Speech

Interest Rates and the Property Market

RESERVE BANK OF AUSTRALIA

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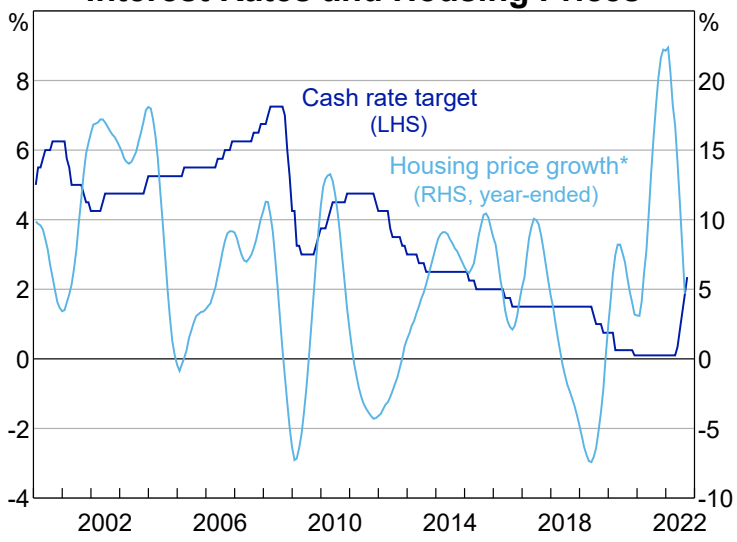
Thank you for the opportunity to speak today. The property market is something that is always topical in Australia. News coverage and the proverbial barbecue conversations seem to either fret that prices are rising too quickly, or that they are falling. The other popular topic in the news – particularly at the moment – is interest rates. Perhaps not surprisingly, there are important connections between property prices and interest rates (Graph 1).

Graph 1

Interest Rates and Housing Prices



* Seasonally adjusted.
Sources: CoreLogic; RBA

The property market influences economic conditions and so indirectly affects interest rates. Housing constitutes around half of households' wealth. With increased housing prices people feel richer and so spend more. The increase in housing equity means home owners can refinance their loan or borrow more to finance consumption. Also, higher housing turnover – which tends to go hand in hand with rising prices – results in increased spending on real estate services, removalists, durable household goods and so forth. And a property upturn increases investment; owners spend more on renovations and buyers are more willing to put down a deposit,

which means developers find it easier to get finance to commence a project.[1] Of course, when prices are falling the opposite of these effects occur.

Needless to say there are many factors influencing economic conditions other than property and the Governor spoke just over a week ago on the current drivers of monetary policy, so I'm not going to discuss those today. Instead, I will focus on why interest rates can influence property prices. I will initially focus on the housing market and provide some estimates of the sensitivity of housing prices to interest rates. I will then come back to commercial property at the end.

Interest rates affect all asset prices, including housing prices. Assets are valued for what they provide us in the future, be that dividends, coupon payments, rent or 'housing services', as well as potential capital gains. Because the value of assets depends on future cash flow, a crucial element of asset pricing models is an interest rate used to discount, or value, future streams of income (or capital gains). An increase in interest rates means that a given amount of income (or benefit) at a future date is worth less today, and so an asset with a fixed future stream of payments will be worth less today. Of course the future cash flow may also change with interest rates, amplifying or moderating the impact on prices.

This channel from interest rates to asset prices is just as important for property. In addition, property purchases are typically financed with debt. Increases in interest rates reduce the maximum amount that can be borrowed and increase the cost of servicing a given size loan. In this way higher interest rates also affect property markets by tightening the financing constraint for prospective property buyers.

Impact of interest rates on borrowing

A lot of media attention is placed on the increase in existing borrowers' repayments when interest rates increase. But higher interest rates also reduce the maximum loan size for prospective borrowers looking to purchase housing. A lender works out the maximum loan size for a prospective borrower by ensuring that the sum of repayments on that loan and the borrower's expenses do not exceed their income. Importantly lenders don't use the current interest rate on that loan in that calculation but an interest rate at least 3 percentage points higher than the current rate.[2]

