

Financial Stability Review

OCTOBER 2021



RESERVE BANK OF AUSTRALIA

Financial Stability Review

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The material in this *Financial Stability Review* was finalised on 7 October 2021 and uses data through to 7 October 2021.

The *Review* is published semiannually and is available on the Reserve Bank's website (www.rba.gov.au). The next *Review* is due for release on 8 April 2022. For copyright and disclaimer notices relating to data in the *Review*, see page 63 and the Bank's website.

The graphs in this publication were generated using Mathematica.

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ISSN 1449–3896 (Print)
ISSN 1449–5260 (Online)

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Overview

Improved economic conditions have reduced financial system vulnerabilities in advanced economies over the past six months

Globally, financial systems have remained resilient – despite the ongoing effects of the COVID-19 pandemic – and are supporting economic recoveries. Aided by expansionary fiscal and monetary policies, output has rebounded in most economies, particularly those with a more progressed vaccination rollout. Improved economic conditions have seen increased earnings for businesses and households, strengthening balance sheets and debt repayment capacities. As a result, banks' loan losses have been much lower than was expected early in the pandemic. Many banks have therefore been able to reduce the provisions they were holding against future loan losses. This has boosted banks' profits and improved their capital positions, which in turn has allowed regulators to remove restrictions on capital distributions.

However, there have been temporary setbacks given the spread of the highly-infectious Delta variant of COVID-19. These setbacks have been most severe in emerging market economies (EMEs) as the rollout of vaccines is generally progressing more slowly than in advanced economies. Despite some EMEs raising interest rates to counter rising inflation, financial conditions in most EMEs have remained expansionary for now.

In Australia, the economy was recovering well over the first half of the year, further strengthening household and business balance

sheets. Economic output and employment had exceeded pre-pandemic levels; although, due to some reduced spending opportunities and a degree of caution related to the pandemic, high household saving was still contributing to households building their liquidity buffers. Given the economic rebound, Australian banks had started to write back provisions for loan losses, and their continued profitability had increased their resilience. Indeed, with banks' capital ratios increasing to be even further above regulatory requirements than before the pandemic, they had been allowed, and had started, to increase their capital distributions.

However, the spread of the Delta variant and ensuing extended lockdowns in New South Wales, Victoria and the ACT has resulted in output and employment falling in the September quarter. For the most affected households there is fiscal support, similar to last year, which will limit the increase in financial stress. Banks are offering targeted loan repayment deferrals to households and small and medium-sized businesses, supported by regulatory actions; however, the number of deferred loans is a fraction of those taken up in 2020. The businesses and households most at risk of experiencing financial stress continue to be those in the most impacted industries (such as tourism, retail and hospitality) and those in the areas with the most stringent extended lockdowns.

The major financial system risks in Australia – and internationally – are dominated by the effects of the pandemic

The risks to financial stability from borrower payment difficulties have generally eased but remain

Financial stress persists for some borrowers, particularly those whose incomes have not recovered to pre-pandemic levels and as a result struggle to make loan repayments.

In Australia, the fall in output and hours worked in the September quarter demonstrated that the economic risk from the pandemic persists. However, the Australian financial system is highly resilient – with rapid progress in vaccinations, it is expected that output will rebound as the economy gradually reopens, reducing the risk to the financial system. But with most of the global population yet to be vaccinated and infections widespread, there is a risk that new highly infectious or even vaccine-resistant variants could emerge, making the outlook for the economy and the financial system highly uncertain.

Internationally, financial stability risks are particularly elevated in those EMEs where the recovery in output from large falls has been less complete and where low vaccination rates leave them susceptible to increased COVID-19 cases. Financial stability risks are particularly prevalent in countries with pre-existing macroeconomic and financial imbalances, such as Brazil, Turkey and South Africa. With interest rates projected to begin to rise in advanced economies as spare capacity declines, EMEs will face the prospect of capital outflows and exchange rate depreciations if they do not raise their domestic interest rates, but raising rates would further delay the recovery. Some have already tightened monetary policy in response to rising inflation, delaying the rebound in incomes.

In China, authorities remain focused on lowering elevated financial system vulnerabilities. Policy-makers face the challenge of addressing those vulnerabilities without triggering widespread stress and sharply lowering economic growth, while also focusing on their broader policy and social objectives. A prominent example of the trade-off between lowering vulnerabilities and economic growth is the liquidity crisis facing large real estate company Evergrande.

Authorities may have to choose between imposing market discipline and intervening to avoid a disorderly resolution that could trigger stress in the financial sector or real estate industry that has been a significant contributor to growth in recent decades. In general, the numerous and simultaneous policy changes occurring at this time raises the probability of unintended consequences.

In a range of countries, the potential for trade, and even territorial, disputes remains a risk to incomes and confidence and ultimately to financial stability.

Expansionary financial conditions are underpinning rising asset prices and risk-taking

Low long-term sovereign interest rates, and optimism by financial market participants about business incomes, have continued to contribute to high and rising asset prices and increased risk-taking. Most major equity markets are well above, and credit spreads below, pre-pandemic levels. Significant rises in housing prices in many economies have also continued over the past six months. With interest rates expected to remain low to support the recovery and reflecting longer-run structural factors, investors have been taking on more risk to seek higher returns – for example, with greater purchases of debt issued by lower-rated companies.

While rises in asset prices have been underpinned by low interest rates and expected investment earnings, some asset prices appear

high given the pandemic still presents a risk to economic activity. Further, price falls could be widespread if interest rates were to increase sharply due to unexpected inflation or rising risk premiums. Sharp price falls could cause greatest harm to the financial system for assets where leverage is common, notably residential and commercial property. But even for other assets, sharp price falls could result in market dysfunction or illiquidity, as occurred in government debt markets in early 2020.

In Australia, there have been large increases in housing prices and an acceleration in borrowing. Higher prices have improved the financial resilience of existing indebted borrowers. However, there has been a build-up of systemic risks associated with high and rising household indebtedness. Vulnerabilities could build further if housing market strength gives way to exuberance, with expectations of further price rises leading borrowers to take on greater risk and banks potentially easing lending standards. To address this risk environment, in early October the Australian Prudential Regulation Authority (APRA) increased the serviceability assessment rate it expects lenders to use to assess prospective borrowers, thereby reducing maximum loan sizes. It is important that lending standards are maintained, and that

the riskiness of system-wide lending does not increase.

Cyber-security and resilience is critical for financial stability

The number of cyber-attacks on financial institutions continues to trend higher. Over the past 18 months, this may have been accentuated by widespread remote working and use of electronic financial services due to the pandemic. Large financial institutions can devote significant resources to cyber defence, and so are generally regarded as having among the best cyber defences of any companies. However, given the very large number of attacks, it seems almost inevitable that at some point the defences of a significant financial institution will be breached. Whether such an attack could result in systemic financial instability will depend not only on the part of the financial institution or system impacted and potential network effects, but also the cyber resilience of that institution and financial system. In Australia and internationally, financial institutions and regulators are focusing on strengthening the resiliency of individual institutions and the financial system to a substantial cyber-attack. ✎

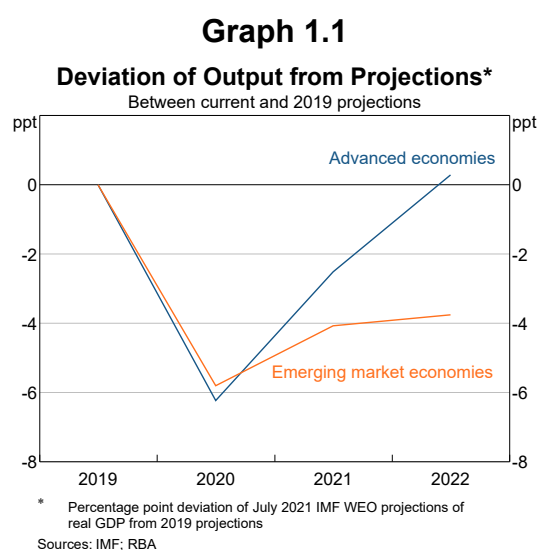
1. The Global Financial Environment

The global financial system has remained resilient through the ongoing economic disruption caused by further waves of the COVID-19 pandemic. In general, banks are well capitalised and liquid, financial markets are functioning, and financial distress among households and corporations has not been as widespread as initially feared. These positive factors reflect the substantial support provided to household and business incomes by governments, central banks and regulators. The reforms following the 2008 financial crisis also enhanced the resilience of financial systems.

The economic impact of the pandemic is still a major risk to global financial stability. Cases of the highly transmissible Delta variant of COVID-19 increased sharply and remain elevated in some economies. With COVID-19 widespread globally there is a risk of vaccine-resistant or more virulent and transmissible mutations developing. Periodic pandemic-induced disruptions to economic activity could see incomes decline, which would result in financial distress building among households and corporations and an increase in loan arrears. In emerging market economies (EMEs), where vaccine rollouts have been slower, the outlook for economic growth has been revised lower since the start of the year. Output in EMEs in 2021 is expected to be well below where it was projected to be before the pandemic, while in advanced economies it is expected to recover to around what was projected before the pandemic (Graph 1.1). EMEs are also vulnerable to capital outflows and inflationary pressures if interest rates in advanced economies increase

faster than currently expected, which would tighten financial conditions and slow the economic recovery. Some EMEs are already facing high inflation and have tightened monetary policy in response.

Vulnerabilities in China's financial system remain elevated and authorities face a difficult balancing act. If they act too quickly in addressing these vulnerabilities, confidence in the implicit guarantees that underpin much of China's financial system could collapse, which would lead to financial distress. In contrast, if they act too slowly, the probability of more severe financial stress in the future will increase. Continued bailouts also risk further entrenching perceptions of implicit guarantees. One recent example of this trade-off is Evergrande, a large real estate developer that is facing a liquidity crisis, and whose collapse could trigger wider stress in China's financial and real estate sectors.



In many advanced economies, housing credit growth has picked up alongside strong growth in housing prices. Faster credit growth – particularly in excess of income growth – raises the risk of households becoming excessively leveraged (including because of unrealistic expectations of ongoing capital gains) and/or the quality of housing loans on banks' balance sheets deteriorating. Corporate indebtedness is also elevated in many countries, with debt-at-risk still high in industries most affected by the pandemic, such as hospitality and travel. Financial asset prices remain elevated, and regulators in some economies have expressed concerns about the risks associated with a possible sharp correction in these prices. Sharp declines in financial asset prices could be exacerbated by leverage and liquidity mismatches in some non-bank financial institutions (NBFIs), such as money market funds (MMFs), as occurred in March 2020.

The pandemic continues to be a key focus of analysis and discussion within global bodies such as the G20 and the Financial Stability Board (FSB). Recent work has included the lessons learnt from the COVID-19 shock, which found that core parts of the financial system were resilient, though key funding markets experienced acute stress and needed significant policy support. In response, the FSB and other bodies have intensified efforts to enhance the resilience of money market and other investment funds, as part of broader work on NBFIs. Addressing the financial risks arising from climate change remains a major area of interest – the FSB has released a roadmap of its own and other bodies' upcoming work in areas such as enhancing disclosures of climate-related risks by financial institutions.

Work has also continued on ensuring financial institutions manage cyber and operational risks effectively, with the cessation of most LIBOR tenors at the end of December a key focus in this area. Global bodies and national regulators

have emphasised the importance of a timely transition to robust alternative benchmarks to mitigate the risks arising from the cessation of LIBOR. Significant progress has been made, but with the end of LIBOR imminent, it is critical that this transition work is now completed.

Regulators, including in Australia, are monitoring progress closely as a disorderly transition would create significant risks for the financial system and non-financial firms.^[1]

Financial systems in EMEs remain vulnerable to COVID-19-related stress, although conditions have been stable in recent months

EMEs face several challenges as a result of COVID-19. The spread of the Delta variant amid a slower rollout of vaccinations led to the re-imposition of containment measures in some countries and has constrained economic activity. Less than one-third of the population is fully vaccinated in most EMEs, compared with more than half in most advanced economies. The disruption to economic activity is placing pressure on the balance sheets of households, businesses and governments. Authorities have reintroduced or extended some support measures, such as loan guarantees and delayed recognition of non-performing loans (NPLs).

EMEs are vulnerable to capital outflows as a result of the quicker recovery in advanced economies, especially if interest rates in advanced economies were to increase at an even faster pace than expected.^[2] Capital outflows could lead to funding stress as debt would become more expensive and more difficult to roll over. Capital outflows are also likely to contribute to exchange rate depreciations, which would raise the cost of foreign-currency denominated debt and contribute to higher inflation. Central banks – particularly those in countries with a large share of external financing and/or poorly anchored inflation expectations – may therefore be forced

to tighten monetary policy by more than is warranted by their domestic economic conditions, which would slow the recovery.

These pressures are most acute in several major EMEs – including Brazil, South Africa and Turkey – where the pandemic has exacerbated existing macroeconomic and financial imbalances. These imbalances include large fiscal deficits, high levels of debt and a large share of external financing. Exchange rates in non-Asian EMEs have depreciated by around 20 per cent on average against the US dollar compared with pre-pandemic levels, compared with 5 per cent in Asia (Graph 1.2). Some EME central banks – notably in Brazil, Chile, Mexico and Russia – have responded to higher inflation by tightening monetary policy. Markets have revised higher their expectations for the path of EME policy rates in Latin America, with policy rates projected to increase by around 175 to 375 basis points over the coming year.

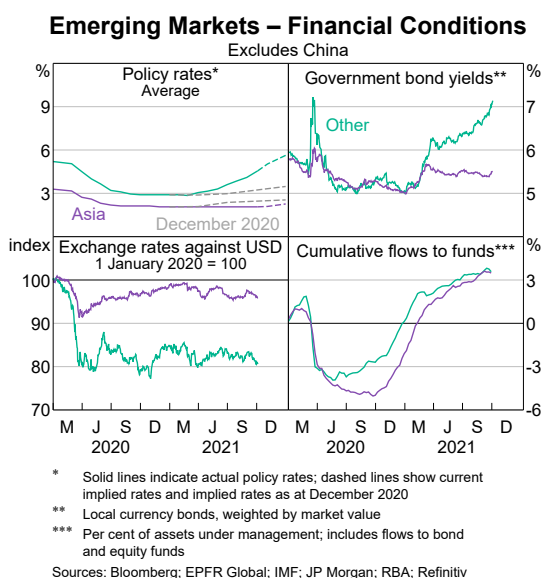
Financial conditions in Asian EMEs have generally been more stable in recent months after tightening at the start of the year. Since June 2021, government bond yields have been little changed, exchange rates have depreciated slightly, and portfolio investment flows into

bond and equity funds have picked up after slowing earlier in the year. As a share of GDP, foreign exchange reserves in Asia are also around one-third higher on average relative to other EMEs. Asian economies tend to have less foreign-currency denominated debt, providing greater capacity to manage the volatility associated with capital outflows.

