence of note was the sharp increase in 10-year AGS that occurred following the US Federal election in November 2016.

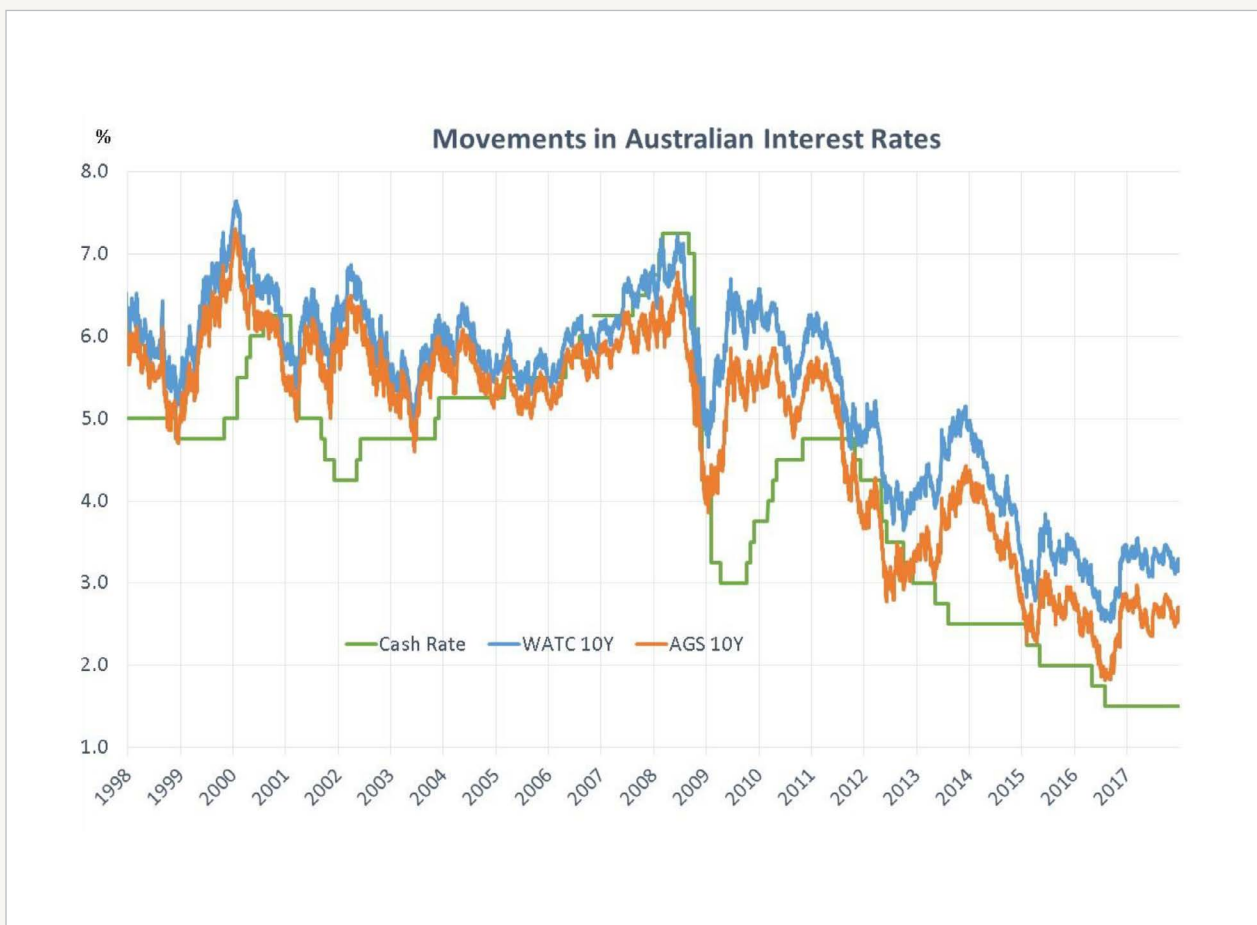
The margin at which WATC benchmark bonds have traded relative to the market benchmark (e.g. 3-year and 10-year AGS) has become larger and more volatile over time as evident in Figure 2 for the 10-year bond time series shown.

In the period prior to the GFC (approximately 1998 to mid-2007), WATC 10-year bonds traded at a fairly consistent margin of approximately 0.2% above 10-year AGS.

The onset of the GFC and beyond saw the stable relationship between AGS and semi-government bonds as a general class of securities become larger and more volatile. In more recent years, aspects specific to Western Australia have exacerbated the size and volatility of the relationship. For example the trading margin was negatively influenced when Standard & Poor’s first downgraded Western Australia’s credit rating from AAA to AA+ in September 2013, and also by subsequent announcements of ‘negative outlooks’ that have signalled the possibility of further downgrades. The supply of WATC bonds in the debt market, as required to finance government expenditure, has also increased significantly in recent years relative to other states.

The margin at which WATC issued floating rate notes trade relative to 90-day BBSW is greater the longer the yield to maturity, and will also vary according to above noted factors in a similar to way to benchmark bonds.

Figure 2: Time series of WATC and AGS 10-year bond yields compared to RBA cash rate



Debt Products Offered to Our Clients

WATC provides a range of debt products (i.e. loan types) to clients, and acts as an intermediary between clients and the debt markets where the required funds are ultimately sourced through issuance of WATC debt securities as outlined previously.

