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How do rising rates impact the pricing and performance of Australian RMBS & ABS?

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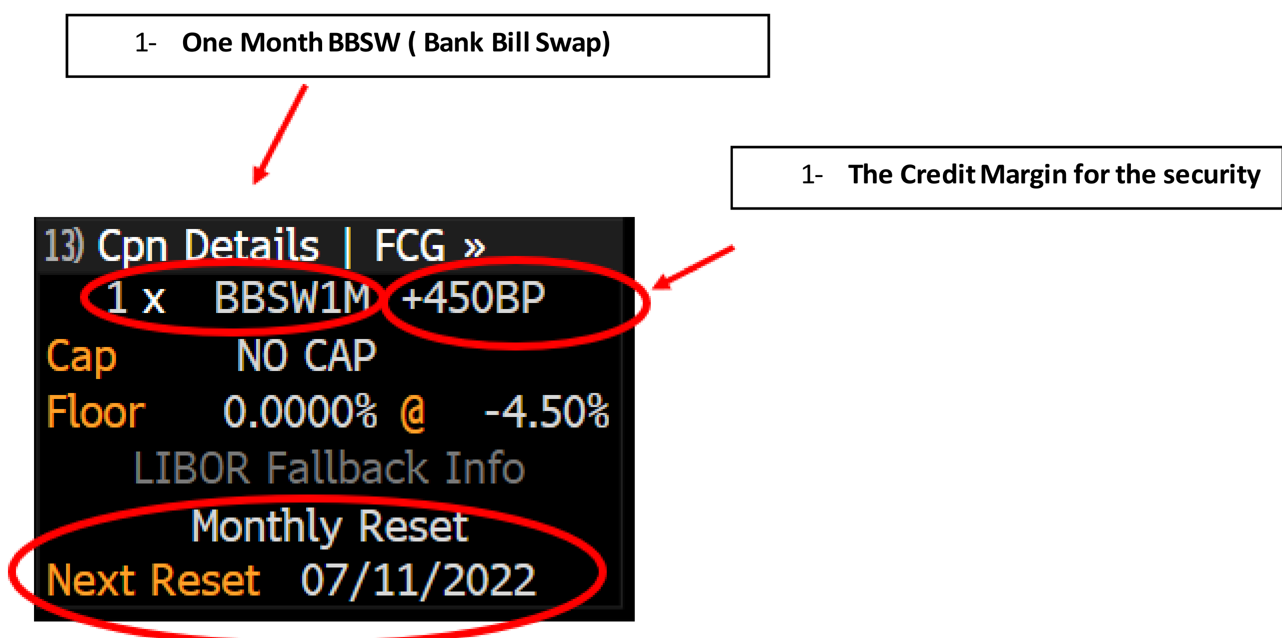
In the wake of June's bond carnage investors are naturally concerned around how their exposure is affected by rising rates. For example, does the yield I receive change? Will the price of the bond decline because of the change of interest rates? These questions are completely reasonable given the volatility of markets more recently. In this short note we will cover off on how the mechanics of interest rate rises wash through to the income you receive and how they impact the price of securities. We will also touch on what rising rates might mean for the performance of loan pools and asset backed securities more broadly.

What Do Rising Rates Mean to The Income On My Portfolio?

The graphic below provides the coupon information for a general RMBS instrument.