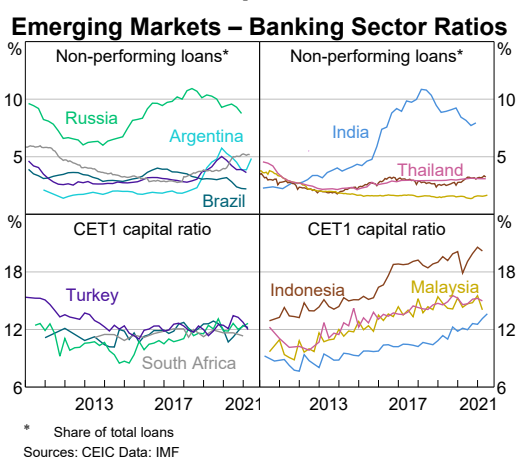
Asian EME banks are generally well capitalised and liquid, with an average Common Equity Tier 1 (CET1) capital ratio of 16 per cent (Graph 1.3). In contrast, vulnerabilities in the Indian banking system remain elevated, with higher NPL ratios and lower capital levels than other Asian banking systems. Indian bank NPLs are likely to rise further in the period ahead as temporary measures that allowed banks to delay recognition of NPLs during the pandemic have expired and other pandemic support measures are due to be withdrawn in coming months.

EME sovereigns and corporations have continued to issue significant amounts of local currency and US dollar-denominated debt. Much of this new debt has been bought by domestic banks, resulting in intertwined financial stability risks between corporations, banks and governments. The Reserve Bank of India recently stated that the increased share of government debt held by domestic banks may limit their ability to extend private credit during

Graph 1.2



Graph 1.3



the recovery. The composition of debt issuance has also increased vulnerabilities in some EMEs. The share of debt denominated in foreign currency has increased in several South American countries and remains at a high level in Turkey. This increases currency risk where the debt is unhedged. Some EMEs have also issued local currency debt at shorter maturities, increasing rollover risk.

Housing credit and price growth are high in many advanced economies

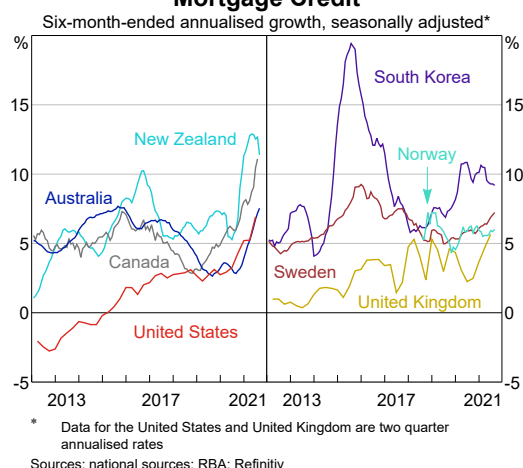
Housing credit growth has continued to increase and exceed income growth in a range of advanced economies (Graph 1.4). This pick-up in credit has followed strong growth in housing prices. Mortgage credit growth has been particularly strong in New Zealand, where six-month-ended annualised growth reached 13 per cent, the highest rate since 2007. Mortgage credit growth is also at post-2008 highs in Canada, the United Kingdom and the United States. This strong growth in credit has led to increasing household debt-to-income (DTI) ratios since the start of the pandemic in several countries, including New Zealand, Norway and Sweden. Regulators in Canada, New Zealand and Switzerland have raised concerns about both the risks associated with high household indebtedness and the sustainability of housing market valuations relative to fundamentals.

Housing price growth across advanced economies has been underpinned by low interest rates and a large build-up in savings by many households during the pandemic as a result of reduced consumption opportunities and government fiscal transfers. Constraints on new housing supply have been exacerbated by lockdowns and supply chain disruptions in some economies. Housing price growth has picked up sharply since mid 2020, and six-month-ended annualised growth is currently around: 10 per cent in Sweden; 15 per cent in both

South Korea and the United Kingdom; 20 per cent in each of Canada, New Zealand and the United States; and 25 per cent in Australia (Graph 1.5). Rapid price growth increases the risk of price corrections at some point. However, there are some signs that growth in housing prices may have peaked in many advanced economies, with the slowing most pronounced in Norway and Sweden. Moreover, some regulators are expecting growth in housing prices to slow further as pandemic-induced drivers begin to subside and housing supply increases. Sustained low interest rates will, however, continue to provide an incentive to borrow for housing.

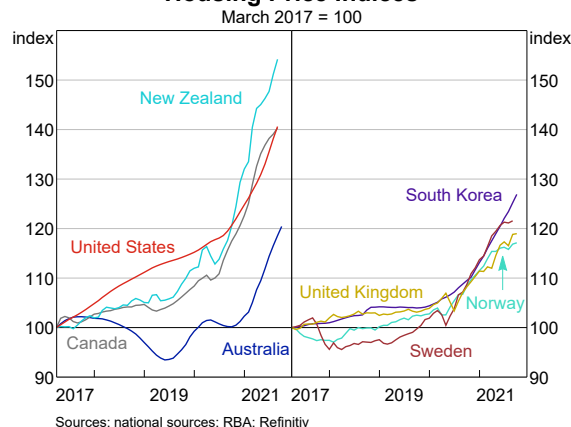
Graph 1.4

Mortgage Credit



Graph 1.5

Housing Price Indices



High-risk lending has increased in New Zealand and Canada, prompting regulators to tighten macroprudential measures. The Reserve Bank of New Zealand (RBNZ) and the New Zealand Government implemented measures in March in response to an increase in high-risk lending and strong housing price growth. Despite these measures, the RBNZ has recently stated that there has not been a sufficient reduction in high-risk lending, and that it is particularly concerned about those who have borrowed at both a high loan-to-valuation ratio (LVR) and a high DTI ratio. For example, the share of new lending to owner occupiers at a DTI ratio above six rose sharply to 25 per cent over the year to June 2021. To address these risks, the RBNZ announced a further tightening of LVR restrictions for owner-occupiers from 1 November – the share of banks' new loans to owner occupiers that can have an LVR over 80 per cent has been cut from 20 per cent to 10 per cent. The RBNZ will also start a consultation shortly on implementing DTI restrictions and interest rate floors.

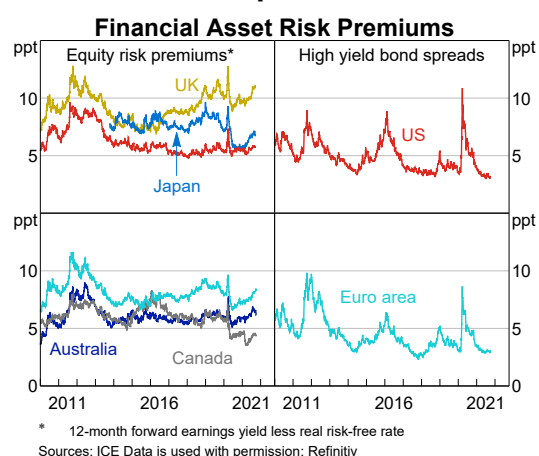
In Canada, authorities tightened serviceability assessments in June, by increasing the interest rate floor at which new borrowers are assessed. This followed an increase in high loan-to-income (LTI) borrowing, including from some borrowers with high LVRs. The Bank of Canada noted in May that the share of new mortgage lending with an LTI ratio above 4.5 had increased to above the 2016/17 peaks when serviceability assessments were first tightened. In South Korea, the financial regulator has begun to tighten a range of macroprudential policies and other regulations as part of a two-year plan to stabilise growth in household debt and improve lending standards. These changes include a new sectoral counter-cyclical capital buffer linked to banks' household debt exposures and the introduction of borrower-level debt serviceability restrictions.

Financial market optimism contrasts with pandemic-induced economic uncertainty

Equity prices have increased further over the past six months, although the rate of increase has slowed. Major equity indices in advanced economies are on average about 20 per cent higher than their pre-pandemic levels, and corporate bond spreads are around 10 basis points narrower. Various measures of compensation for risk indicate an elevated risk appetite among investors, despite metrics such as forecast dispersions showing persistent uncertainty about the ongoing impact of the pandemic on economic prospects (Graph 1.6). Equity risk premiums (measured as the forward earnings yield less the real risk-free rate) are low relative to history in a range of countries including Canada, Japan and the United States.

Some measures of leverage in equity markets are elevated. Margin lending in the United States has increased by more than 50 per cent since the start of 2020, and in the euro area outstanding contracts for difference and equity swaps have increased substantially.^[3] Elevated levels of leverage can increase the probability of disorderly price adjustments, as leveraged investors may need to sell assets to meet margin calls if prices fall. The events surrounding the Archegos fund in March 2021 highlighted this

Graph 1.6



risk and demonstrated that some leverage in financial markets remains hidden. A disruptive correction in financial markets could be caused by higher-than-expected inflation (and therefore interest rates), especially if this is not accompanied by an increase in expected corporate earnings. A correction could also be caused by lower-than-expected growth (e.g. due to additional COVID-19 outbreaks). This would lead to a reassessment of earnings forecasts and the ability of companies to repay their debts.

Issuance of risky debt has increased

Investor demand for risky debt has been strong. Issuance of high-yield debt has increased during 2021, as corporations have taken advantage of low borrowing costs. The stock of high-yield corporate bonds outstanding in the United States and the euro area has increased by 35 per cent since the beginning of the pandemic and the stock of leveraged loans has increased by 20 per cent (Graph 1.7). Demand for risky assets has been supported by a steady decline in default rate forecasts since mid 2020 alongside the global economic recovery. Search for yield dynamics have also been a factor as investors seek more profitable investments in the low interest rate environment. An increase in merger and acquisition activity is also driving the issuance of risky debt, particularly in the leveraged loans market.

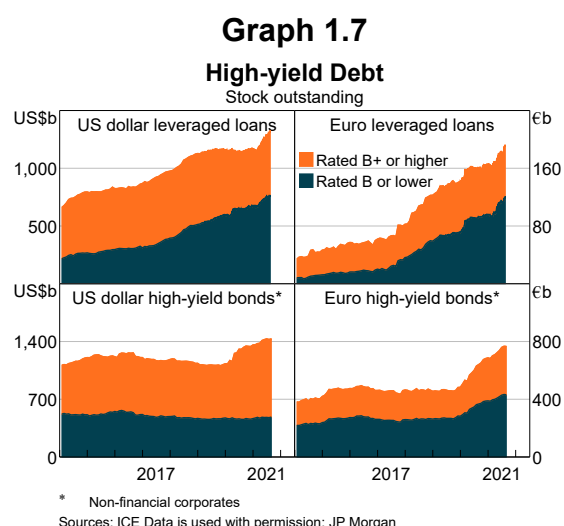
Recently issued leveraged loans have generally had riskier characteristics than the outstanding stock. European regulators have reiterated their concerns over risks in leveraged lending, particularly for some large banks. While originating banks sell many leveraged loans to other investors, such as investment funds and insurance companies, they typically retain around half of leveraged loans on their balance sheets, and so continue to be exposed to losses.

Global short-term funding markets have generally functioned well following the

dislocations in March 2020, supported by ample liquidity. The growing popularity of ‘stablecoins’ such as Tether, which are privately issued cryptocurrencies that aim to maintain a stable value against fiat currencies (particularly the US dollar) or other assets, has generated new investors in money markets. For stablecoins pegged to the US dollar, issuers generally seek to match the amount of stablecoins on issue with an equivalent amount of US dollar assets (mostly short-term securities and cash), making them broadly similar to MMFs. However, stablecoins are not subject to the same disclosure and liquidity requirements as MMFs, making them potentially vulnerable to runs (disrupting short-term funding markets) if investors lose confidence in the value of their holdings.

Earnings are recovering in most industries, but corporate indebtedness is high

Corporate borrowing increased sharply at the onset of the pandemic as firms sought to build precautionary liquidity buffers. While much of this debt has been repaid, overall corporate indebtedness remains well above pre-pandemic levels in many advanced economies – corporate debt-to-GDP ratios are a little above 100 per cent in Canada and Japan, around 80 per cent in the United States and around



70 per cent in the euro area (Graph 1.8). High corporate debt has been identified as a risk by regulators in a number of jurisdictions.

The ability of many businesses to service their debts has improved since earlier in the pandemic, as corporate earnings have continued to recover and interest rates have remained low. After declining sharply in 2020, earnings of listed companies are forecast to be around 20 per cent higher in 2021 relative to 2019 in the United States and 10 per cent higher in the euro area. However, earnings are forecast to remain weak for firms in sectors that are more exposed to the impact of COVID-19, including parts of the consumer discretionary sector (e.g. hotels and leisure firms) and some industrial firms (e.g. airlines and airport services). These sectors also have a higher share of firms with debt-at-risk (an interest coverage ratio less than one, indicating that a firm has interest expenses in excess of earnings).

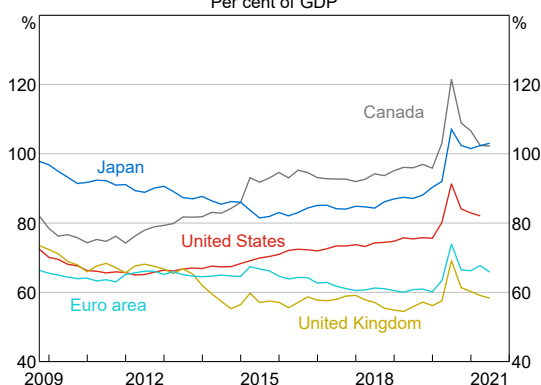
After tightening in 2020, lending standards for corporate and industrial loans have generally eased in 2021. However, credit conditions remain tight for sectors that are still heavily affected by the pandemic, and for small and medium-sized enterprises (which are typically over-represented in affected service industries).