WATC provides daily information on indicative pricing for the loan types offered to various maturity dates. WATC is able to offer a much wider range of maturity dates than those of its issued securities as outlined in Table 1, and is generally able

to lend to clients at any time they require debt finance and to any maturity date required. It does this by managing all assets and liabilities at an aggregate level, and using derivatives such as bond futures and interest rate swaps to manage exposures and bridge client lending and debt market issuance timing mismatches. WATC is self funded and recovers its costs by charging an administrative margin on client loans.

Table 2 contains the most commonly used debt products by WATC's clients, with an indication of how they are funded which determines the basis of the interest rates charged on client loans.

Table 2: WATC debt products – interest rate determination and main users

Debt product	Description	Pricing basis and WATC funding source	Purpose and benefits	Appropriate for clients / Clients currently using
Working Capital Facility	Overdraft and short-term cash management account in one – no fixed maturity date. Strictly controlled debit balance limits based on assessment of client business need.	Priced relative to the RBA overnight cash rate. No specific WATC issuance program, intermediated through overnight deposits and WATC liquidity management.	<ul style="list-style-type: none"> Provides liquidity support – in lieu of Agency holding large cash reserves. Manage timing mismatches between receipts and payments. Facilitates optimising investment management of surplus cash. Facilitates optimising the timing of core debt drawdowns. 	Government Trading Enterprises and Universities.
Short-term loans (liquidity lending)	Short-term client loans typically for terms between two weeks to six months (maximum one year).	Funded through WATC issuance of commercial paper which is priced at a margin to BBSW, which determines client pricing for the loan term required.	<ul style="list-style-type: none"> Construction financing progress payments – converted to long-term amortising loan once project completed. Accumulation of core debt maturities to enable repayment at face value (e.g. from planned forthcoming asset sales). Accumulation of borrowings to be placed in long-term borrowings once sufficient volume achieved or to meet specific timing requirements. 	Construction financing for Local Government, Port Authorities and Universities. Debt accumulation to support repayment or placement in term debt for a broad range of medium and large Government Trading Enterprises.
Fixed rate amortising loans	Fixed interest rate loans with capital and interest payments at set intervals, typically every one, three, six or twelve months - most commonly as an annuity. Tend to be longterm loans, often in the 10 to 20 year range.	Funded by WATC issuance of benchmark bonds across several maturities and appropriate derivatives where client loan term is much greater than longest maturity benchmark bond, priced off WATC fixed rate lending curve. This creates additional risk for WATC to manage, therefore the bid / offer spread in the lending curve is wider for terms greater than 12 years.	Typically for loans tied to specific projects or subsidised industry programs. Where repayment obligations are transferred to third parties or have stable revenue streams from the project funded, this loan type facilitates risk minimisation. Also provides budget certainty for debt servicing.	Local Government, Port Authorities, Regional Water Corporations, General Government industry support programs (e.g. Agriculture and Fisheries) and Universities.

Debt product	Description	Pricing basis and WATC funding source	Purpose and benefits	Appropriate for clients / Clients currently using
Fixed rate interest only loans (bonds) – including within Debt Portfolio Manager	Fixed rate interest only loans with interest payments at a set interval, typically three or six monthly. Loan term typically in the range of 2 – 10 years.	Funded by WATC issuance of benchmark bonds closest to the required maturity date, priced off WATC fixed rate lending curve. Often forward funded for very large client requirements, matched directly to market issuance.	Commonly used to support borrowing on an aggregate corporate financing basis, with many such loans forming a diversified fixed rate debt portfolio. This is the basis of client fixed rate loans managed by WATC through the Debt Portfolio Manager (DPM) – where an evenly balanced portfolio with quarterly maturities out to a maximum maturity term, typically 10 years, is targeted.	Government Trading Enterprises (GTE's), Universities and Treasurer on behalf of the State.
Term floating rate loans (individual)	Variable (floating) rate interest only loans with interest payments at a set interval (typically three or six months), with interest rate reset for each interval based on the market reference rate (3 or 6 month BBSW). Loan term typically in the range of 2 – 9 years.	Funded by WATC issuance of floating rate notes or benchmark bonds overlaid with interest rate swaps. Forward funded for very large client requirements, with maturity date and pricing (as a 'margin' to the market reference rate) matched directly to market issuance.	Commonly used to support borrowing on an aggregate corporate financing basis, with many such loans forming a diversified floating rate debt portfolio, or to match the liability structure of assets. Often combined with a DPM fixed rate portfolio to meet the client's interest rate risk management objectives set through its debt management strategy with WATC.	Large GTE's and Treasurer on behalf of the State.
Term floating rate loans (Debt Portfolio Manager)	Variable (floating) rate interest only loans with quarterly interest payments and quarterly maturities out to a maximum term of 5 years.	Funded by WATC issuance of benchmark bonds overlaid with quarterly interest rate swaps, priced as a 'margin' to three month BBSW.	Designed as a balanced portfolio of floating rate loans with quarterly maturities typically out to 5 years, to meet a client's floating interest rate exposure targets under the DPM settings. Typically combined with a DPM fixed rate portfolio to meet the client's interest rate risk management objectives set through its debt management strategy with WATC.	Universities, small and medium sized GTE's.

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