

Are Australian households more constrained than we think?

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In recent years the Australian economy has been characterised by increasing housing-related credit growth, combined with rapidly appreciating house prices and weak income growth. This has increased the risk of a correction in the residential property market and a deterioration in the asset quality of those institutions providing credit.

Well-publicised is the high household debt to income ratio in Australia – one of the highest in the world at around 200 per cent of disposable income – and the risks this level of indebtedness presents to financial institutions and the economy more broadly. However, a more complete picture of these risks becomes apparent when assessing the borrowers' living expenses using standards similar to those of European banks.

In the following three sections, this paper aims to provide a more complete picture of the risks to the Australian housing market and the impact on financial institutions, first through an analysis of household incomes and mortgage repayments; secondly, through an analysis of the impact of transitioning mortgages from Interest Only (IO) to Principle and Interest (P&I). Finally, it poses the question whether a deterioration in asset quality could deplete the capital position of Australian financial institutions.

1. Adding household expenses into the equation

Traditionally, the credit assessment process of Australian banks has placed a greater focus on the borrower's income, with limited assessments of their living expenses. Since 2015, the banks have tightened assessments and applied larger reductions on certain income sources such as rental income, bonus and commission payments. However, assessing a borrower's living expenses remains an area of weakness, partly due to the lack of available statistics.

To estimate expenses, Australian banks typically use the higher of either an income-and/or household-size-scaled version of the Melbourne Institute's HEM (household expenditure measure) or the borrowers declared expenses. Problems with using expenditure estimates are compounded by Australian banks using income multiples to assess borrowing capacity. This is in contrast to many European banks, which limit the maximum loan amount to a fixed percentage (serviceability ratio, typically 33 per cent) of the borrower's disposable income. In our view, the European approach is more defensible as it places a lower importance on the assessment of household living expenses being completely accurate. Under the Australian approach, the exact assessment of income and expenses remains key to ensuring sound underwriting practices.

Incorporating expenditures into the borrowing capacity assessment can give a more representative measure of serviceability; we have demonstrated the relative financial inflexibility of households below. A median monthly Australian household disposable income of \$6,231 and a monthly mortgage repayment of \$1,755, results in a serviceability ratio of 28 per cent¹. This ratio increases to 30 per cent in Sydney's eastern suburbs and 37 per cent in Sydney's west. This partly reflects the lower household incomes in Sydney's western versus eastern suburbs despite adjusting for differences in the median house price. We consider the serviceability ratio in these suburbs high – notably, in western Sydney, due to the variable rate trend of Australian mortgages in a low interest rate environment.

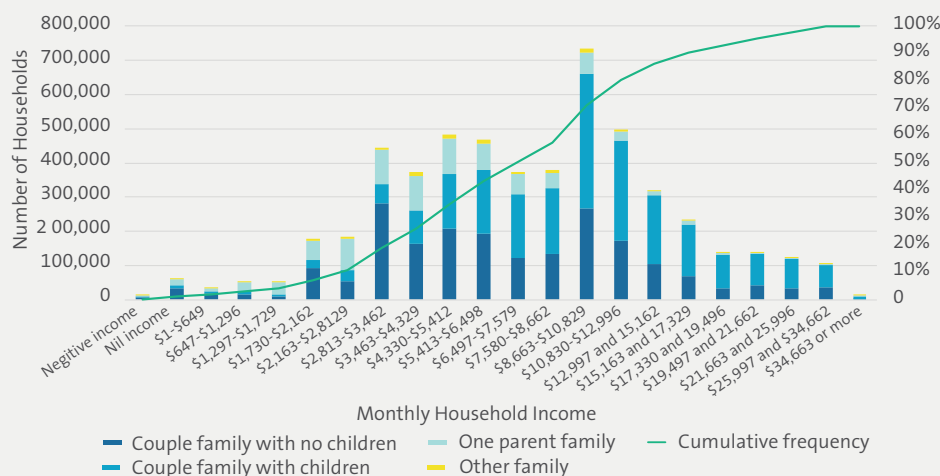
This serviceability ratio highlights how vulnerable households are to increases in mortgage rates which may not necessarily be driven by Reserve Bank of Australia rate increases. Discussion of IO-mortgages and the transition to P&I-mortgages in section two of this paper relates to this point.