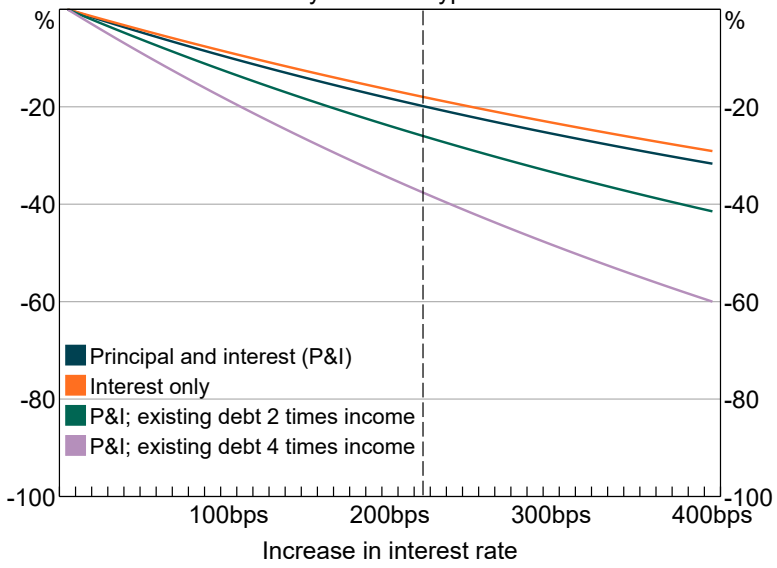
One year ago the Australian Prudential Regulation Authority (APRA) increased this 'minimum serviceability assessment rate' used in determining this maximum loan size to 3 percentage points from 2½ percentage points to reinforce the stability of the financial system.[3] The 50 basis point increase in the serviceability assessment rate reduced the maximum loan size by up to 5 per cent. At the time it was reported that this measure would act to 'take heat out of the housing market'.[4]

The increase in the cash rate since May has been 225 basis points, and so this has had a much larger impact on maximum loan size than APRA's requirement. Given this 225 basis point increase in the cash rate has been fully passed through to mortgage interest rates, it will have reduced borrowers' maximum loan size by around 20 per cent (Graph 2). And because the assessment rate also applies to any existing debt, the decrease in borrowing capacity is even larger for prospective borrowers who have existing debt, such as property investors.

Graph 2

Reduction in Borrowing Capacity

By borrower type*



* Assumes joint household disposable income of $150,000 and expenses in line with the Household Expenditure Measure (HEM).

Source: RBA

A change in mortgage interest rates has a greater impact on new borrowing than a change in the serviceability assessment rate because it affects not only a borrower's maximum loan size, but even more importantly their actual repayments. For example, with the 225 basis point increase in the mortgage interest rate – from average mortgage rates prior to May – monthly payments on a new (principal and interest 25-year) loan will be around 25 per cent larger. This increase in mortgage payments can influence how much people *want* to borrow.

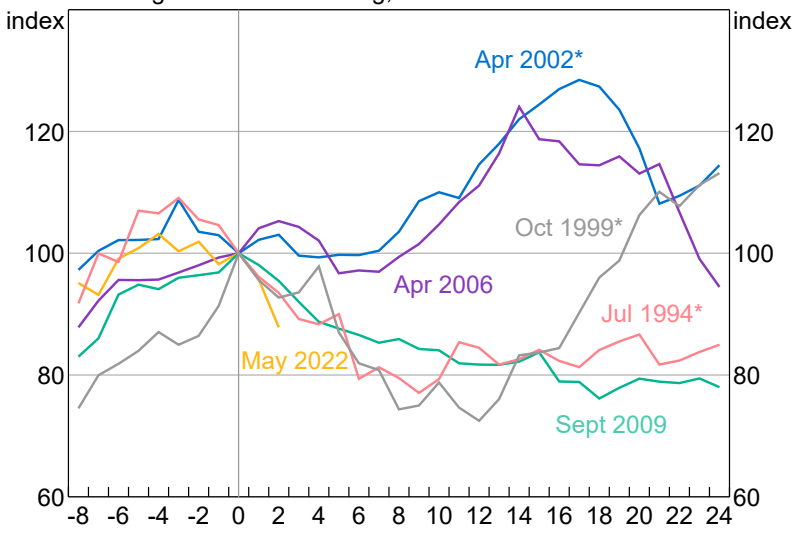
As an aside, it is important to note that this does not mean that all existing borrowers' *actual* loan payments have increased by one-quarter. Currently around 35 per cent of housing credit is fixed-rate debt, higher than the one-fifth that is more usual historically. These borrowers won't face an increase in their interest expenses and loan payments until their fixed rate expires. And a large share of variable rate borrowers have been making excess mortgage payments into offset and redraw accounts. For many borrowers, these larger payments will mean that actual payments need not increase by the full amount of the change in required payments that result from the higher interest rate. We will delve in to the impact of higher interest rates on borrowers in detail in the *Financial Stability Review* (FSR) to be released in a few weeks.