When you hold this security, the income you receive is made up of **two parts:**



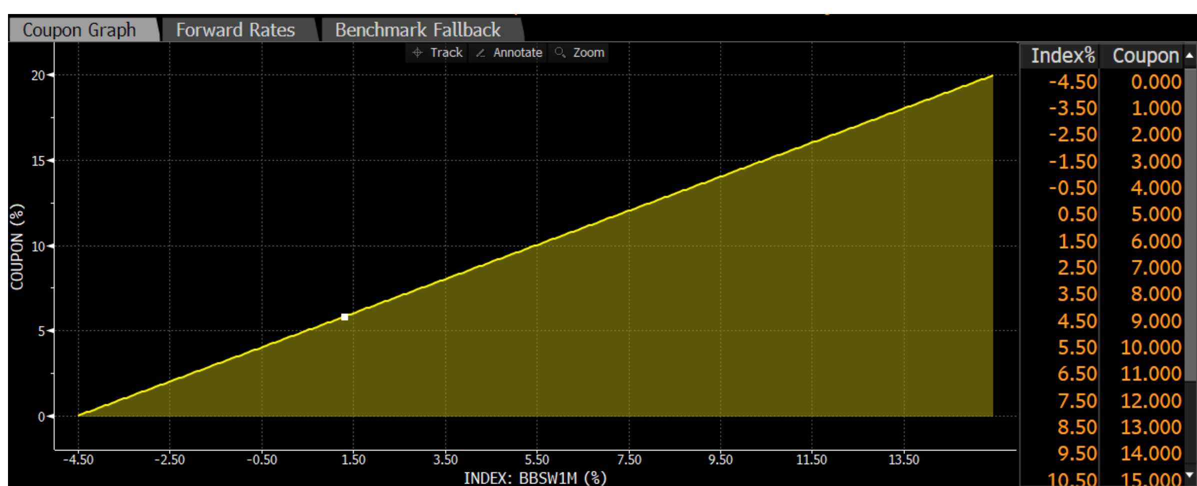
One Month BBSW – This is otherwise known as a reference rate. It can be simply thought of as the interest rate banks charge each other for a 30 day period. The 30 day BBSW market is a live market, the rate of BBSW will reflect the expected interest rate over the next 30 days and generally a small premium to reflect the credit and liquidity risk of the interbank market. To put it very simply you can expect that 30 day BBSW will reflect the immediate one month cash rate outlook. Ultimately it would be impractical to take a daily snapshot of this rate for the purpose of paying coupons as such the rate

re-sets on a pre-agreed day every month, this then becomes the observed 30 day BBSW rate for the following month. This has been circled below and shows a date (using American convention) of 11th July 2022. What this means is that on the 11th of July the 30 day BBSW rate will be observed and will re-set the coupon rate for the next 30 days. Therefore, this kind of security is known as a floating rate note, because the income payable changes (or floats) in line with changes in interest rates. This needs to be distinguished to a fixed rate bond, where the interest rate you receive doesn't change, regardless of where interest rates have gotten to.

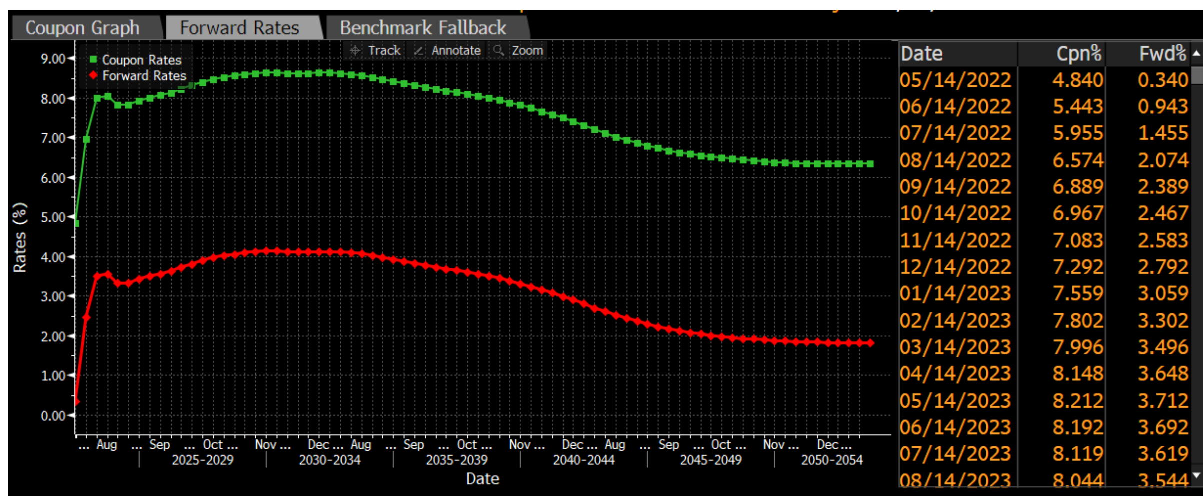
What this means is that these bonds are not directly impacted by a change in interest rates, as the coupon or income you receive is essentially getting reset higher every month as interest rates are rising (and lower as interest rates are dropping).