“Incorporating expenditure into the borrowing capacity assessment can give a more representative measure of the borrower's ability to service”

¹ Source: ABS 2016 Census

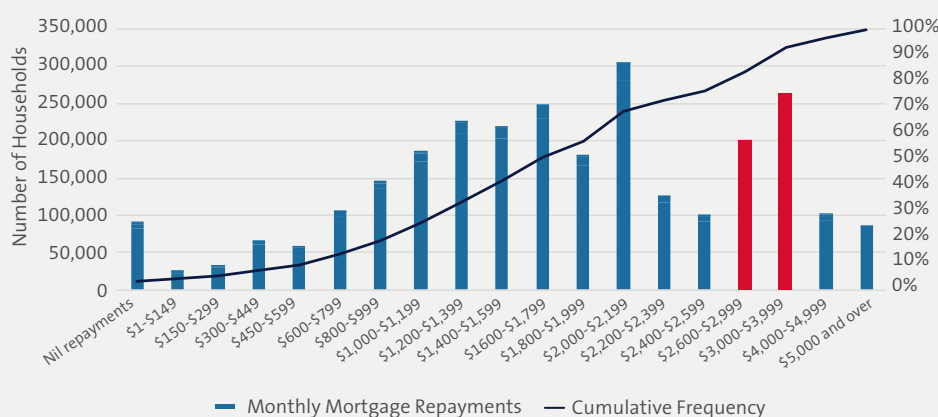
The relative financial inflexibility of households is further highlighted by a comparison of the distribution of monthly household incomes and mortgage repayments, as mapped out in the charts below.

Chart 1: Monthly Household Income



Source: AMP Capital, ABS

Chart 2: Monthly Mortgage Repayments



Source: AMP Capital, ABS

The difference in the shape of the distribution of these charts highlights the financial inflexibility of the average mortgage owner and their susceptibility to a change in their expense or income base.

As illustrated in Chart 2, monthly mortgage repayments show a second lower peak at the \$2,600-\$2,999 and \$3,000-\$3,999 brackets (shown in red) which is not matched in the distribution of household income shown in Chart 1. We are able to use the cumulative frequency distribution of Chart 1 and multiply this by the serviceability ratio (33 per cent) to calculate an implied distribution of monthly mortgage repayments. If we compare this implied distribution to the actual distribution as shown in Chart 2, we can see that approximately an extra 15 to 20 per cent of households are paying up to \$2,300 per month more than what they should be under the implied distribution. It is worth reiterating here that these ratios and distributions are derived in an environment of record low interest rates.

If we were to assess mortgage affordability based on income multiples, the picture would be similarly problematic, as the Australian median property price is seven times the median household income. These numbers increase even more in the metropolitan areas despite the higher median household income for these suburbs. Imposing a 33 per cent serviceability mortgage repayment cap on the monthly median household income, the median borrower would only be able to receive a loan of

approximately \$350,000. We recognise that on a national scale this implies a loan to value ratio (LVR) of 64 per cent, which is similar to the banks' current average LVRs at origination. What is concerning from the analysis though, is that home buyers in east coast metropolitan areas would require a significantly higher contribution of equity to purchase a house given the higher property prices but may lack the required increase in income. In fact, the implied LVRs for Greater Sydney and Melbourne areas are 48 per cent and 47 per cent which indicates that an extra ~17 per cent equity contribution is required or the LVR needs to increase above the recommended amount. These figures further highlight the financial inflexibility of the average mortgage owner and their susceptibility to a change in their expense or income base.

In addition, the maximum loan amount of \$350,000 compares to the average mortgage balance of \$264,000 as published by APRA in September 2017. This would suggest that serviceability should be manageable. However, averages disguise the problem with the riskier parts of the portfolio existing in the tails of the distribution. APRA's statistics suggest that 20 per cent of mortgages were written with LVRs exceeding 80 per cent resulting in mortgages significantly larger than \$350,000, therefore posing a serviceability risk.