Unsurprisingly, because higher interest rates reduce borrowing capacity and increase loan repayments, they typically result in a decline in new housing borrowing (Graph 3). The timing and strength of the relationship between interest rates and housing borrowing can vary, not least because the factors driving interest rates, such as income growth, can also directly affect housing demand, but there is no doubt that interest rates are an important determinant of housing finance.

Graph 3

Housing Loan Commitments and Rate Hiking Cycles

Excluding external refinancing; months since first rate increase



* Owner-occupier commitments, excluding refinancing.

Sources: ABS; RBA

Impact of interest rates on housing prices

Sometimes, this impact of interest rates on borrowing capacity or the size of repayments on a new loan is used as a proxy for what effect changes in rates have on housing prices. But there are a number of reasons why such a rule of thumb can be misleading.

On borrowing capacity, most home buyers do not take out the maximum size loan that their bank will give them. In fact, in recent times, banks have reported that only around 10 per cent of borrowers take out a loan close to their maximum possible size. As a result, even if all borrowers' maximum loan size is reduced by 20 per cent in response to higher interest rates, not all new borrowers will have to take out a loan that is 20 per cent smaller. For many borrowers, the amount they spend on a new home would decline only slightly or not at all (including because their savings to be used as a deposit need not decline with higher interest rates).

Loan repayments typically represent a large share of the costs involved in home ownership, but there are other important costs. For this reason, a 'user-cost' model provides a more complete framework for assessing the cost of home ownership.

A user-cost model values housing based on how much it costs a 'user' of housing, equating the full cost of owning or renting a given house. To assess the cost of owning a house we need to take into account:

- purchase and sale costs, ongoing costs (such as repairs, rates and insurance), physical depreciation, and the cost of borrowing
- the expected capital gain from increases in housing prices.

While a user cost framework provides advantages for assessing the impact of interest rates on housing prices, it still has limitations. In particular, the simple framework imposes the change from interest rates on housing prices, when adjustment could also come through rents.

In the April FSR we used a user-cost model to estimate that a 200 basis point increase in interest rates – which increases mortgage payments and so the cost of owning – would lower real housing prices by around 15 per cent over a two-year period. While this 15 per cent decline was commonly reported as being a forecast for housing prices, it was not actually a prediction of how much housing prices would change. Rather it was an

estimate of how sensitive housing prices are to interest rates , assuming that all the other costs and benefits to housing don't change with interest rates.

Many factors other than interest rates also influence housing prices. For example, the demand for housing would be greater with stronger household income growth, increased population through immigration, or a preference for fewer people living in each household. Conversely, the supply of housing would be lower than expected if construction turns out to be constrained in some way. These factors would all lead to stronger demand, or weaker supply, for housing and so housing prices (and rents) would not fall as much as implied by interest rates acting in isolation.

The impact of interest rates on housing prices importantly depends not only by how much they change, but for how long. If interest rates were assumed to be 200 basis points higher forever then this model suggests that housing prices would end up being around 30 per cent lower than if interest rates had not changed. It is notable that these estimates based on historical data show that the change in housing prices occurs relatively slowly, certainly more slowly than for the prices of financial assets. The model also suggests that if interest rates reverted to their initial level after that two-year period, the interest rate effect on prices would be expected to eventually unwind.

Offset to higher mortgage interest charges from lower housing prices

As I mentioned, an increase in interest rates increases the required repayments on a mortgage. In other words, rising interest rates increase the cost of owning a home. This effect is more or less immediate – for borrowers on variable rate loans it likely occurs within one or maybe out to three months. Over time, however, the increase in interest rates works to reduce the demand for housing and so housing prices decline. This means that a household would need a smaller mortgage to purchase a first home or if they were upgrading.

Estimates suggest the net effect is that mortgage payments for new buyers would be higher for about two years as a result of higher interest rates.[5] But after that, the declines in housing prices and mortgage size begin to dominate. This exercise obviously abstracts from the many other factors influencing interest rates and housing prices, but it suggests that because higher interest rates reduce housing prices and so mortgage sizes, mortgage payments for new borrowers could ultimately be lower than if interest rates had not increased.