Conditions in commercial real estate (CRE) markets vary markedly by type of property, reflecting the effects of the pandemic. Property values are below pre-pandemic levels in many countries for the pandemic-exposed hotel, retail and office sectors, despite some bounce back from their 2020 trough. In contrast, industrial CRE price growth remains strong, reflecting warehouse demand from online retailers that have benefited from shoppers' inability or reluctance to visit physical shopping centres. Delinquency rates on US commercial mortgage-backed securities have continued to decline, but remain elevated for hotel and retail properties.

A downturn in the CRE sector is a risk to financial stability in many advanced economies. The CRE sector has been a significant source of bank losses in previous financial crises due to the high volatility of CRE markets, banks' sizeable exposures to the sector and high loss rates following such crises. Debt is used to fund over half of all assets owned by real estate investment trusts that are primarily exposed to CRE. CRE loan defaults pose a greater risk in Norway, Sweden and some euro area countries where banks have a larger exposure to the sector – CRE accounts for around 40 per cent of all bank lending to non-financial corporations in Norway and Sweden. In addition, NBFIs have substantial exposure to the sector in the United States, Norway and the euro area (especially the Netherlands).

Graph 1.8

Non-financial Corporate Debt*
Per cent of GDP



* Debt is net of loan assets to help adjust for inter-company loans on a consistent basis
Sources: RBA; Refinitiv

Banks' profitability has increased, but uncertainties related to the pandemic are a key risk

Advanced economy banks continue to be well capitalised with ample liquidity. CET1 capital ratios have increased by around 60 to 140 basis points compared with a year ago, partly as a result of restrictions on capital distributions (Graph 1.9). With the economic recovery more firmly under way, regulators are looking to further wind back the regulatory relief extended

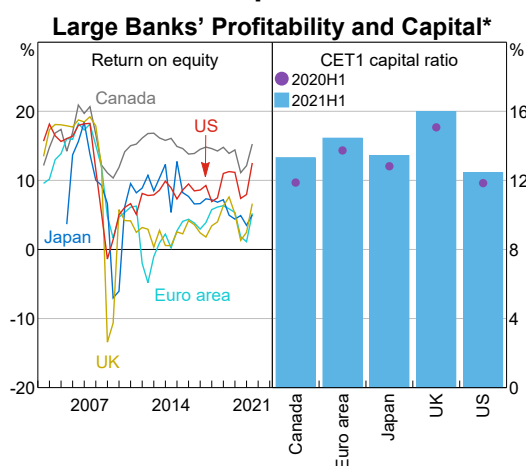
during the height of the pandemic. Some countries have announced an increase in regulatory capital buffers, including Canada, Denmark, Norway and Sweden. In addition, other regulatory capital relief has expired or will expire soon in major jurisdictions: banks in the United States no longer receive supplementary leverage ratio (SLR) relief for their holdings of government bonds and central bank deposits; banks in Canada will also not receive SLR relief for government bonds from the end of 2021 (but will continue to receive relief for central bank deposits); in the euro area, leverage ratio relief for central bank exposures will expire after March 2022; and for UK banks the favourable treatment on intangible software assets will expire by the end of 2021. Transitional arrangements for the capital impact of new credit loss accounting standards will also start to phase out in 2022.

The unwinding of regulatory relief will see banks' capital buffers decrease in coming quarters, but these will mostly remain high. Recent stress test results also confirmed the resilience of major banking systems to potential shocks. As a result, regulators have removed capital distribution restrictions and many large banks have announced share buyback plans and increased dividends.

Large banks' profitability has increased during 2021, with new provisions for loan losses falling sharply and some banks decreasing the stock of loan-loss provisions (Graph 1.10). In the euro area, the stock of large banks' provisions as a share of gross loans is below pre-pandemic levels, reflecting a longer-run trend of disposing of impaired loans in countries with elevated NPLs. Banks have also reported signs of recovery in consumer and commercial lending. Nevertheless, the pandemic continues to pose downside risks to banks' profitability, asset quality and credit demand. Banks' profitability is being constrained by narrowing net interest margins (NIMs) due to the prolonged low interest rate environment. Average NIMs for large US banks have fallen by over 70 basis points since the end of 2019, and NIMs for large UK banks have fallen by around 40 basis points. In contrast, average NIMs have fallen by less than 10 basis points for Australia's major banks in this period.

NPLs are at historically low levels in many countries, but are expected to rise as government support ends. Risks remain elevated in sectors most significantly affected by the pandemic, particularly given the recent spread

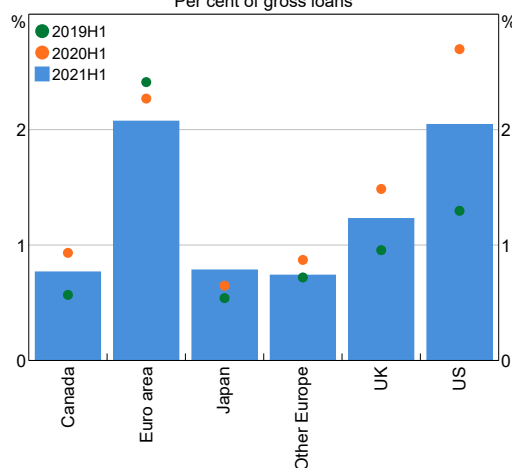
Graph 1.9



* Number of banks: Canada (6), euro area (36), Japan (4), United Kingdom (4) and United States (12)
Sources: RBA; S&P Global Market Intelligence

Graph 1.10

Stock of Large Banks' Provisions*
Per cent of gross loans



* Number of banks: Canada (6), euro area (37), Japan (4), other Europe (10), United Kingdom (4) and United States (12)
Sources: RBA; S&P Global Market Intelligence

of the Delta variant. For example, delinquency rates for CRE loans in the United States remain high (relative to low levels before the pandemic).

The events around the Archegos fund in March indicate that management at some banks do not have complete information on risks in their brokerage units. Several banks lent to Archegos to invest in stocks, and reports suggest banks did not know the full extent to which other banks had made similar loans (such that they did not know how concentrated Archegos' investments had become). Several banks faced large losses, although these losses were not severe enough to see their capital levels fall below their regulatory minimum. Regulators in several jurisdictions are investigating these events.

There are some persistent challenges facing banking systems in Japan and the euro area:

- In Japan and the euro area, low bank profitability and equity valuations impede the financial resilience of banks and their ability to raise capital to support lending. Some euro area banks also entered the pandemic with high levels of NPLs and provisioned less for potential losses.
- Large Japanese banks have increased overseas lending and invested in leveraged loans and collateralised loan obligations, largely due to the banks' excess deposits and search for higher returns – however, in doing so they have increased their risk exposure.
- In the euro area, banks are holding a large share of the pandemic-related increase in sovereign debt, which, combined with government loan guarantees to corporations, has intensified the credit relationship between governments, corporations and banks.

Vulnerabilities in China's financial system remain elevated

There are several vulnerabilities in China's financial system that authorities have been working to address over the past few years. These include: a high level of corporate debt; undercapitalisation among many smaller banks; an opaque and undercapitalised shadow banking system that engages in extensive maturity mismatch and has strong links to the banking system; weaknesses in some local government balance sheets; and widespread perceptions of implicit guarantees. This broader environment has become more challenging in the context of slowing medium-term growth prospects and increased policy and regulatory uncertainty as China sets new medium- and long-term policy goals.

Corporate debt as a share of GDP decreased by around 6 percentage points during the first half of 2021 (Graph 1.11), while government debt relative to GDP decreased by 2½ percentage points. Authorities have increased their scrutiny of projects to be funded with local government bonds, and introduced further restrictions on local government funding through off-balance sheet entities. Chinese banks' non-performing assets (NPAs) are currently less than 2 per cent of total assets; however, this number could rise due to a slower recovery for small firms, the scheduled expiration of loan forbearance at the end of 2021, and banks bringing off-balance sheet assets (including NPAs) onto their balance sheets to comply with new rules on asset management products.

Chinese authorities face a difficult balancing act in addressing the vulnerabilities in China's financial system. If they act too aggressively, confidence in the implicit guarantees that underpin much of the financial system could collapse, which would lead to widespread stress. In part reflecting these concerns, in August Chinese regulators announced a bailout of China Huarong Asset Management, a large

state-owned financial institution, after months of concerns about its financial health and ability to repay its obligations. Increased support from local governments is one reason why corporate bond defaults by state-owned enterprises (SOEs) have declined since early 2021. At least four local governments have established 'credit stabilisation funds' to provide temporary financing for SOEs as they restructure their businesses. Some local government officials have also assured investors that debts will be repaid.

At the same time, bailouts risk entrenching perceptions of implicit guarantees. More broadly, if authorities act too slowly in addressing vulnerabilities in China's financial system, the probability that an economic or financial disruption triggers broader financial stress in the future would increase. However, lowering vulnerabilities means regulators will have to make more decisions on whether to let firms fail. The widespread nature of vulnerabilities means authorities may also have to make multiple difficult decisions simultaneously, which could interact and raise the probability of a policy misstep.

Financial stress has risen in China's property sector

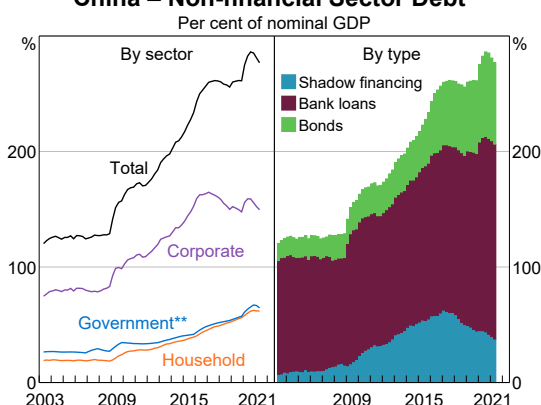
Financial stress has risen in the property sector, alongside tighter regulatory restrictions. In mid 2020, Chinese authorities introduced a 'three red lines' policy, which limits the debt growth of real estate developers depending on their leverage as measured by three financial ratios. This policy (alongside other restrictions on property) has heavily affected Evergrande, one of China's largest and most leveraged real estate developers. Evergrande's leverage has expanded rapidly over the past few years, and its profitability has not kept pace with the increase in debt. It is also facing a liquidity crisis because of its declining profitability, the shorter maturity of its liabilities relative to its assets, and an inability to raise additional debt to meet interest payments and pay suppliers and contractors. To increase its cash holdings, Evergrande has: sold properties at steep discounts; sold other assets; delayed payments to suppliers, holders of its wealth management products and on some of its other liabilities; and sought to offer debt holders discounts on properties in lieu of payments. These steps appear insufficient and Evergrande is widely expected to collapse without some type of government support.

At this stage, authorities are reluctant to support Evergrande directly. This is consistent with a desire to reduce both implicit guarantees and the economic importance of the property sector. However, if Evergrande was to collapse, it could be a source of systemic stress if it shifts perceptions about overall risk in the property sector, noting that there are other developers that are over some or all of the 'three red lines'. Consistent with this, local and US dollar bond yields for highly-leveraged developers have risen sharply (Graph 1.12).

Investors in opaque shadow finance investment products, such as trusts and wealth management products, may also become concerned about their potential exposure to

Graph 1.11

China – Non-financial Sector Debt*



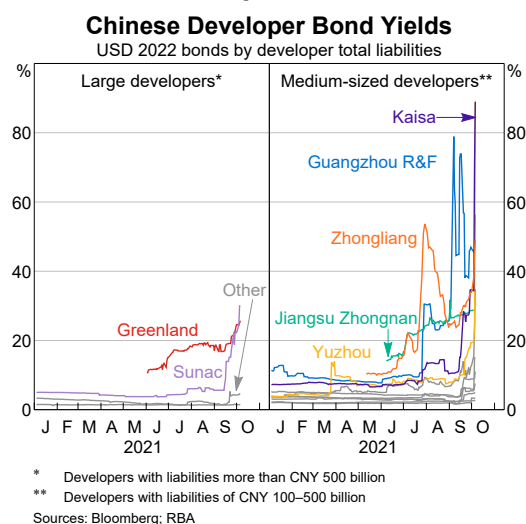
* Includes RBA estimates of shadow financing that is not included in total social financing

** Includes some borrowing by local government financing vehicles

Sources: BIS; CEIC Data; RBA; WIND Information

developers and withdraw funds. A run on shadow banking products would create further stress in the property sector and would be

Graph 1.12



damaging for the financial system more broadly. In addition, many banks could face large losses as they are significant creditors to developers both directly and indirectly (via shadow financing). Another concern is the extent to which Chinese developers use pre-sales as a source of funding. If buyers question the safety of pre-sales, they could stop purchasing properties, forcing developers to stop construction, leading to a sharp decrease in economic activity. The health of local governments could also be affected by a sharp fall in real estate prices, as many rely on land sales for revenue, including to repay debts of local government financing vehicles. Land is used as collateral for loans to such vehicles, and so a sharp fall in land prices will lead to losses for creditors if these vehicles were to default. ✎

Endnotes

- [1] For more information on the transition away from LIBOR, see RBA (2021), 'Box A: The Transition Away from LIBOR', *Financial Stability Review*, April, pp 16–21.
- [2] For more information on financial vulnerabilities in emerging market economies, see RBA (2021), 'Box A: Emerging Market Vulnerabilities and Financial Conditions in Advanced Economies', *Statement on Monetary Policy*, May, pp 21–23.
- [3] Contracts for difference and equity swaps enable greater leverage because buyers do not generally need to hold the underlying asset the contract is referencing (other than for hedging purposes).

2. Household and Business Finances in Australia

Households and businesses were generally in a strong financial position leading in to the recent spread of the Delta variant of COVID-19 and associated lockdowns. Most had accumulated substantial liquid asset buffers and continued to meet, or remain ahead of, their debt repayment schedules. These large buffers, along with temporary support measures, are supporting those whose incomes have declined during recent lockdowns, enabling continued servicing of debt and assisting affected businesses to retain workers. Over the longer term, the financial resilience of the household and business sectors is tied closely to the outlook for public health and the economy, about which there remains ongoing uncertainty.