The ineffective expenditure assessment is partially driven by the lack of a centralised credit bureau which shares comprehensive data amongst all banks. There are three credit bureaus in Australia which provide financial credit scores on individuals to banks.

The largest credit bureau is Veda Advantage which holds data on more than 11 million individuals in Australia and New Zealand. This represents slightly less than half of the combined population of both countries. The banks subscribe to credit bureaus to receive their services. However, there is no centralised credit bureau where all banks, utility and telecom companies can share credit experience data on individuals. We note this is different to other jurisdictions such as Sweden and Germany where institutions share information in one centralised source, ensuring everyone has access to the same information regarding a customer.

2. Interest-only and the transition to Principal & Interest

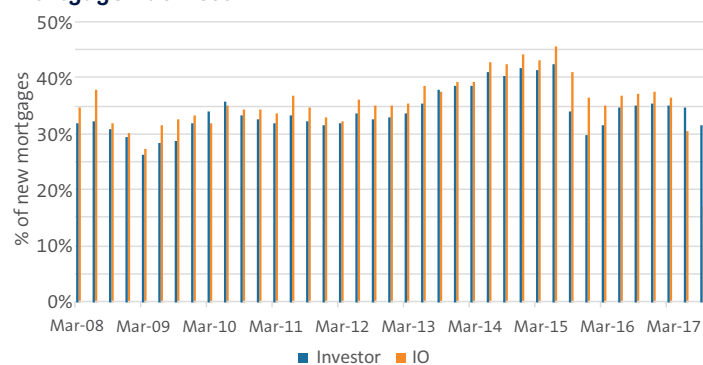
There is a large portion of IO-mortgages transitioning to P&I-mortgages which could increase financial stress for some households. Australian banks typically state their policy is to assess all borrowers on a P&I repayment mortgage suggesting the borrower would be able to repay the mortgage but chooses to only pay interest. We believe that households may be able to absorb some of the payment shock by either limiting their discretionary spending or reducing their savings, either of which in turn is likely to have an impact on the broader economy.

At its peak in mid-2015, Australian banks' IO-mortgages accounted for approximately 40 per cent of total outstanding mortgages. This has decreased to 35 per cent by September 2017. The trend of newly written IO mortgages is reflected in Chart 3 below.

Generally, IO-mortgages can be linked to investor mortgages which accounted for 39 per cent and 34 per cent of total mortgages in mid-2015 and at end-September 2017 respectively. IO-mortgage growth has been partly supported by investor mortgage growth as investors have an incentive to maintain their debt levels given the tax-deductibility of interest payments on an investment property loan while owner-occupiers are not incentivised to maintain their high debt levels.

However, when comparing the balance of IO-mortgages and investor mortgages, there is evidence that more IO-mortgages than investor mortgages were originated suggesting that owner-occupiers also use IO-mortgages.

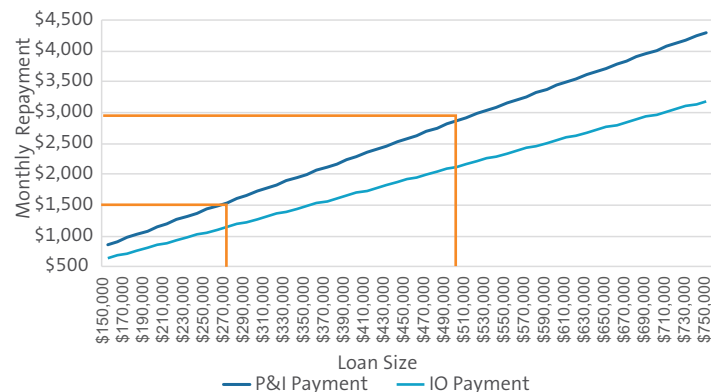
Chart 3: New IO-Mortgages Exceed Investor Mortgage Business



Source: AMP Capital, APRA

The difference in the mortgage repayments on an IO-mortgage and a P&I-mortgage can be significant depending on the size of the mortgage and the maximum repayment tenor. Our model estimates this increase to be close to 25 per cent (see assumptions in Appendix 1). The increase in monthly payments after transitioning is \$518 for the average IO-mortgage size (\$350,000), although this increases to \$740 for a \$500,000 loan and \$1480 for a \$1,000,000 loan. The impact of this increase in monthly repayments becomes even more significant when expressed as a percentage of disposable income.