Credit Margin - The credit margin is expressed in basis points (+450bp), in layman's terms it is 4.5% above the 30 day BSSW. This figure is static, it does not change. This is the amount you receive for the risk you are taking in holding the bond. The lower the liquidity of the bond, the greater its complexity and the higher its risk, the more you get paid. As concern rises around the credit worthiness of this market, investors may demand a higher level of compensation, this is what will drive a change in the price of the bond. This is otherwise known as credit risk.

The graphic below expresses how the coupon you receive will change as 30 day BBSW rises. In simple terms your coupon will always be 4.5% above 30 day BBSW. Currently 30 day BBSW is at 1.3%, under this scenario you will receive 5.8% currently.



To provide a current forward looking context, the graphic below maps the expected path of BBSW. As of the time of writing the market is expecting 30 day BBSW to peak at 3.712% on the 14th of May 2023 before leveling off. It's important to remember that even though this is what the market is pricing, it is not a guaranteed rate and may not materialize (actual 30 day BBSW by that time could be lower or indeed higher). However, if 30 day BBSW does get to 3.712%, the coupon of this security will rise to a very healthy 8.212%.



Date	Cpn%	Fwd%
05/14/2022	4.840	0.340
06/14/2022	5.443	0.943
07/14/2022	5.955	1.455
08/14/2022	6.574	2.074
09/14/2022	6.889	2.389
10/14/2022	6.967	2.467
11/14/2022	7.083	2.583
12/14/2022	7.292	2.792
01/14/2023	7.559	3.059
02/14/2023	7.802	3.302
03/14/2023	7.996	3.496
04/14/2023	8.148	3.648
05/14/2023	8.212	3.712
06/14/2023	8.192	3.692
07/14/2023	8.119	3.619
08/14/2023	8.044	3.544

So, what does that mean for the yield on our **Realm Strategic Income Fund – Enduring Units.** The approximate month end yield to maturity sat at 6.5%, this is approximately 0.45% higher than the yield to maturity at the end of May. Given the movement in 30 day BBSW over the end of June and first week of July, the Yield to Maturity of the fund has now risen to 7%. That will continue to rise as the RBA moves cash rates to neutral settings. If the BBSW estimates above come to fruition, that will lead to this portfolio delivering a yield to maturity of approximately 9% by mid-2023.

Will Rising Rates Lead to People Defaulting & Will It Impact the Value Of My Portfolio?

One thing that has been a source of some surprise for me has been the level of concern investors have expressed around how rising rates will impact home loan performance. The questions from clients seem in some cases to take a spike in default rates and a collapse in property prices as a fait accompli. What is more, it is interesting that these concerns always seem to focus squarely on the RMBS and ABS market. The concerns are often not related to the impact a collapse would have on their bank shares or for example on their hybrid securities.

To that end it is important to circle back on the nature of the risk you take when you invest in RMBS & ABS.

The Law Of Large Numbers – The Risk Of The System…

RMBS and ABS (whether they be private or public securities) are as a rule made up of thousands of individual risks. They are designed with the explicit purpose of diversifying away idiosyncrasies. The process of putting together a loan pool is driven by **diversification** and **equalization**.

Diversification: Loan pools are not simply diversified by their large number; they are also diversified by all meaningful characteristics. For example, geography (by state, metro vs regional), collateral type (apartments vs free standing vs semidetached), loan to value ratios, loan sizes, nature of employment and a myriad of other factors. The objective is to smooth out risk concentration and make the pool of risk reflective of the broader economy.