Some households and businesses are vulnerable in the near term. Those in pandemic-affected industries or located in regions that have experienced prolonged lockdowns are more likely to be running down their buffers and some could face debt repayment difficulties. Despite the significant policy support, it is likely that not all businesses will recover and insolvencies will rise, although this will be from a low level. Overall, there is only a small share of households and businesses that are both vulnerable to cash flow reductions and are heavily indebted. Lenders' non-performing loan ratios are therefore expected to rise only modestly from currently very low levels.

Housing lending has picked up this year. This reflects the strength in the housing market that began in the latter part of 2020 and has been underpinned by low interest rates, targeted policy measures and the economic recovery.

Lenders have maintained sound lending standards to date, although there has been an increase in loans with high debt-to-income (DTI) ratios. While there has been a slight moderation in housing turnover and housing price growth as a result of the lockdowns, recent data on commitments suggest housing credit growth is likely to pick up further over the coming months. A sustained acceleration in housing credit growth would add to risks related to the already-high level of household debt. Unsustainable debt trends could emerge in an environment of rapidly rising property prices and extrapolative expectations, with new borrowers stretching their financial capacity and a greater chance of disorderly future price corrections. To address rising systemic risks, the Australian Prudential Regulation Authority (APRA) has announced a 50 basis point increase to the serviceability assessment rate it expects banks to use to assess prospective buyers (see 'Chapter 5: Mortgage Macroprudential Policies').

The majority of households have added to their large liquidity buffers ...

Households have continued to build their financial buffers, with higher saving rates in the first half of 2021 than for most of the past decade (Graph 2.1). The saving rate declined from its significant peak in 2020 as consumption picked up and income growth slowed. The recovery in consumption over this period occurred amid greater confidence about the health and economic outlook; the slowing in income growth was due to the unwinding of the initial COVID-19-related support measures

that offset the strong recovery in the labour market. Timely survey data suggest that households have maintained high savings buffers into the second half of this year.

Most indebted households have continued to increase their already significant mortgage prepayment buffers. In aggregate, inflows of mortgage prepayments into offset and redraw facilities accounted for around 4½ per cent of household disposable income in the three months to August. This is similar to the share over the same period last year when prepayments were also elevated due to the effects of the pandemic. The ability of households to build their prepayment buffers continues to be supported by the reduction in mortgage interest rates – interest payments as a share of disposable income have declined by around ¾ of a percentage point since March 2020.

Consistent with this, loan-level data from the Reserve Bank's Securitisation dataset suggest prepayment buffers on the majority of housing loans (excluding loans to investors and fixed-rate loans where there are disincentives, or an inability, to prepay) have increased over the past year (Graph 2.2). Only a small share of loans had low buffers in August 2020 and further decreased their buffers over the following

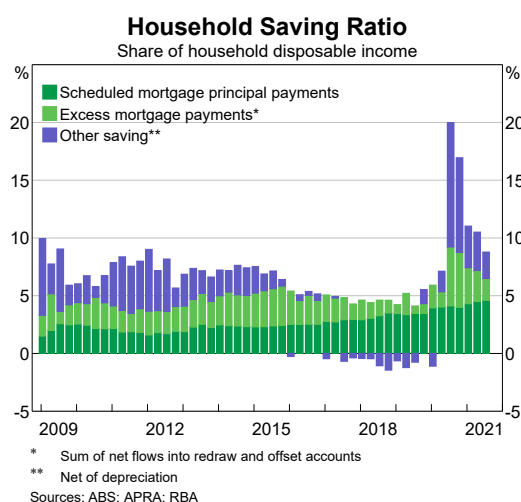
12 months. Indeed, the majority of loans that had reduced buffers relative to a year prior started with very large buffers of over two years.

Aggregate data indicate that the share of all loans (including investor and fixed-rate loans) with very low prepayment buffers of less than or equal to one month has drifted modestly higher since the middle of last year, to be 41 per cent at August 2021. This is partly explained by an increase in the share of fixed-rate mortgages – which typically limit prepayments – as many borrowers have taken advantage of very low interest rates on fixed-rate products. In August, nearly 35 per cent of outstanding housing loans had fixed interest rates, up from 20 per cent at the start of 2020. Fixed-rate borrowers should be well placed to manage possible higher interest payments at the end of their fixed-rate period over coming years, as the interest rate buffers built into loan serviceability assessments account for potentially higher interest rates.

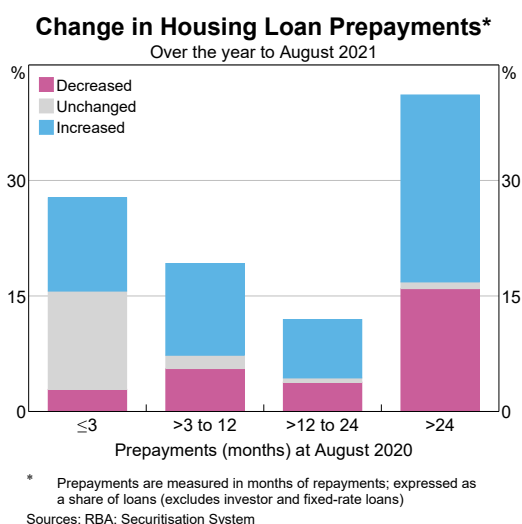
... and the share of households with both high debt and low liquidity buffers is very small

Borrowers that are both highly indebted and have low liquidity buffers face the highest risk of experiencing repayment difficulties in the event of an adverse shock to their incomes or

Graph 2.1



Graph 2.2



expenses. The Securitisation System data indicate that less than 1 per cent of owner-occupier borrowers have both high debt (measured as a loan-to-income ratio above six) and small prepayment buffers (equivalent to less than one month's worth of repayments) (Graph 2.3). This share of vulnerable borrowers has declined since the beginning of the pandemic, in part reflecting lower interest rates and ensuing debt repayments. Consistent with this, housing loan arrears also remain very low, at around 1 per cent of banks' total housing loans (see 'Chapter 3: The Australian Financial System').

Households heavily affected by the recent restrictions appear more vulnerable, although household cash flow is being supported by policy measures

Survey data suggest that around one-fifth of indebted households source at least part of their income from the retail, recreation & personal services, transport & storage and construction industries, parts of which have been heavily affected by pandemic-related restrictions. These households tend to have higher debt-servicing and DTI ratios and lower deposit holdings than other households, and have been slightly more

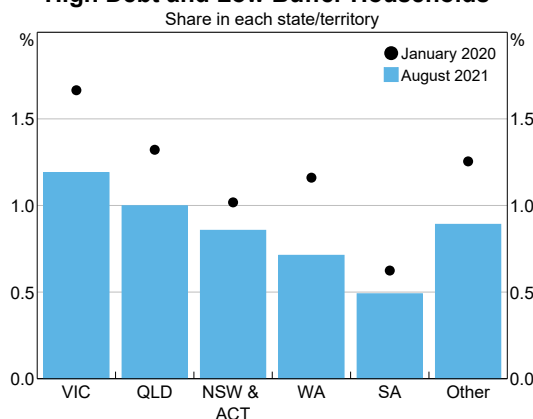
likely to seek financial assistance since the pandemic began (Graph 2.4).

Governments and banks have extended new support measures to households in response to the recent Delta outbreak, including cash payments, loan repayment deferrals and, in some jurisdictions, a moratorium on rental evictions. Support provided to businesses (discussed below) also provides indirect support to households which would otherwise be at greater risk of losing their jobs.

The COVID-19 Disaster Payment, available to workers who have lost hours of work due to lockdowns, has provided direct cash flow support. The maximum payment (of \$1,500 per fortnight) is currently equivalent to the initial JobKeeper payment and so will have been supporting many of the most vulnerable households. However, eligibility is confined to regions that are under lockdown and so stimulus payments will contribute less to overall household saving and consumption. Around 2 million people have accessed the Australian Government's Disaster Payment since the start of the program in June. A little over two-thirds of these payments have been made to New South Wales (NSW) residents.

Graph 2.3

High Debt and Low Buffer Households*

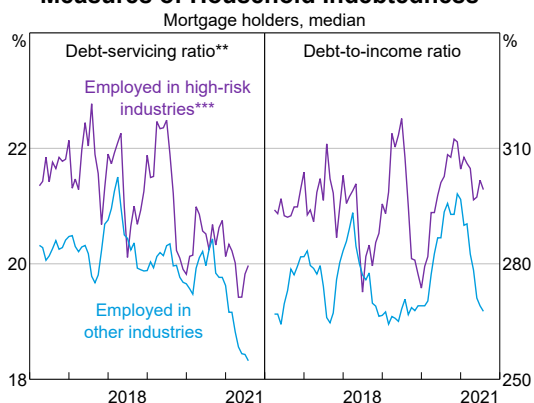


* Those with a loan-to-income ratio above six and less than one month of prepayments; excludes investor and fixed-rate loans

Sources: RBA; Securitisation System

Graph 2.4

Measures of Household Indebtedness*



* Six-month moving average

** Required repayments calculated with a credit foncier model using the value of outstanding housing debt and the RBA's discounted variable interest rate

*** Includes retail, recreation & personal services, transport & storage and construction

Sources: RBA; Roy Morgan Single Source

Most banks have offered loan repayment deferrals since early July for a period of up to three months. The share of loans on deferral has been very low relative to last year, reflecting less precautionary behaviour by households and that banks are now assessing the needs of each applicant as opposed to automatically granting all applications (as was the case last year). In August, less than 1 per cent of housing loans by value were on deferral, considerably lower than the peak of 11 per cent in May 2020. Liaison with banks indicates that more than half of borrowers currently on deferral also had a loan deferral last year. Loans currently on deferral tend to have riskier characteristics than other loans, including higher loan-to-valuation ratios (LVRs) at origination or low prepayment buffers (Graph 2.5). A high share of borrowers with loan repayment deferrals are continuing to make partial payments compared to last year. Almost all borrowers who took a deferral last year had resumed making payments and were up to date with their loan schedule prior to the mid 2021 lockdowns.

Renters – who typically report higher levels of financial stress than indebted households – have also been afforded some relief from the rental evictions moratorium in some jurisdictions. Loan repayment deferrals have reduced risks that

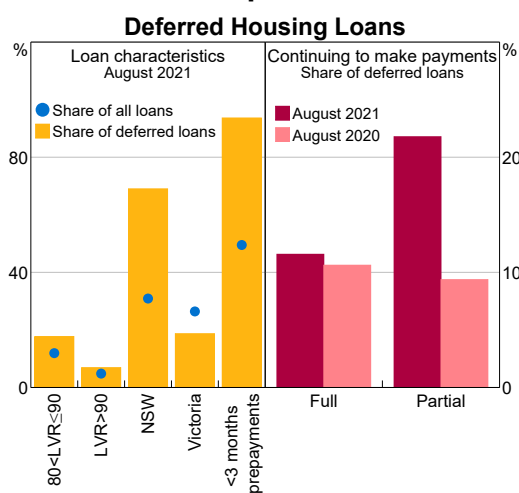
landlords would be unable to make repayments due to temporary declines in rental income as a result of current lockdowns.

Housing credit growth has picked up

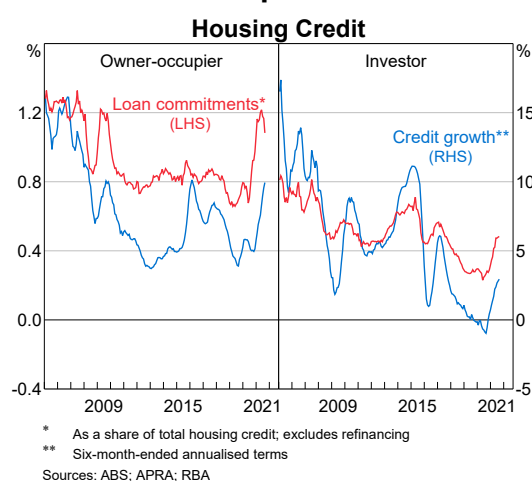
Housing credit growth increased at an annualised rate of 7½ per cent over the six months to August (Graph 2.6). Higher borrowing has been supported by low interest rates and reflects increased turnover of existing dwellings as well as elevated levels of construction of new houses – the latter boosted by a range of government initiatives. As a share of credit, loan commitments have increased sharply for both owner-occupiers and, more recently, investors. Commitments for owner-occupier loans have moderated a little as lockdown restrictions have contributed to lower auction volumes and property listings in Sydney and Melbourne.

If loan commitments were to be maintained around their recent levels, credit growth could be around 10 per cent in six-month-ended annualised terms by early next year. This would exceed income growth, pushing aggregate household credit-to-income ratios higher (Graph 2.7). A sustained pick-up in housing credit growth well in excess of growth in household incomes would add to risks related to the already high level of household

Graph 2.5



Graph 2.6



indebtedness (see 'Chapter 5: Mortgage Macroprudential Policies').

Lending standards remain sound, although high DTI lending has increased

Lending standards remain sound overall, and the quality of outstanding credit is high. While aggregate lending standards tightened slightly in the early stages of the pandemic, this had mostly been reversed prior to the most recent lockdowns so that lending standards were broadly in line with those in early 2020.

However, the quality of new lending depends not only on banks' lending standards but also on the riskiness of households that seek to borrow. Overall, there have been some increases in particular forms of mortgage lending that are typically considered to be more risky – in particular, lending at high DTI ratios and, for a period, at high LVRs.