Chart 4: IO vs P&I Monthly Repayments



Source: AMP Capital

Banks use mortgage repricing as a method to manage growth in new IO-mortgages which has resulted in a portion of existing IO-mortgage borrowers volunteering to switch into P&I-mortgages, reducing the existing risk in the financial system. This partly affects the banks' revenue generation and margin development. It also strengthens their balance sheets as we believe that only those borrowers with strong financial buffers would voluntarily switch into P&I-mortgages considering the larger repayment amounts.

We expect borrowers with weaker financial buffers to maintain their IO-mortgages as it improves their personal cash-flow position. However, we believe these customers are likely to experience the payment shock once they need to switch to a P&I-loan after the maturity of the maximum IO-term. For borrowers who wish to maintain their IO-mortgages, the primary concern is the inability to refinance their mortgage.

As a subset, for borrowers who have investor mortgages, an inability to refinance will likely result in them being forced to sell their property which may precipitate a fall in the property value with the risk that this becomes self-perpetuating. Whilst we do not suggest that customers will start defaulting on their repayments once these IO-mortgages transition, borrowers could face increased mortgage stress, particularly if other non-discretionary living expenses increase.

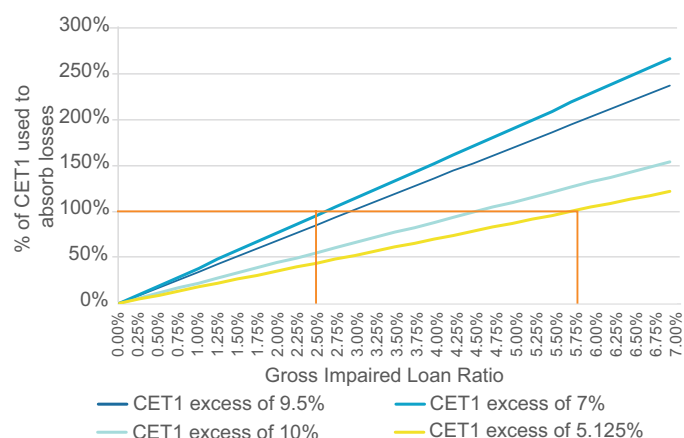
It is commonly noted that offset account balances are used to mitigate this risk. However, we believe the size of these accounts is quite insignificant in comparison to the size of the existing IO-mortgages since a portion of these offset accounts are connected to P&I-mortgages. Australian banks state that borrowers of IO-mortgages tend to hold savings in offset accounts. These account for between 7 per cent to 9 per cent of the banks' Australian mortgages at financial year end in 2017. However, these deposits are not viewed as legally reducing the outstanding mortgages. We believe that depositors are likely to draw on these offset accounts in the event of financial stress.

3. Implications for Financial Institutions

The following section attempts to estimate the potential impact of a deterioration in asset quality on the capital levels of the four major Australian banks (as a proxy for the wider banking industry). We do not assess the impact of the previously identified risks on a potential house price correction and on the broader economy. We believe that potential asset quality weaknesses are likely to occur in the banks' corporate and business lending exposures before becoming evident in mortgages. Whilst we recognise that the transmission mechanism is multifaceted, it is difficult to model the broader economic impact and the flow through effect on asset quality. As a result, we focus our analysis on the direct impact on capital due to credit impairments. We also note the caveats in this approach given its simplicity as management behavior to support profitability in such a scenario is difficult to model. This analysis also does not include loss absorbing debt instruments as their viability triggers are partially dependent on regulator discretion. The assumptions behind the model are presented in Appendix 2.*

We analysed the banks' capacities to absorb deteriorating asset quality while still maintaining adequate capital positions. Based on these assumptions Australia's four major banks would be able to withstand impaired loan ratios of around ~2.5 per cent if only common equity tier-1 (CET1) capital in excess of 10 per cent was used to absorb capital. The impaired loan ratio could increase to ~5.75 per cent if the loss absorbing capital base is expanded to include CET1 in excess of 5.125 per cent. Historically however, since 2000, banks have not experienced impaired loan ratios close to this theoretical maximum possible under a CET1 in excess of 10 per cent. This would also include the years during the global financial crisis although Australia's economy has not experienced a recession during this period. The maximum gross impaired loan ratio peaked at 1.70 per cent in 2010. The above analysis is conservative in its nature as it assumes zero recovery as well 100 per cent of impaired loans defaulting.