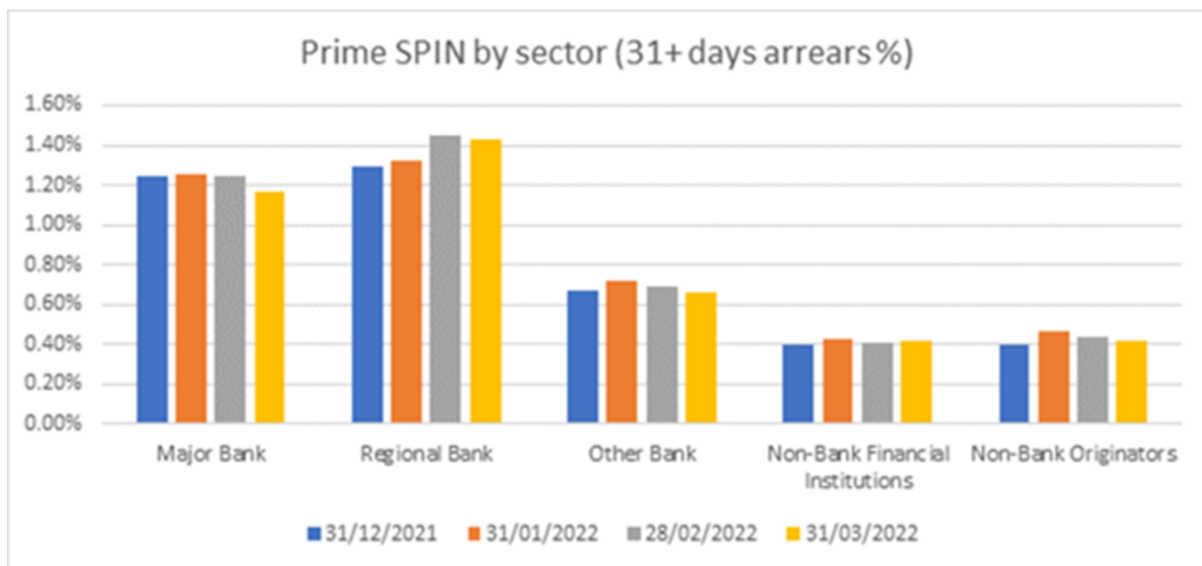
Equalization: The next step is that any risk concentrations are offset by a need for more capital support. For example, a lender that issues a pool that has higher loan to value ratios, or more investor loans will be forced to support the structure by putting more money underneath the investors. In essence they must provide you with more protection if they take more risk within the pool. This creates an equalization of risk, which brings the ratings into line with each other, whether we are talking about a pool of prime mortgages, or a pool of automotive loans.

Designed To Be Tested…

One of the other misconceptions also relates to what these structures are designed to be able to absorb from a risk perspective. The nature of these structures is such that they require significant defaults and simultaneous precipitous property value declines to be broken. The stress tests are generally also conducted in a very short period (around 12 to 18 months) and never assume any level of support from government (this is despite the fact that COVID and the GFC proved that Treasury, the RBA and APRA will work together to support the system during these events). These structures are built to navigate recessionary environments.

To illustrate how these structures work we have provided an example of how we stress test pools, and provided a research-based opinion around how bad things need to get for investors to experience loss. When modelling for loss the calculation is based on a number of fundamental factors:

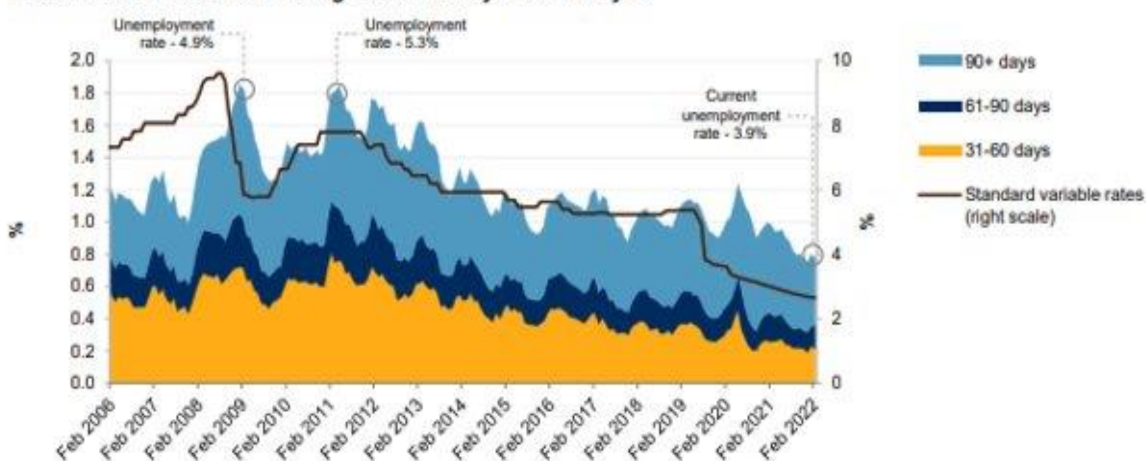
The relationship between arrears & defaults: At any point in time any number of borrowers are falling behind on their mortgage. In Australia at the moment for example there are about 0.70% of prime mortgages that are behind on their repayments. Historically, this number has trended closer to 1.5%, illustrating the stability of the Australian economy and the general health of mortgage borrowers. The vast majority of these borrowers don't default, but rather work back to current as they deal with the extenuating circumstances that they may face. That being said, in an economy that is deteriorating, it is harder for borrowers to come out of arrears, this is generally based around employment conditions.



That brings us to the importance of **Employment –** When dealing with RMBS, investors often become fixated on the property market, they miss the point that the asset you are secured on is the loan. The ability for a borrower to repay that loan is what you are relying on, the property is only there to call on as a last resort. As such, employment conditions will generally drive a change in underlying arrears. We can see that the previous unemployment peaks of around 5% in 2009 and 2011 coincided with arrears rising to about 1.8%. It's important to note that these were periods that the performance of Australian RMBS was not remotely threatened. In terms of stress testing mortgage pools, the approach taken is that as the economy worsens, it gets harder for those that lose a job to find another, this means that more people who fall into arrears eventually become defaulted borrowers.

Chart 1

Arrears And Interest Rate Changes Have Always Been In Sync



Source: S&P Global Ratings, Reserve Bank of Australia, Australian Bureau of Statistics.
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The table below provides some output which maps the likely impact of an environment that is undergoing an increasing level of stress from the perspective of a prime major bank issued mortgage pool. As unemployment rises, we assume arrears and defaults rise at an increasing rate. We have also made a flat property price decline assumption of 55% which is 10% above AAA stress tests. The table maps how a rise in unemployment impacts arrears, defaults and ultimately losses for a pool of assets. The table below provides an indication of where the RMBS structure begins to be impaired and contrast this against how the banking system would be fairing at an equivalent point.

Recent RMBS Transaction														
Event Severity	1	2	3	4	5	6	7	8	9	10	11	12	13	14
Unemployment	7.00%	7.97%	9.37%	10.19%	10.95%	12.09%	13.14%	14.51%	16.17%	18.44%	18.98%	19.07%	19.08%	19.03%
Property Price	55%	55%	55%	55%	55%	55%	55%	55%	55%	55%	55%	55%	55%	55%
Arrears	2.11%	2.87%	3.97%	4.61%	5.20%	6.10%	6.92%	7.99%	9.29%	11.07%	11.49%	11.56%	11.57%	11.53%
Defaults	1.28%	1.79%	2.56%	3.07%	3.59%	4.36%	5.12%	6.15%	7.43%	9.22%	9.99%	10.51%	11.02%	11.53%
Losses	-0.29%	-0.16%	0.03%	0.15%	0.28%	0.47%	0.65%	0.91%	1.22%	1.66%	1.85%	1.97%	2.10%	2.22%
Insured % of losses	0.00%	0.01%	0.01%	0.01%	0.01%	0.01%	0.02%	0.02%	0.02%	0.03%	0.03%	0.03%	0.03%	0.04%
Net Losses	-0.29%	-0.17%	0.02%	0.14%	0.27%	0.45%	0.64%	0.89%	1.20%	1.63%	1.82%	1.94%	2.06%	2.19%
RMBS Impact			Equity Note			BB Note		BBB Note		A rated Note			AA Note	
System Events			Major Banks Run At loss			Bank Tier 1 Coupons Under Threat	US GFC Level U/E Rate			Mortgage Insurance Fails				