A regional look at housing interest sensitivity

The sensitivity of housing prices to interest rates could also differ regionally or for different types of housing. Some of my colleagues at the RBA studied this and found that the prices of different types of housing could have different responses to changes in interest rates.[6]

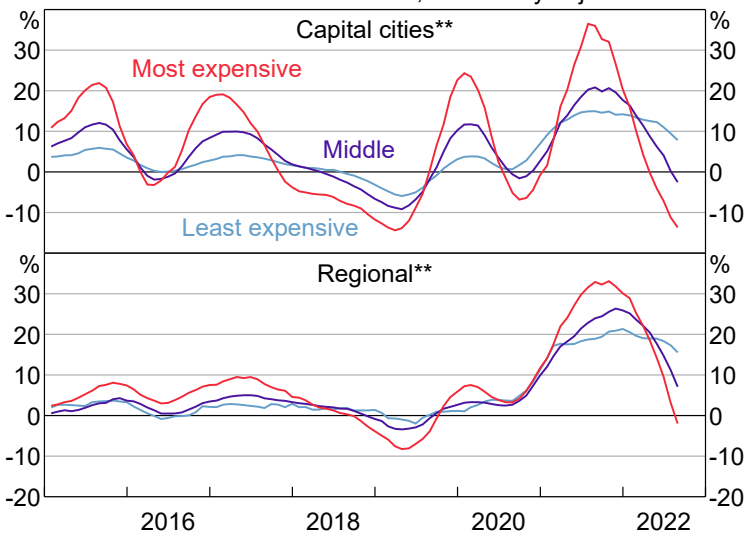
They found evidence that, controlling for other factors, interest rates can have larger effects on housing prices in locations where the supply of housing is less flexible, mortgage debt is higher, there are more investors and incomes are higher. These estimates do not indicate that these factors *cause* housing prices to be more responsive to changes in interest rates, but they do highlight that the sensitivity of housing prices to interest rates is not going to be uniform across the country.

What's more, they find that housing prices in the most expensive areas are the most sensitive to interest rate changes. This matches the observation that housing prices in more expensive locations are more cyclical (Graph 4). Similarly, there is some evidence that detached houses are more sensitive to changes in interest rates than apartments.[7] It appears that the limited supply of available zoned land partly explains this result. Overall this indicates that an increase in interest rates narrows the distribution of housing wealth since more expensive properties experience a larger fall in prices. But their results suggest that this distributional effect is temporary as the effects of interest rates on more expensive and cheaper properties converge over time.

Graph 4

Housing Price Growth by Dwelling Value*

Six-month-ended annualised, seasonally adjusted



* Least expensive (5th–25th percentiles), middle (25th–75th percentiles), most expensive (75th–95th percentiles).

** Capital cities price indexes are for the eight capital cities and regional prices are for the rest of Australia.

Sources: CoreLogic; RBA

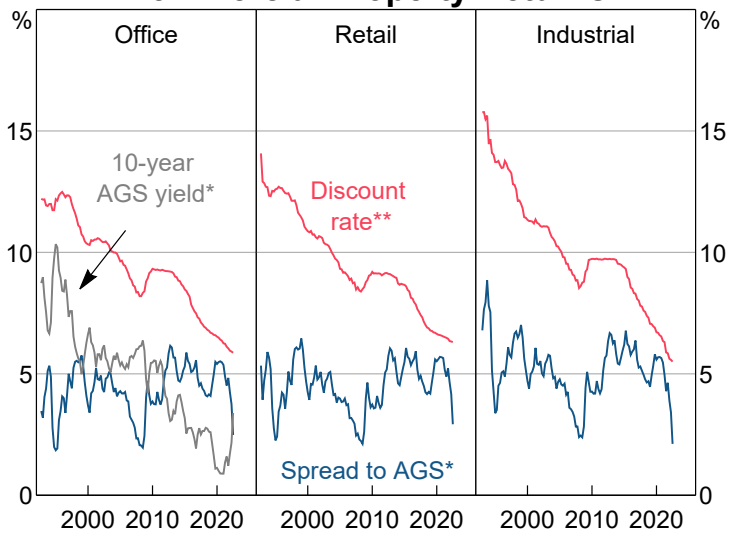
Interest rates and commercial property

Turning now to commercial property, there have been many factors influencing prices over recent years, with differences across retail, office and industrial properties. Retail property has faced headwinds from the shift to online retailing, which picked up with the pandemic, and compression of retail margins as the entry of international retailers has increased competition. Office property faces uncertainty about future demand given increased hybrid and remote working. In contrast, industrial property has experienced strong demand, in part as a result of the shift to e-commerce. But prices of properties in all three segments will tend to be lower than otherwise as a result of higher interest rates.