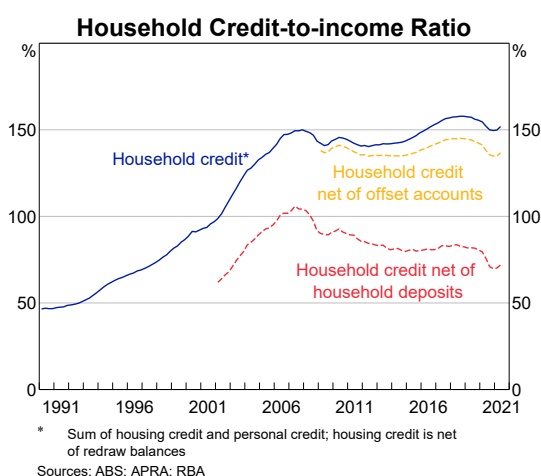
Most notably, the share of new loans originated with a DTI greater than or equal to six, increased by around 6 percentage points to 22 per cent over the year to the June quarter 2021 (Graph 2.8). This share could rise further given the share of high-DTI lending remains below internal risk limits at most banks. Some high-DTI loans are more risky as repayments account for a significant share of income. However, the

composition of lending also matters for the riskiness of debt as a whole. For example, some high-DTI loans are taken out by high-income borrowers who can comfortably service a large loan. Further, the increase in the share of high-DTI lending partly reflects the fact that lending to investors (who tend to have higher DTIs, but also larger liquidity buffers) has increased.

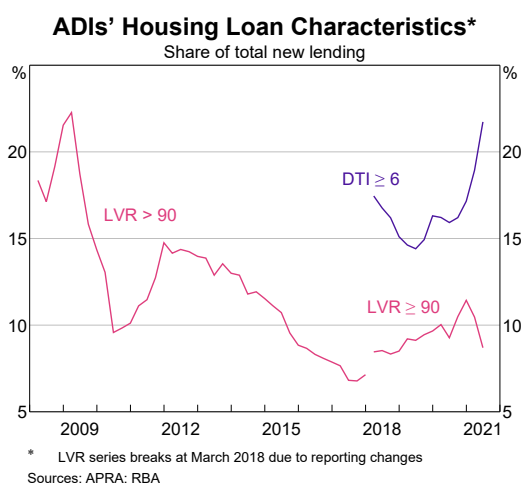
According to bank liaison, some of the increase in high-DTI lending also reflects higher demand for bridging loans – this is due to increased housing turnover and rising house prices, which encourage repeat purchasers to buy new properties before selling their existing properties. High-DTI borrowers (particularly investors) tend to have larger liquidity buffers than borrowers with lower DTIs (see 'Chapter 5: Mortgage Macroprudential Policies').

The share of new lending at high LVRs (at or above 90 per cent) peaked at 11 per cent in the December quarter of 2020, but has since declined sharply following the end of the 2020/21 First Home Loan Deposit Scheme and as lending to investors (who tend to have lower LVRs) has started to pick up. Around one-third of lending at high LVRs in the first half of 2021 was to first home buyers (FHBs), who are more likely than other borrowers to be deposit-constrained. Survey data indicate that, relative to other owner-occupiers, FHBs tend to start with higher

Graph 2.7



Graph 2.8



DTI ratios and lower net income surpluses (the amount of income a borrower has left over after meeting their mortgage repayments and basic living expenses). These riskier characteristics are persistent, as FHBs do not repay their debt nor accumulate prepayment buffers at a faster pace than other owner-occupier borrowers in the first five years of their loans (Graph 2.9). While this might suggest FHB loans face a higher probability of default, in practice FHBs are no more likely to report financial stress, difficulty repaying their mortgages or losing their job than other indebted households.

Information from liaison suggests that a couple of banks have tightened lending practices a little recently. Actions taken include requiring applicants to provide more recent income statements, additional discounting of variable income sources and increasing the minimum floor rate used in loan serviceability assessments.

Broad-based growth in housing prices has reduced the incidence of negative equity

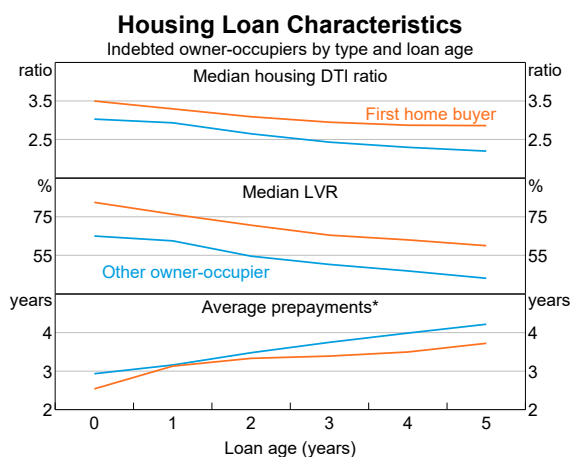
The pick-up in housing borrowing has been accompanied by an acceleration in national housing prices, which were 20 per cent higher over the year to September 2021. This growth has been supported by low interest rates and

the economic recovery that had been underway prior to the recent COVID-19 restrictions. Price growth has been broad-based across capital cities and in regional areas, but more pronounced for detached houses than apartments. Despite ongoing lockdowns and slightly slower price growth in the past few months, conditions in established housing markets appear relatively robust overall.

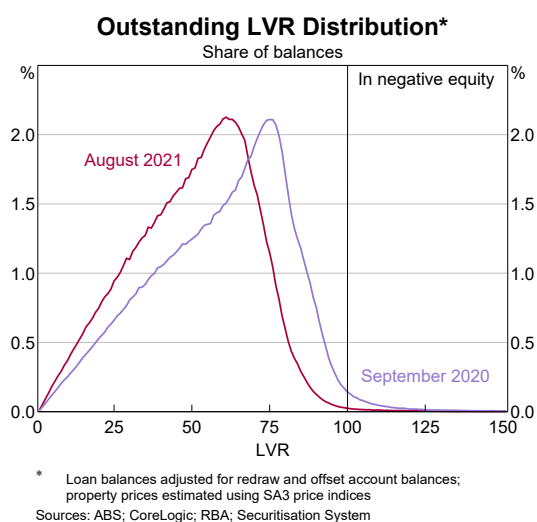
These broad-based increases in housing prices have strengthened the balance sheet positions of property owners (around two-thirds of all households), including those with existing mortgages. Almost all borrowers have positive equity in their properties (i.e. the current value of their property exceeds that of their outstanding loan), and so (at current prices) could resolve serious debt repayment difficulties by selling their properties. The share of loans in negative equity is estimated to be exceptionally low, at just over a ¼ of a per cent, having fallen throughout the past year alongside the increase in housing prices (Graph 2.10).

Strong price growth and extrapolative price expectations can lead to over-exuberance in housing markets. In practice, however, it is difficult to determine if housing prices are over-valued in real time, and current signals from timely data are mixed. User-cost models, which

Graph 2.9



Graph 2.10



compare the relative costs of owning versus renting a property (and so take into account a range of factors including the decline in interest rates), suggest housing prices remain broadly in line with fundamentals. However, cruder metrics of over-valuation such as price-to-rent and price-to-income ratios have increased markedly (Graph 2.11).

The economic recovery supported overall business profitability in the first half of the year, but outcomes have been mixed

In aggregate, business profits increased in the first half of 2021. As a result of improved trading conditions, many businesses were well placed to absorb higher labour expenses when the JobKeeper subsidy ended in March. Aggregate cash holdings remained considerably higher than before the pandemic, with low interest rates providing support to indebted firms (Graph 2.12).

Across nearly all industries, aggregate revenue had recovered to be around or above its pre-COVID-19 level in the first half of this year. However, outcomes have been mixed across firms, reflecting the uneven impact of the pandemic. In particular, firm-level data show that one-fifth of all businesses reported March quarter revenues this year that were less than

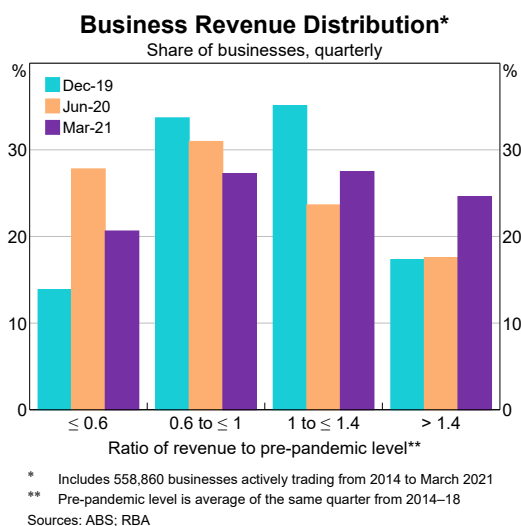
60 per cent of their averages between 2014 and 2018 (Graph 2.13). Although only around half of firms reported revenues that met or exceeded their 2014–18 averages in the March quarter of 2021, this share had increased from around 40 per cent since the middle of last year, reflecting improved trading conditions and the broader economic recovery.

Around 10 per cent of businesses were receiving JobKeeper payments when the program ended in March 2021. Many were located in Sydney and Melbourne and, based on the most recent available data (for end of June 2019), in areas with relatively lower median liquidity ratios (the ratio of current assets to current liabilities)

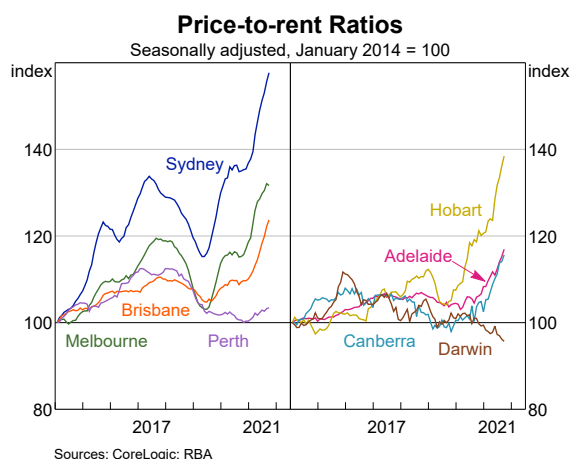
Graph 2.12



Graph 2.13



Graph 2.11



(Graph 2.14). Although more timely liquidity ratio data are not available, the prolonged lockdowns in these cities in recent months mean that some vulnerable businesses will be depleting their cash buffers. Some may find it difficult to service their debts, particularly if their trading conditions do not improve when restrictions are eased and targeted policy support measures are withdrawn. Vulnerable firms may also find it difficult to maintain their current levels of employment given cash flow challenges. In turn, this could diminish the ability of affected households to service their own debts.

Targeted policy support has been helping cash flows for businesses in locked down areas and affected industries ...

A number of policy measures are supporting the cash flows and liquidity of vulnerable businesses through the 2021 lockdowns. In NSW, small and medium-sized enterprises (SMEs) with a decline in turnover of at least 30 per cent have received over \$7 billion since the start of the lockdown in late June – this includes the ongoing JobSaver payment, which has been accessed by a little over one-fifth of businesses in the state. Likewise, one-fifth of Victorian businesses have

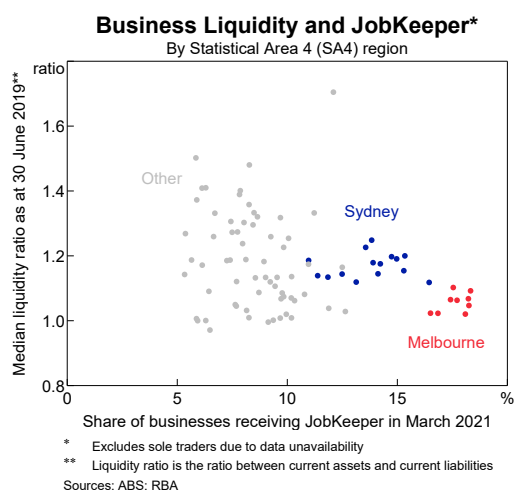
received similar payments through the Business Costs Assistance Program. Some states have also introduced tax deferrals or waivers (e.g. for payroll and land tax) and rent relief for some commercial tenants to further assist affected businesses.

Since early July, banks have offered loan repayment deferral arrangements of up to three months for small business customers (with loans in good standing of up to \$3 million and business turnover of less than \$5 million). As has been the case for housing loans, take-up to date has been negligible, at less than ½ per cent of SME loans by value in August 2021. Prior to this, arrears rates on business loans were very low.

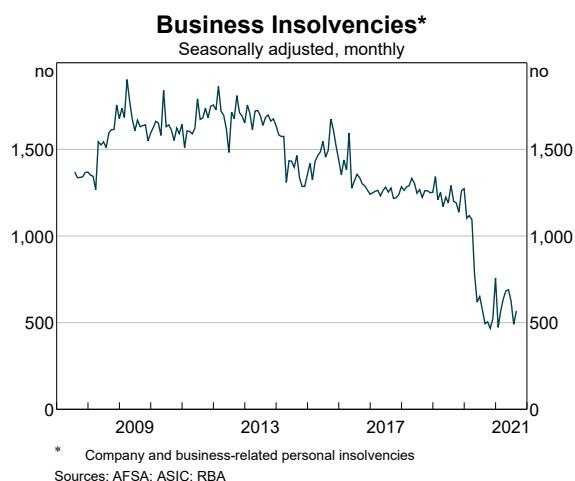
... but insolvencies are likely to rise from low levels

Temporary insolvency relief measures and income support policies had kept insolvencies at very low levels in the second half of 2020, both by providing liquidity and giving distressed businesses time to restructure or wind down without insolvency. As this support was unwound in early 2021, insolvencies rose modestly; however, into the second half of 2021, numbers have remained much lower than before the pandemic (Graph 2.15).

Graph 2.14



Graph 2.15



In the near term, government support measures for businesses in areas affected by recent lockdowns will help keep insolvencies low. However, increases are likely over a longer period as vulnerable businesses exhaust their cash buffers. One potential mitigating factor from a financial stability perspective is that around 30 per cent of bank lending for SMEs (those with an annual turnover of less than \$50 million) is secured by residential property, meaning that the recent increases in housing prices will likely help some businesses avoid insolvency. For those that do become insolvent, insolvency policies for incorporated small businesses introduced at the beginning of the year are helping to improve outcomes for businesses and their creditors. These include a new debt-restructuring process and simplified liquidation procedures.

The risks of spillover effects from insolvencies to other businesses through trade credit links appear to have declined since the start of the pandemic, in part because businesses' cash buffers have generally risen. While firm-level analysis suggests businesses in vulnerable industries such as retail, accommodation & food services and construction typically owed significant amounts to other businesses prior to the pandemic, evidence suggests that invoicing practices have since tightened. Data for a sample of small businesses show that the average time to be paid is roughly 5 per cent lower than in early 2020 (Graph 2.16).