So where does employment need to get to for the gears to start to grind? What you find is that stress levels start to become more acute as market foreclosures move through 1%, on our estimates, this might relate to an unemployment rate of above 7%. This kind of environment would see bank profitability meaningfully impaired and the beginning of a solid upswing in the provisioning cycle.

As unemployment progresses between 7% to 10%, our assumption is that we start seeing a more meaningful number of borrowers start to fall behind. 10% unemployment, your default and foreclosure rates are being pushed to near 4%. On our numbers that would equate to 151,000 homes being sold out from under the owner. In our opinion, this is a phase where it is highly likely that you start to see forbearance from regulators and central banks. Just so we can get a sense of the numbers, the last census reported that there are 10.8 million households and 35% are owned with a mortgage. This is not contemplated by the rating agencies or our modelling.

Unemployment above 12% - At this stage the rated part of RMBS structures start to become impaired at the sub-investment grade attachment point. This would broadly coincide with bank equity trading at very steep discounts to book value and the hybrid market starting to trade at heavily distressed levels, this is the point where the risk of coupons being deferred for hybrids begins to rise.

As unemployment breaches 13% we are now at a point that is broadly consistent with the US GFC experience. Beyond this point the situation deteriorates at an increasing rate as the financial systems firewalls are breached.

This should make it apparent that it takes a lot to break these structures. Remembering that the average weighted rating for our private Realm Strategic Income Fund is on the cusp of BB+/BBB (which coincides with the level 7 type of event noted above.

The other question that often arises is that of property prices. Put as simply as possible, if you don't default the property price does not matter. There are no margin calls on residential property, the bank will not call you if prices have declined by 30% and ask you to tip more money in. This highlights that the key factor is that of loan performance. If borrowers do default, the value of the home does act to mitigate loss. In the table above a flat assumption of -55% is used, which is conservative and more severe than the rating agencies AAA test.

The other key point to note is that when losses are big enough, they become the problem of governments, regulators and central bankers. We know that during COVID the government directed the AOFM to create a mechanism that would assist in simultaneously delivering forbearance to borrowers and financial support to non-bank issuers. The lessons of the GFC and the Euro crisis have been learnt. Forcing households into foreclosure creates societal carnage and permanently destroys economic capacity which takes decades to recover. The modern and humane approach is to help the system navigate periods of stress by giving them time, and time when it comes to banks or RMBS structures is fundamental.

Forbearance….

During COVID, lenders delivered repayment holidays to borrowers helping them navigate the pandemic. This wasn't the first time; indeed we know that repayment holidays and recapitalization of debt was used to help people stay in their home during the GFC also. Then there is the case of the Queensland floods, where banks provided support to affected parties, seeing them navigate the event. What this tells us is that when we are dealing with large events, banks, financiers and

government will work to avoid foreclosures. Avoiding the act of foreclosure provides enormous support for a financing structure, as it means that the structure is not forced to realise a loss by selling property at heavily impaired prices.

As an example, if the average mortgage rate of a loan pool is 3% and 10% of people are not paying, that creates an annual impairment of 0.3% (3% X10% = 0.3%). The net interest margin of prime loan pools will generally approximate 0.60% to 0.80%, meaning that a 0.30% impairment does not even get through the income created by the trust. To provide some context, that would broadly relate to bank profits halving (but remaining positive).