Just like other assets, commercial property can be valued using the discounted future income stream, net of expenses, from the property. The pass-through of changes in risk-free interest rates to the discount rate used to value commercial property has historically been drawn out. In part this could reflect that, given high transaction costs, there tends to be relatively few commercial property transactions and lead times for these transactions can be quite long. Discount rates follow broad trends in the risk-free (sovereign) interest rate but reflect that the gradual pass-through is much smoother (Graph 5).

Graph 5

Commercial Property Returns



* Australian Government Securities; spread to AGS in percentage points.

** The rate applied to properties' projected cash flows to estimate their present value.

Sources: MSCI; RBA

Discount rates used to value commercial property exceed risk-free rates as they include a risk premium to compensate for the risk involved in owning commercial property. The level of commercial property risk premiums can also change over time, and, as with those in financial markets, they could move with risk-free interest rates. In particular, an increase in interest rates that leads to a reduction in investors' risk appetite typically tightens financial conditions. This results in a higher risk premium and so puts additional downward pressure on commercial property valuations. Alternatively, if, for example, commercial property was seen as a hedge against inflation (because future rents were expected to increase with inflation) then an increase in interest rates because of higher inflation could reduce risk spreads and so result in less downward pressure than otherwise on commercial property prices from higher interest rates. All up, simple estimates suggest the fall in commercial property prices in response to higher interest rates appears to be slower, and slightly smaller in magnitude, than for residential property (although this could reflect the greater difficulty in measuring timely commercial property prices).

Conclusion

Summing up, interest rates both affect, and are influenced by the economic effects from, both residential and commercial property prices. We can be confident about some aspects of the impact of interest rates on property prices, but there is considerable uncertainty about other aspects.

- Increases in interest rates reduce the current value of future income and tighten borrowing conditions, and so higher interest rates reduce the value of residential and commercial property, just as they do for other assets that have future income streams.
- The response of property prices tends to be drawn out, occurring over years rather than months, and so given other drivers of prices also change in the interim, we can't really disentangle the final impact on prices of changes in interest rates.
- Property prices are influenced by many other factors – such as future rents and buyers' risk aversion – that can also be affected by interest rates.

So overall we know that higher interest rates will tend to depress residential and commercial property prices but there is considerable uncertainty about the magnitude and even the timing. Not only can declining property prices have implications for economic activity, but also for financial stability as we outlined in the April FSR. As we noted, those financial stability risks appear to be contained given the low leverage for residential and commercial property. But we will continue to carefully monitor the evolution of these risks, including in the FSR to be released in early October.

Endnotes

[*] Thanks to many current and former colleagues at the RBA whose research on housing prices I have drawn on, including Tom Cusbert, Calvin He, Ross Kendall, Gianni La Cava, Trent Saunders and Peter Tulip, as well as colleagues who provided comments on this speech.

[1] The effects of housing prices are outlined in the Reserve Bank's MARTIN model, see Section 5.3 in Ballantyne A, T Cusbert, R Evans, R Guttmann, J Hambur, A Hamilton, E Kendall, R McCririck, G Nodari and D Rees (2019) 'MARTIN Has Its Place: A Macroeconometric Model of the Australian Economy', RBA Research Discussion Paper No 2019-07. See also May D, G Nodari and D Rees (2019), 'Wealth and Consumption', RBA *Bulletin*, March.

[2] This difference between income and the sum of expenses and loan repayments is referred to as the 'Net Income Surplus'. If a borrower's reported expenses are implausibly low the lender will use a default measure of expenses based on the *Household Expenditure Measure* (HEM).

[3] See APRA (Australian Prudential Regulation Authority) (2021), 'APRA increases banks' loan serviceability expectations to counter rising risks in home lending', Media Release, 6 October.

[4] In practice the reduction in loan size was less than 5 per cent for some types of loans and borrowers as floor assessment rates were binding. One article that noted the impact this would have on the housing market was Frost J and J Eyers (2021) 'APRA tightens lending rules to target property boom', *Australian Financial Review*, 6 October.

[5] This material is based on internal work by Tom Cusbert who uses the model in Saunders T and P Tulip (2019) 'A Model of the Australian Housing Market', RBA Research Discussion Paper No 2019-01 and assumes that households spend a constant proportion of their income on housing. This exercise is a conceptual one. It also assumes that interest rates remain at their higher level and abstracts from other factors that will influence housing prices and borrowing conditions, such as deposit constraints.

[6] See He C and G La Cava (2020) 'The Distributional Effects of Monetary Policy: Evidence from Local Housing Markets ' RBA Research Discussion Paper No 2020-02.

[7] See also Kendall R and P Tulip (2018) 'The Effect of Zoning on Housing Prices', RBA Research Discussion Paper 2018-03.