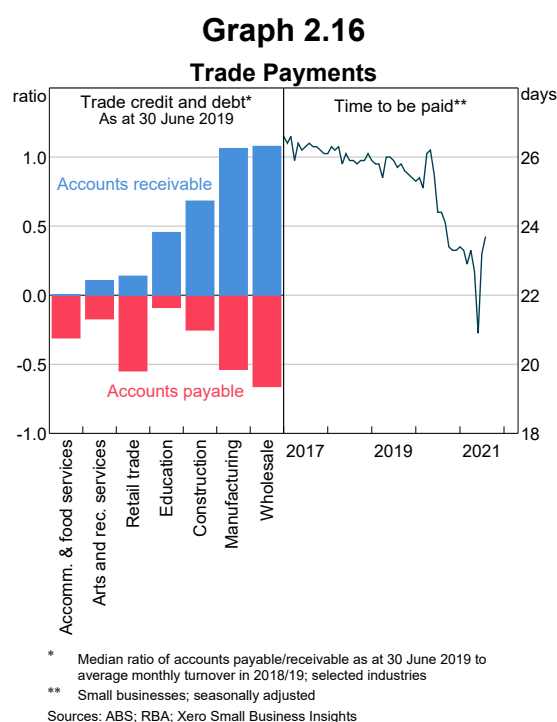
Risks to retail and office property landlords remain elevated ...

Prior to the pandemic, retail commercial property was already facing challenges, partly reflecting a longer-run structural shift towards online retailing.^[1] Restrictions on face-to-face retailing for non-essential items during the pandemic have accelerated this process. This has placed further pressure on many bricks-and-mortar retailers, and is contributing to greater

uncertainty about the longer-term outlook for tenant demand.

Retail vacancy rates, which had been drifting higher over a number of years, have increased sharply since early 2020 (Graph 2.17). The largest increases have occurred in central business districts (CBDs) of major capital cities, where rents have declined by nearly 15 per cent since the start of 2020. Conditions have been relatively more favourable in neighbourhood shopping centres because they are mainly focused on essential food retailing, with supermarkets as anchor tenants. While speciality store vacancy rates in neighbourhood centres have increased, rents have remained fairly stable.

In some states and territories, governments have reintroduced rules requiring negotiation of temporary rent relief for commercial tenants that are experiencing financial stress due to COVID-19 trading restrictions. Under these arrangements, some landlords are eligible for support through grants or tax relief, and this is providing some support to cash flows in light of temporarily declining rent receipts. Large listed real estate investment trusts (which own around



three-quarters of regional and sub-regional shopping centres) are in good financial health and appear well placed to absorb temporary reductions to income resulting from the 2021 lockdowns.

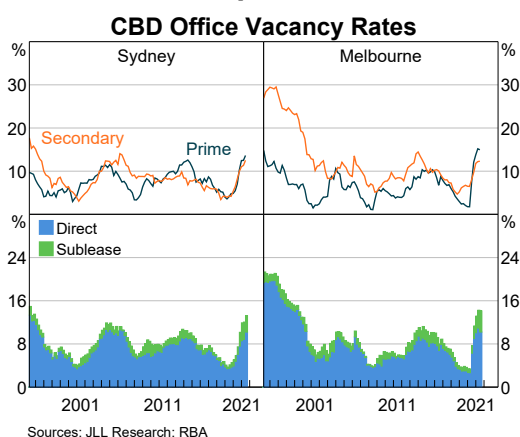
Office tenant demand has declined considerably since the start of the pandemic. The increase in vacancy rates has been most pronounced in Sydney and Melbourne, and evident in both prime and secondary-grade markets (Graph 2.18). More than one-quarter of the rise reflects an increase in subleasing vacancies, suggesting landlords are still receiving at least some rent for those properties. However, there is a risk that landlord rental income will decrease further if head leases are not renewed on subleased space. Overall, prime CBD effective rents fell by 13 per cent in Sydney and 5 per cent in Melbourne over the year to June 2021, as incentives provided by landlords increased. Conditions in secondary-grade markets could weaken further as demand tends to shift to discounted higher-grade properties.

A large volume of office supply is due to be completed in Sydney and Melbourne in the near term (Graph 2.19). In Melbourne, office completions in the second half of 2021 alone are expected to be almost double their decade

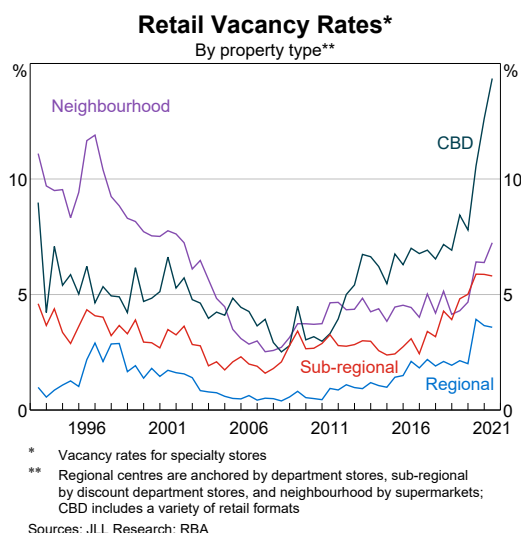
annual average. Given weak demand, further increases in vacancies and declines in rents are likely. Around half of the additional supply under construction has pre-committed tenants, reducing the risk to income for owners of newly developed buildings.

There is considerable uncertainty about the demand for office space over the longer term. While remote working reduces the need for office space, changes in office configurations to accommodate social distancing will likely increase the floor space required per worker. Despite the uncertainty around leasing demand, valuations have been little changed over the past year, as weaker expectations about future

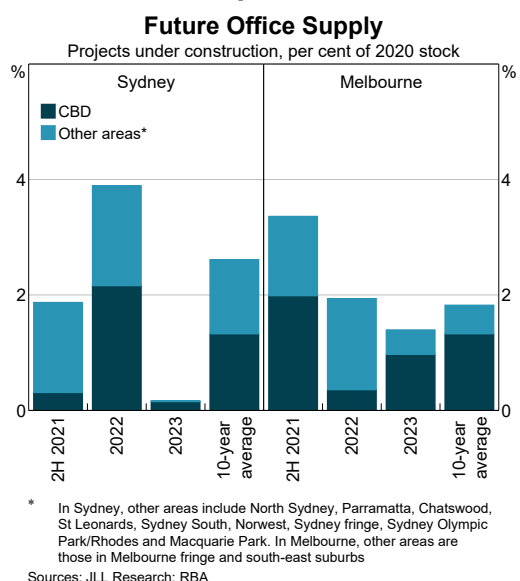
Graph 2.18



Graph 2.17



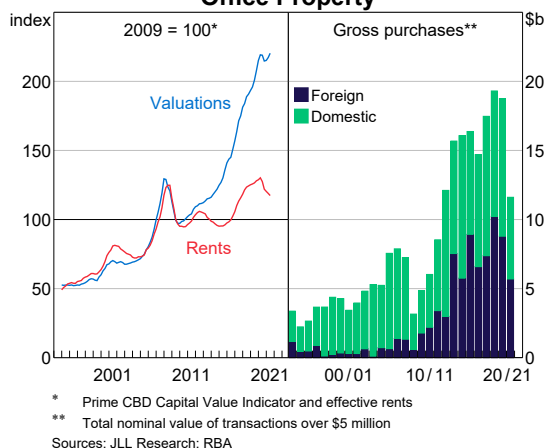
Graph 2.19



rental income growth have been offset by low interest rates and ongoing strong foreign demand (Graph 2.20).

Graph 2.20

Office Property



... but risks to banks remain low

Despite these challenges, risks to banks remain low. Banks' commercial property exposures are less than 6 per cent of total assets, and impairment rates on these exposures remain negligible. Strong lending standards have been maintained in recent years, and widespread use of watchlists and loan covenants provide lenders with early warning signals for borrowers experiencing financial difficulties. Liaison with banks suggest these instances remain rare. Non-bank lenders continue to account for only a small share of commercial property lending, though there are some signs that they have been growing their loan books over the past year, typically with less stringent lending criteria relative to banks. ✎

Endnotes

- [1] For further details, see RBA (2021), 'Box B: Risks in Retail Commercial Property', *Financial Stability Review*, April, pp 32–36.

3. The Australian Financial System

The Australian financial system has been resilient through the COVID-19 pandemic. The strong capital and liquidity positions of financial institutions are enabling them to continue supporting households and businesses through the latest lockdowns and will allow them to support the recovery to follow. Some banks have begun returning capital to shareholders through share buybacks, as capital had been accumulated in anticipation of pandemic-related losses that did not eventuate. Banks had provisioned against much larger expected losses, but have started to release these provisions due to better-than-expected economic conditions in late 2020 and the first half of 2021. Given the uncertainty around the effects of the latest lockdowns, they have begun to do so only gradually and provisions remain above pre-pandemic levels. There has been an increase in applications for loan payment deferrals and other support due to the current lockdowns, but these remain well below levels seen earlier in the pandemic in 2020.

Other financial institutions also remain resilient. The asset composition of superannuation funds has normalised following the temporary spike in demand for liquidity in 2020. Profits of insurers have increased, although some longer-term challenges remain. Regulators are engaging with financial market infrastructures on necessary steps to improve their resilience following recent incidents.

While the financial system has demonstrated its resilience to potential credit losses from virus-induced lockdowns, financial institutions face a number of other risks. The risks from information

technology (IT) malfunctions and cyber-attacks are substantial, and it is possible that a significant disruption could threaten financial stability. Risks from climate change, while currently not substantial, will grow over time if not addressed. These risks relate to the physical damage to assets, and the value of assets from changes to policy and technology that are implemented to address climate change and to assist in the transition to a lower emissions economy. Agencies on the Council of Financial Regulators (CFR) are working with Australian financial institutions to help manage these risks and to promote informative disclosures (see 'Box A: Australian Financial Regulators' Actions on Climate Change-related Risks').

Banks have remained profitable and well provisioned against future losses

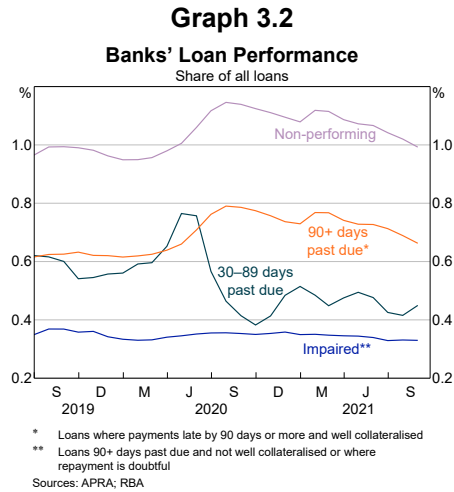
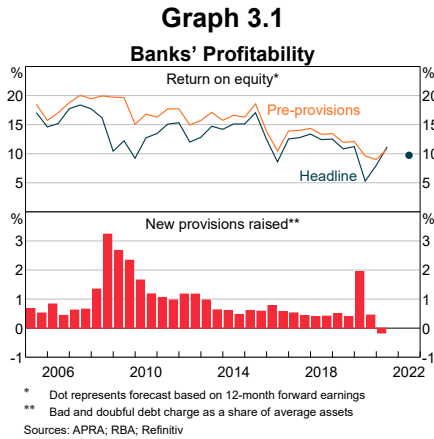
Banks' profitability increased over the first half of 2021, returning to the levels seen before the pandemic (Graph 3.1). Pre-provision profitability was supported by increased net interest income, which reflected a widening in banks' net interest margins as funding costs declined to historically low levels. However, lending and deposit rates have continued to drift lower and banks expect that the low interest rate environment and competitive pressures will weigh on margins going forward. A number of factors are likely to mitigate these effects, including lower bad and doubtful debt charges as lower interest rates reduce debt-servicing costs for borrowers, and stronger aggregate demand as expansionary policy settings continue to support the economic recovery.

The release of provisions over the first half of the year also supported profitability. Banks increased provisions for credit impairments early in the pandemic in expectation of future losses. However, to date, losses have been minimal, and the share of loans that are non-performing has returned to pre-pandemic levels (Graph 3.2). This better-than-expected outcome largely reflects the strength of borrower balance sheets due to policy support and the economic recovery in late 2020 and the first half of 2021. Banks have maintained a prudent approach to provisioning to account for additional uncertainty in the current environment, and aggregate provision balances as a share of loans are around 25 per cent above pre-pandemic levels. While lockdowns have been reinstated in recent months in Australia's two most populous states (New South Wales and Victoria) due to virus outbreaks, the reinstatement of loan payment deferrals and associated regulatory relief from the Australian Prudential Regulation Authority (APRA) will temporarily support asset quality metrics. To date, the take-up of new loan payment deferrals is well below the levels seen in 2020 (see 'Chapter 2: Household and Business Finances in Australia').

Banks have strong capital positions, leading some to return capital to shareholders ...

Australian banks' capital positions strengthened further over the first half of 2021, and are well in excess of regulatory capital requirements and APRA's 'unquestionably strong' benchmark (Graph 3.3; Graph 3.4). The four major banks' Common Equity Tier 1 (CET1) capital ratios have increased to be 1½ percentage points above pre-pandemic levels, and 2 percentage points above APRA's 'unquestionably strong' benchmark. The large CET1 capital buffers have come from retained earnings, reflecting high profitability and regulatory restrictions on returning profits to shareholders through dividends during 2020.