However, if those 10% of people were forced to sell their properties in one given year, that would create significant losses that would almost overwhelm the AA rated notes in RMBS structures and would drive the banking system to non-viability. Again, there is no reason for the system to cut its nose to spite its face. More importantly, still the nature of the risks we are taking with RMBS is at a system level, meaning that if things are bad for us, they are bad for everyone. Ultimately these are page 1 type risks that will see investors supported by all layers of the bureaucracy.

Rising Rates & Loan Performance

Several investors have expressed concern about how rising interest rates are likely to impact home loan performance. With interest rate markets projecting cash rates above 3% for 2023, investors are concerned about the ability of households to absorb the impact of rising interest rates and inflation. S&P have produced a timely piece of work around mortgage stress and the impending rate rises. Table 1 provides information on average interest rates and loan sizes by year, meanwhile chart 4 looks at how rate rises impact household finances. Interestingly, an increase of a full 3% does not see any vintage approach the notional distress level of 30% of income in the prime market. These tests have been conducted by S&P against all outstanding RMBS. Even those mortgages written in 2021, which have higher mortgage sizes and were written at lower rates maintain a healthy buffer versus the notional distress point.

Clearly higher interest rates will impact aggregate demand, this is after all the intention of the rate rise. It's also reasonable to infer that this will impact economic activity and act to cool an overheating labor market, however rate rises equating to 3% will not be sufficient to create any kind of meaningful stress on underlying mortgage performance. We do expect arrears to rise off the current record low levels, with 2021 mortgages the most vulnerable cohort, we also expect property prices to decline, however we are clearly not talking about an event that threatens the stability of the financial system.

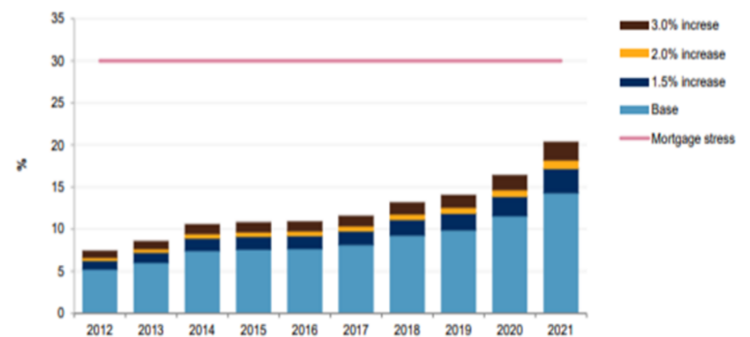
Table 1

Prime RMBS Fact File

Vintage	Weighted-average loan size (A$)	Weighted-average interest rate (%)	Fixed-rate exposure (%)	Exposure to loans >750K (%)
2012	119,069	3.4	10.9	0.0
2013	140,383	3.2	2.2	1.9
2014	171,532	3.3	2.4	2.9
2015	176,313	3.3	13.4	2.3
2016	178,087	3.3	16.2	2.8
2017	190,467	3.2	15.5	3.2
2018	219,298	3.1	15.1	5.7
2019	231,496	3.2	19.1	5.3
2020	267,723	3.3	14.5	9.7
2021	342,352	3.0	19.1	16.5

Chart 4

Prime Mortgage Repayments As A Proportion Of Household Income Under Rising Interest Rate Scenarios By Vintage



Source: S&P Global Ratings, Australian Bureau of Statistics
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Source S&P

The RBA has also released an interesting piece of research in their last bulletin. The research focused on the liquidity buffers households have managed to build and the importance of these buffers in reducing the prospect of household arrears and defaults. Some of the key insights are noted below. The fact is that Australian households have never been in better shape. The liquidity buffers are significant and put mortgage holders in an excellent position to deal with elevated interest expenses and indeed periods of employment stress. Indeed, as the graphic below illustrates, Australian liquid assets now equal debt for the first time since the Pre GFC period. While there has been a lot of discussion on the level of household debt, the surge in household savings and the large level of prepayments is often ignored by doomsayers.