Chart: 5 Average loss absorbing capacity of Australian major banks



Source: AMP Capital, Bloomberg

The major four Australian banks are mainly exposed to households in their lending portfolios, accounting for between 41 per cent and 60 per cent of the individual major banks' total exposures at default

The major four Australian banks are mainly exposed to households in their lending portfolios, accounting for between 41 per cent and 60 per cent of the individual major banks' total exposures at default (EAD). Non-financial corporates account for around 25 per cent to 33 per cent of EAD, while the remainder reflects exposures to governments and financial institutions. This is in stark contrast to the profiles of Australian banks 20 years ago, when corporate exposures dominated the balance sheets. Banks' household exposures are largely comprised of residential mortgages which have been an area of concern for some investors. However, mortgages are full-recourse collateralised assets which provide a greater single name diversification than corporate exposures. Nevertheless, we recognise that household debt remains high, especially measured against disposable income. The increase in household indebtedness is partly a result of sustained house price appreciation, providing households with perceived wealth and subsequently increases in consumption. This is often through drawing down debt.

Conclusion

Financial stress of Australian households is becoming an increasing concern, driven in part by the two risks discussed in this paper. Despite this, we continue to be comfortable investing in Australian major banks due to their strong balance sheets, capital positions and earnings potential. This position is supported by regulatory intervention since mid-2015 which has resulted in a curtailing of riskier lending growth and an adoption of more stringent capital and liquidity metrics. The major banks reported CET1 ratios using the local regulator's approach range between 10.1 per cent and 10.6 per cent at end-September 2017. On an internationally comparable basis, the CET1 ratios range between 14.5 per cent and 16.2 per cent ranking them amongst the strongest banks in the world. Relative to peer countries this provides us with confidence that the Australian major banks maintain a sufficient excess capital buffer to absorb losses.

However, the macro-prudential rules only apply to Australian authorised deposit taking institutions. Non-bank lenders' mortgage growth has significantly increased suggesting they are originating mortgages to those borrowers that may find it difficult to refinance with their current financial institution. Hence, we believe that the risk associated with IO-mortgages is transferred outside the regulated banking system making banks' balance sheets safer, while the household leverage positions remain vulnerable. We continue to actively monitor the risk of the non-bank sector as well as the concerns associated with refinancing IO-mortgages. Extending regulatory oversight to non-bank lenders would make APRA's macro-prudential tools more effective in improving long-term financial stability. However, in the short-term, asset quality could deteriorate as over-leveraged borrowers may be unable to refinance. Our analysis leads us to conclude shows that the major banks would be comfortably positioned to absorb these risks supporting our continued holdings in major bank bonds.

Appendix 1

The calculation of monthly repayments under both a P&I and IO mortgage are based off the below assumptions.

Table 1

| P&I MORTGAGE | | |
|-----------------------------|----------|--------|
| Input | Value | Source |
| Annual Interest Rate | 4.80% | RBA |
| Number of payments per year | 12 | - |
| Loan Period | 25 years | - |

| IO MORTGAGE | | |
|----------------------|-------|--------|
| Input | Value | Source |
| Annual Interest Rate | 5.10% | RBA |

Appendix 2

Loss absorption capacity includes: excess capital above certain CET1 ratio, Pillar-3 provisions including GLRC, pre-LIC operating profit (assumed off FY17 financial statements). AT1/T2 conversion has not been assumed given the low viability trigger and a degree of regulator discretion being involved.

The analysis assesses the banks' profit performance, existing credit provisions, no recovery assumption and capital buffers assuming CET1 ratios would remain at the four thresholds identified.

*Our analysis and its conclusions are predictive in nature, and may be affected by inaccurate assumptions or by known or unknown risks and uncertainties and may differ materially from what actually occurs.

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