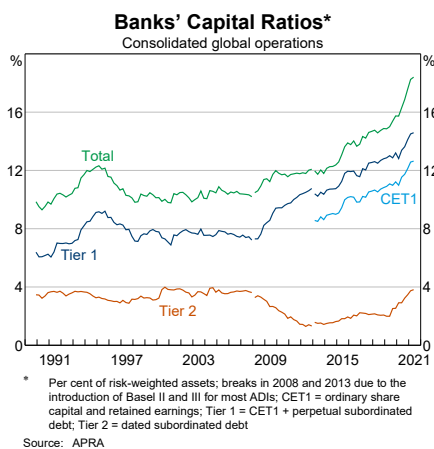
Given their strong capital positions and the improved economic outlook around the start of the year, APRA has removed restrictions on banks' capital distributions. Some banks have begun to return capital to shareholders through share buybacks and increased dividend payments. The impact on the CET1 ratios of the three major banks that have started share buybacks is expected to be a decline of between 35 and 130 basis points. For some, this will be partly offset by the completion of



upcoming asset sales, including of insurance businesses to streamline operations. APRA's decision to allow banks to not record COVID-19-affected loans receiving payment deferrals as being in arrears will provide temporary support to bank capital positions. Australian banks are also well positioned for upcoming capital regulatory reforms. These include the Reserve Bank of New Zealand's (RBNZ) higher capital requirements for New Zealand banks, which will affect their Australian parent banks, as well as changes to APRA's capital requirements for equity investments in

banking subsidiaries to take effect in 2022. The four major banks have increased their Total Capital ratios, with Tier 2 capital increasing by 2 percentage points since mid 2019. These increases show progress towards APRA's requirement of a 3 percentage point increase in Total Capital by 2024, to increase loss-absorbing capacity to support orderly resolution in the unlikely event of a failure. Final prudential standards for APRA's comprehensive revisions to the banks' capital framework will be released in November 2021, and come into effect in 2023. The revisions will embed APRA's 'unquestionably strong' benchmark into the framework and improve the allocation of capital to risk.

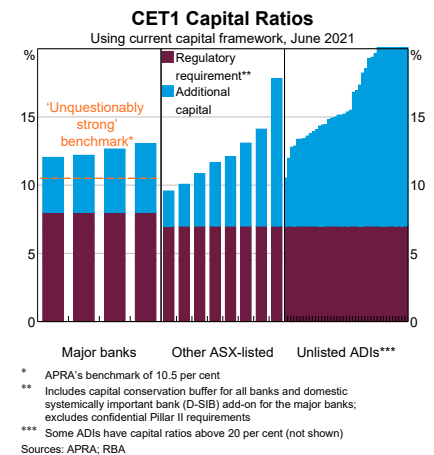
Graph 3.3



... and stress testing indicates that capital will remain above minimum requirements even in a severe economic contraction

The Reserve Bank's stress testing simulations indicate that the aggregate CET1 ratios for large and mid-sized banks would remain well above minimum required levels even if economic conditions were to deteriorate substantially (Graph 3.5). An example is the downside scenario for economic activity presented by the Bank at the beginning of the pandemic,^[1] in which GDP falls by a little over 10 per cent and the unemployment rate increases to over 10 per cent. In addition, housing prices are assumed to fall by around 10 per cent. The resulting projected capital depletion for large and mid-sized banks is around 3 percentage points. In such a scenario, even after the recently announced capital returns by the major banks, CET1 ratios would remain substantially above prudential minimum requirements. Stress testing performed by APRA in 2020 also indicates that the banking system is able to withstand a severe downturn and remain above its prudential minimum requirement.^[2]

Graph 3.4



Banks' liquidity positions remain strong

Banks have continued to hold significant buffers of liquid assets that could cover an unexpected surge in short-term cash outflows. Banks' holdings of high-quality liquid assets (HQLA) have increased since the onset of the pandemic. This has been facilitated by growth in deposits and Reserve Bank policy support, such as the Term Funding Facility (TFF) and bond purchases, which have contributed to higher Exchange Settlement balances at the Bank (Graph 3.6).

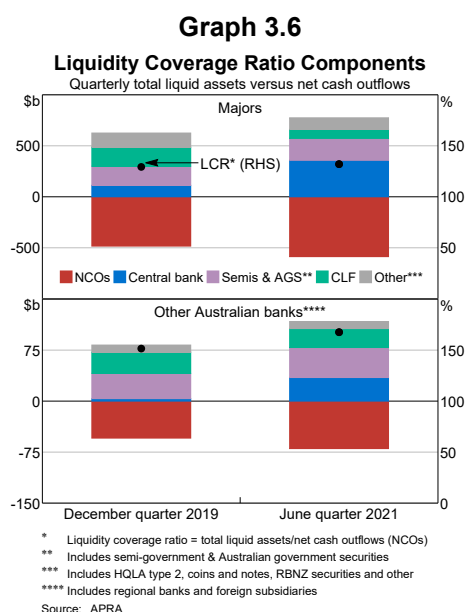
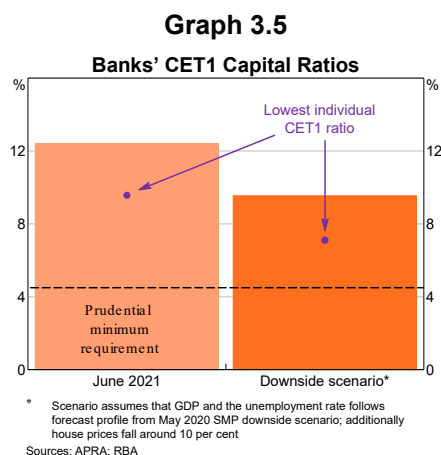
As banks' holdings of HQLA have increased, allocations under the Reserve Bank Committed Liquidity Facility (CLF) have declined, particularly for the four major banks.^[3] The CLF complements available HQLA to ensure banks have sufficient access to liquid assets for a stressed period. The CLF has been required in Australia given the historically limited supply of HQLA due to low levels of Australian government debt. However, since early 2020, issuance of both Australian Government Securities (AGS) and securities issued by the central borrowing authorities of the states and territories (semis) have increased significantly to fund the fiscal policy response to the pandemic. As a result, there is a larger amount of AGS and semis that banks are able to hold – both in terms of value and issuance share – without adversely affecting market functioning. Since the start of the

pandemic, the total size of the CLF has been reduced by \$83 billion to \$140 billion, and APRA expects the size of the CLF to decline to zero by the end of 2022.

Banks' required holdings of liquid assets, which are intended to cover projected outflows in a stress scenario, have increased since the onset of the pandemic. This has been driven by an increase in banks' deposit funding and a shift of deposit funding from ('sticky') term deposits to (easy-to-withdraw) at-call deposits.^[4] For the major banks, the increase in liquid assets has matched this increase in short-term liabilities, leaving the ratio of these – the Liquidity Coverage Ratio (LCR) – little changed since the beginning of the pandemic. For the smaller LCR banks, their LCRs have increased over this period as their liquid assets have increased by proportionately more.

Banks face a sizeable but manageable TFF refinancing task over the coming years

Over the next two to three years, banks will need to repay the \$188 billion they have accessed



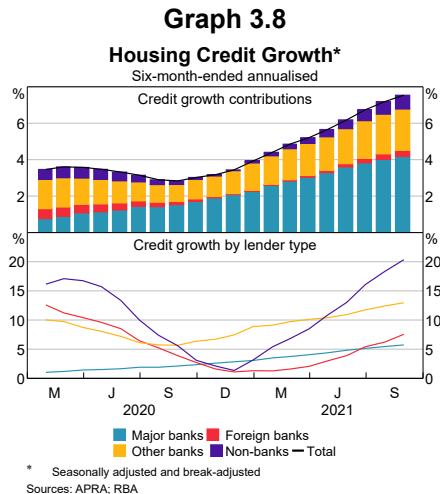
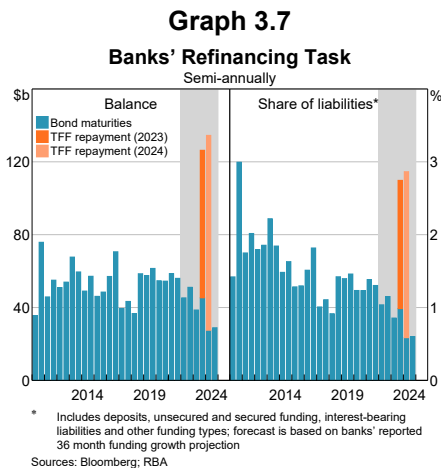
from the Reserve Bank's TFF.^[5] Banks' decisions about how to repay the funding will depend on a number of factors, including their asset growth and the price and availability of different funding sources. According to liaison, banks plan to raise most of the funds from wholesale debt markets. This, together with other bonds maturing, results in a debt issuance task in the six months around each TFF maturity date of approximately \$130 billion, which is equivalent to around 3 per cent of banks' total liabilities (Graph 3.7).

The TFF refinancing task is unlikely to pose a significant challenge for the banking sector overall, provided there is no broader market disruption at the time. Liaison with banks and non-banks suggests that the cost of wholesale debt is expected to increase somewhat from their current lows as banks refinance their TFF funds, but financial conditions are expected to remain accommodative. Banks have indicated that they intend to smooth issuance of wholesale debt over a period of time, resulting in a steady stream of issuance similar to that seen prior to the pandemic. By spreading out the refinancing task, banks will have time to adjust their issuance plans should prevailing market conditions warrant. Further supporting the issuance task is the fact that Australian banks remain highly rated by global standards,

reflecting their strong capital positions and continued profitability.

Risks from non-bank lenders remain limited

Over recent months, non-bank lending to households has picked up significantly alongside strong demand for housing credit; however, the stock of this lending remains small (Graph 3.8). Information from liaison suggests that non-banks have maintained sound lending standards, but this lending could potentially entail risks given the lighter regulation of non-banks relative to banks. However, the broader risks arising from this sector remain limited. Non-bank debt financing represents less than 10 per cent of financial system assets and a similar share of new housing lending, and the risk of contagion from non-banks to the banking sector is low. The banking system's exposure to non-banks is small at around 4 per cent of total assets, having declined in recent years from a peak of just under 10 per cent in 2008.



Insurers' profits have increased but there remain longer-term issues to address

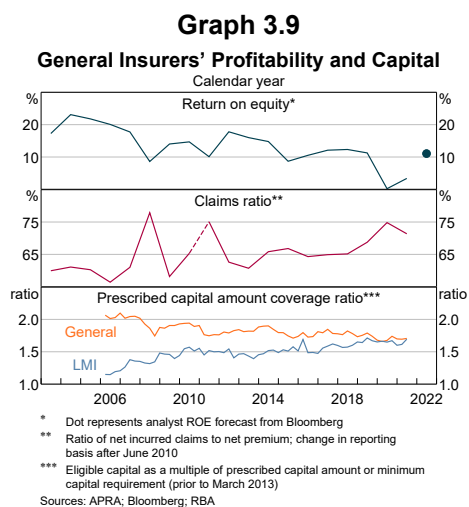
General insurers' profits in the year to date have more than made up for the large losses experienced in 2020, which analysts attributed to exceptional factors (such as natural disasters and excess provisioning) (Graph 3.9). The recovery in profits so far this year has mostly reflected the release of excess provisions. Insurers have increased their reinsurance cover following the catastrophic bushfires and severe storms experienced in 2019 and 2020, which will cap their exposures over the life of these reinsurance policies. Further, general insurers' strong capital positions leave them well placed to absorb the impact of potentially higher claims and investment losses in the near future. The overall industry capital position is equivalent to 1.7 times APRA's prescribed capital amount.

The profitability of lenders mortgage insurers (LMIs) has also increased, underpinned by Australian Government stimulus payments to households and a resilient housing market. LMIs remain well provisioned and retain a strong capital position, and their internal stress tests suggest they can withstand a substantial rise in insurance payouts. APRA's stress tests found that

the LMI industry as a whole is able to withstand a severe downside scenario; however, the resilience of some individual insurers was challenged.^[6]

Insurers continue to face some longer-term challenges that could affect profitability. The low interest rate environment presents longer-term risks to general insurers if they do not reprice policies in response to expected lower investment returns. Low interest rates pose a challenge for insurance policies that face ongoing claim payments for many years after premiums are received, such as compulsory third party motor vehicle, product and public liability, professional indemnity and workers compensation. Another longer-term issue relates to insurers' exposures to risks arising from climate change due to the protection offered to customers against natural disasters (discussed below).

Longstanding issues with individual disability income insurance (DII) continue to affect life insurers' profitability. Substantial under-pricing, loose product definitions and higher-than-expected claims have resulted in DII being the main contributor to the poor profitability of the industry over the past few years, notwithstanding a more recent improvement in the performance of most risk products (Graph 3.10). The adequacy of life insurers' responses to these issues continues to be assessed by APRA. Due to the long-term nature of these insurance contracts and the associated large ongoing exposure to historical policies, as well as the potential for increased mental health issues arising from the pandemic and the pressure to retain market share in a competitive industry, it is anticipated that these issues will persist for some time.



Superannuation funds' assets have increased to be above pre-pandemic levels

Superannuation funds' total assets have grown to exceed pre-pandemic levels, after falling to 2018 levels last year in part due to exceptional member withdrawals (Graph 3.11). These withdrawals made up one portion of a large increase in liquidity demand faced by funds in 2020^[7] – demand that was met by selling fixed income securities and equities. Since then, funds have returned to investing in riskier assets (such as equities) in favourable market conditions, and the size of their balance sheets has increased to be above pre-pandemic levels. Overall, the industry demonstrated in 2020 that it is well positioned to accommodate future liquidity challenges due to its robust liquidity management practices, liquid asset holdings and APRA's prudential oversight.

Self-managed superannuation funds (SMSFs) increased their holdings of risky leveraged property loans, known as 'limited recourse borrowing arrangements' (LRBA), by 8 per cent over the past year. Such borrowing arrangements allow an SMSF trustee to borrow for investment purposes. If the trustee defaults on the loan, the lender's rights are limited to the

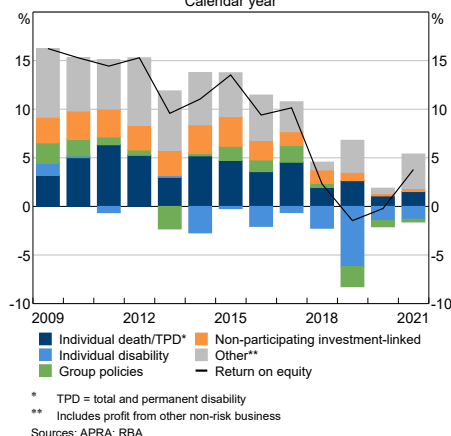
specific asset bought with the loan and there is no recourse to other assets held in the SMSF. Assets funded with LRBA represent 7 per cent of total SMSF asset holdings. While the major banks and other main lenders have withdrawn from providing LRBA, finance provided by non-bank lenders has grown alongside higher property prices and the low interest rate environment. APRA has noted concerns around this product because the additional direct leverage exposes SMSF members to greater financial risks.