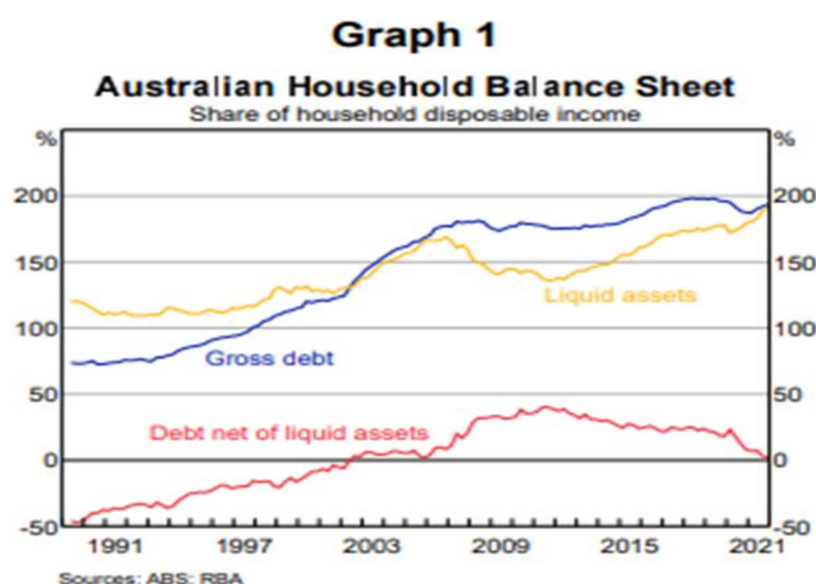
Please see the commentary from the RBA below:

"*The risks associated with the high and rising DTI (Debt to Income) ratio may not be as great as suggested by the gross DTI ratio alone.*"

"*Indeed, after taking the rapid growth in liquid assets into account, the household sector's net DTI ratio has declined substantially over the past 10 years or so, and especially during the pandemic period when household liquid assets grew rapidly.*"

"*The value of household liquid assets now almost matches the value of gross household debt.*"

"*Specifically, indebted households have accumulated substantial buffers and, within this group, **those with the most debt have tended to have higher buffers than those with less debt.**"*



In closing, RMBS instruments will see their coupons rise in line with interest rates, this will be directly reflected in the yield to maturity of the Realm Strategic income fund. In terms of performance what should become clear is that these instruments are robust and require a significant deterioration in the economic environment to be threatened, something worse than a deep recession. Arrears remain at 26-year lows in both prime and non-conforming markets.

According to S&P, rising rates will drive arrears higher, however well within tolerable bands, the prime market is well positioned to absorb 3% hikes in rates. Meanwhile, the RBA has completed work pointing to a significant build up in financial buffers. What is more, the RBA's work supports the view that strong financial buffers are a mitigating factor in mortgage distress.

It is our view that buffers are stronger than what is implied by the RBA given that the research covered the period ending 2018. We note that household savings have increased by 27% since early 2019. RBA work also finds that borrowers with higher loan balances and investor loans are generally supported by high financial buffers. Indeed, the RBA notes that liquidity buffers are well matched to leverage rates. We note that the key driver of arrears will ultimately be the unemployment rate. It is expected that unemployment will rise from the current historically low levels, however median estimates from forecasters point to a Q4 2023 unemployment rate below 4%. This is not a figure which would be expected to increase the level of mortgage stress materially.

We note that none of these scenarios relating to rising rates begin to approach a tipping point for the Australian RMBS market. Headlines relating to property market declines customarily act to spook investors around Australian RMBS, however investors need to understand how well engineered these structures are and the fact that they are designed to withstand periods of significant market stress. That being said, these headlines do create an aversion which generally leads to pricing becoming more attractive, something that skilled investors who understand the market will have the ability to exploit.

Our approach through this period will be to consolidate our position as one of the pre-eminent managers of Australian Public and Private RMBS, by securing relationships and funding structures with the best non-bank financiers in the market at attractive rates of return for our clients. While this environment calls for vigilance, it also requires understanding and context lest investors fall under the spell of scaremongers and purveyors of soundbites.

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