Financial market infrastructures continue to focus on improving resilience in light of recent incidents

Financial market infrastructures (FMIs), such as central counterparties (CCPs), securities settlement facilities and high-value payment systems, enable financial system participants to manage credit and liquidity risks. Resilient FMIs help to underpin confidence in the operation of capital markets. The Reserve Bank's recent assessments of Australian FMIs concluded that, on balance, they have all conducted their affairs in a way that promotes overall stability in the Australian financial system. However, these reviews identified several areas in which the resilience of FMIs could be further strengthened.

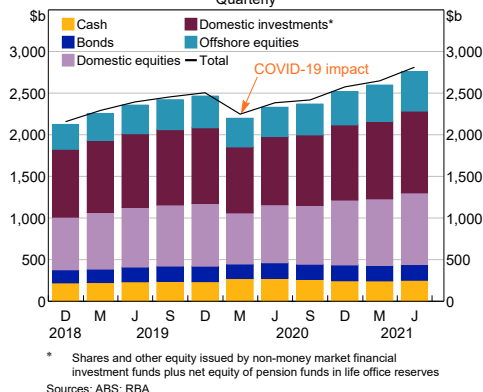
Graph 3.10

Contributions to Life Insurers' Profitability
Calendar year



Graph 3.11

Superannuation Funds' Financial Assets
Quarterly



An independent review of the project to upgrade ASX Trade – the core equity trading platform of the Australian Securities Exchange (ASX) – was released in August 2021. The ASX experienced a number of significant operational incidents in late 2020 that affected the availability of systems used in the trading and settlement of ASX equities and equity options, including the closure of the ASX market for most of 16 November 2020. This incident followed a major upgrade to ASX Trade. The review was commissioned by ASX in line with the expectations of its regulators – the Australian Securities and Investments Commission (ASIC) and the Reserve Bank. The review found that, while the project met a majority of expected industry standards, there were a number of key shortcomings that should be addressed. ASIC and the Bank are engaging with ASX on its response to the review, and expect that insights from the review will be incorporated into projects across the ASX Group, including the ongoing project to replace the CHES system for clearing and settlement of equities.^[8]

The Bank's 2021 assessment of Australia's high-value payment system – the Reserve Bank Information and Transfer System (RITS) – noted the importance of completing a program of improvements to physical data centre infrastructure and oversight of maintenance arrangements. These improvements were identified in the Bank's review of lessons learned from a 2020 data centre power outage that was triggered by maintenance to a fire control system, resulting in a short interruption to settlement in RITS.

There has also been a sustained focus by the Bank over recent years on operational risk management at LCH Limited (LCH Ltd), a London-based CCP providing clearing services to Australian participants via its SwapClear service. In February 2021, there was an operational incident in SwapClear that led to a temporary disruption to service. The Bank is

satisfied with the steps being taken by LCH Ltd to prevent similar incidents from reoccurring and will continue to monitor remediation actions as part of its regular supervisory activities.

Financial institutions continue to work on managing financial risks from climate change ...

Climate change directly affects the Australian financial system through the physical risks to assets, as well as the transition risks that arise from policies and technologies implemented to address climate change and assist in the transition to a lower emissions economy. Australian financial institutions are vulnerable to these growing risks and, if not adequately managed, there could be considerable implications for financial stability.^[9] With increased focus on the risks from climate change, especially internationally, CFR agencies are working with Australian financial institutions and corporations to understand and manage the associated financial risks (see 'Box A: Australian Financial Regulators' Actions on Climate Change-related Risks').

There is significant uncertainty about the magnitude of risks to banks from climate change. However, the larger the change in the global and local climate from historic patterns, the greater the increased physical risks from more frequent and intense extreme weather events and higher average temperatures, which in turn are likely to reduce the value of some banks' assets and income streams. Mortgages account for approximately two-thirds of banks' credit portfolios and so potentially represent a significant source of exposure to the effects of climate change. To the extent that the current prices of some dwellings (which are used as collateral for loans) do not fully reflect the longer-term risks of climate change, future price falls in recognition of climate risk could leave banks with less protection than expected

against borrower default. The risk of credit losses borne by banks is further increased if properties are not fully insured or become uninsurable (which itself may be exacerbated by changing climate risks).

Estimates of the impact on Australia's five largest banks of two potential climate scenarios will be provided in the Climate Vulnerability Assessment (CVA) currently being led by APRA. Using an alternative approach, preliminary analysis by the Bank suggests that these risks are likely to be concentrated in a small number of geographical areas, such as agricultural and farming regions in New South Wales and Queensland, and metropolitan areas adjacent to the ocean and waterways.^[10] The analysis suggests that by 2050, just over 1 per cent of properties are expected to experience a decline in value of 10 per cent or more relative to current prices (and holding all else equal) (Graph 3.12). The risk to banks would be larger if incomes also decline in these regions because of the difficulty of adapting to climate change.

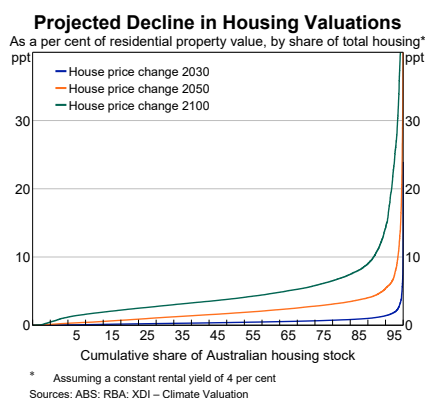
Insurers are more exposed to physical risks from climate change than banks because their policies cover natural disaster damage to property, motor vehicles, crops and other assets. An increase in the frequency and severity of natural disasters is expected to result in higher payouts. However, Australian insurers have been

managing this risk by increasing their reinsurance cover provided by large global firms, which caps their exposures to unforeseen increases in natural disaster claims. The cost of this reinsurance will rise over time if more frequent and extreme weather events increase these claims. Similarly, the cost of consumer insurance policies would rise, shifting the burden of adverse climatic change on to consumers (including that insurance may not be available in areas where the risks are seen to be too large by insurers).

Policy and technological changes that address climate change will moderate these physical risks, but may increase the 'transition risks' associated with the move to a lower emissions global economy. Sudden or unexpected changes in regulations, technology or consumer preferences could quickly lower the value of assets or businesses in emissions-intensive industries, some of which may become economically unviable or 'stranded'. Preliminary estimates by the Bank are that lending to such industries (but including some assets in these industries that are not emissions intensive) accounts for around 20 per cent of banks' business loans exposure; these industries include electricity, agriculture, and oil and gas (Graph 3.13). There will also be indirect transition risks as the economy adjusts. Financial institutions need to measure, disclose and actively manage these risks, ensuring they have appropriate information to do so and price their products accordingly.

Managed funds are exposed to physical and transition risks from climate change through their investment portfolios. Australian superannuation funds, which account for a large share of the managed funds sector, are overwhelmingly defined contribution funds and unleveraged. As such, the risk from declining asset values is borne by members rather than funds themselves, meaning that risks to the real economy and financial stability are transmitted

Graph 3.12



through losses in household wealth. However, there could be other spillovers from falls in asset values, including through managed funds rebalancing their portfolios away from banking assets in response to climate-related losses; managed funds account for 9 per cent of banks' funding.

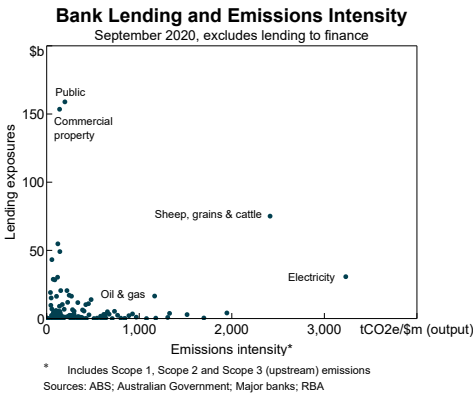
... in addition to technology risks

The risks to IT systems from both malfunctions and cyber-attacks are rated as a key concern by financial institutions, regulators and governments. These risks have grown as digital platforms and service channels have become more important to economies and are increasingly interconnected and complex. Changes to business operations due to the pandemic have increased vulnerabilities through a higher prevalence of remote working by employees.^[11] In addition to inherent system vulnerabilities, risks from cyber-attacks are growing, reflecting increased technological capability and sophistication of highly organised cyber criminals and state-sponsored attackers. In recognition of this, Australian regulators are working together to support financial institutions' efforts to strengthen cyber resilience (see 'Chapter 4: Domestic Regulatory Developments').

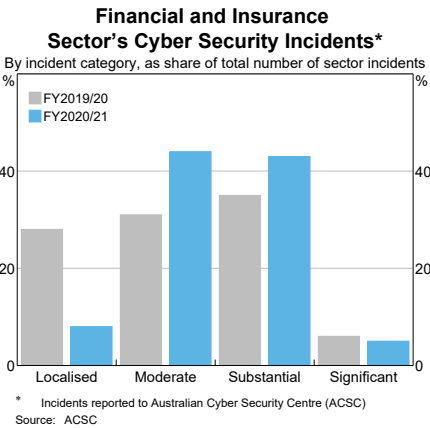
To date, cyber incidents have caused only limited disruptions and financial losses for a small number of institutions. Nevertheless, the Australian Cyber Security Centre (ACSC) observed that in the 2020/21 financial year, cyber incidents affecting the Australian financial sector had on average a greater impact compared with the prior year, a trend also seen in other sectors (Graph 3.14).^[12] There were several large-scale, high-profile attacks in the financial year – including those affecting Accellion, Microsoft Exchange and SolarWinds – as well as instances of system malfunctions leading to the release of confidential information by the cryptocurrency exchange BTC Markets and financial research firm Morningstar.

While the impact of incidents to date has been limited, given the large number of attempts a significant cyber event that has the potential for systemic implications is at some point inevitable.^[13] A resulting loss of public confidence could lead to wide-spread stress in the financial system. Compromised confidential information could lead to severe reputational damage and reluctance from market participants to extend liquidity or credit. The increased level of interconnectedness in the financial system – including through a network

Graph 3.13



Graph 3.14



of third-party service providers, critical FMLs, lenders and counterparties – could rapidly transmit the impact of a cyber incident from one institution to another. For example, several banks may rely on real-time payments from a major participant in the wholesale settlement system, which if incapacitated for a prolonged period of time could put pressure on intraday liquidity. In addition, an inability to substitute away from a key institution or service provider could cause severe operational disruptions at other institutions along the supply chain.

Sound culture and governance practices support robust risk management and decision-making

Failures of culture and appropriate governance can encourage excessive risk-taking and poor decision-making practices, leading to the erosion of public trust in financial institutions. Such failures, including when interacting with other vulnerabilities (such as climate change and cyber risks), could have serious financial implications. In the past this has included large remediation costs and penalties, and regulators tightening restrictions on the operations of financial institutions.

Regulators' focus on culture, compliance and governance has continued in recent months. APRA has released its final remuneration prudential standard for financial institutions.^[14] This includes a requirement to give material weight to non-financial metrics in determining variable remuneration and increased board oversight of remuneration outcomes, which together help incentivise bank executives to prioritise prudent risk management and thereby foster financial resilience. The Reserve Bank has undertaken a detailed review of the governance of the ASX's CCPs and securities settlement facilities as part of its 2021 ASX assessment.^[15] While the review concluded that the ASX has a skilled and experienced board, it made a number of recommendations for improvement. These include: increasing the attention given to the CCPs and securities settlement facilities within the broader ASX Group; making lines of executive responsibility and accountability clearer; and improving the oversight of technology projects and focus on stakeholder management. Finally, the RBNZ issued a formal warning to the New Zealand subsidiary of Westpac for failing to report transactions as required by anti-money laundering and counter-terrorism financing requirements. 🚫

Endnotes

- [1] See RBA (2020), *Statement on Monetary Policy*, May.
- [2] APRA (2020), 'Stress Testing Banks during COVID-19', Information Paper, December. Available at <<https://www.apra.gov.au/stress-testing-banks-during-covid-19>>.
- [3] For more detail, see Brischetto A and L Jurkovic (2021), 'The Committed Liquidity Facility', *RBA Bulletin*, June.
- [4] For more detail on recent trends in bank funding, see Garner, M and A Suthakar (2021), 'Developments in Banks' Funding Costs and Lending Rates', *RBA Bulletin*, March.
- [5] See Black S, B Jackman and C Schwartz (2021), 'An Assessment of the Term Funding Facility', *RBA Bulletin*, September.
- [6] See APRA (2021), 'Stress Testing Insurers during COVID-19: Results and Key Learnings', Insight, 3 August. Available at <<https://www.apra.gov.au/news-and-publications/stress-testing-insurers-during-covid-19-results-and-key-learnings>>.
- [7] See RBA (2021), 'Box C: What did 2020 Reveal About Liquidity Challenges Facing Superannuation Funds?', *Financial Stability Review*, April.
- [8] For more detail, see RBA (2021), 'Update on the Independent Expert Review of November's ASX Trade Outage', Media Release No 2021-17, 23 August.
- [9] Financial institutions are also exposed to liability risks, which stem from the potential for litigation (and resulting business disruptions and penalties) for not adequately considering or responding to the impacts of climate change. See APRA (2021), 'Draft CPG

229 Climate Change Financial Risks', Prudential Practice Guide, April. Available at <https://www.apra.gov.au/sites/default/files/2021-04/Draft%20CPG%20229%20Climate%20Change%20Financial%20Risks_1.pdf>.

- [10] There are considerable uncertainties and limitations that prevent more definitive conclusions from being reached. See Bellrose K, D Norman and M Royters (2021), 'Climate Risks to Australian Banks', *RBA Bulletin*, September.
- [11] See Aldasoro I, J Frost, L Gambacorta and D Whyte (2021), 'Covid-19 and Cyber Risk in the Financial Sector', *BIS Bulletin*, No 37, January. Available at <<https://www.bis.org/publ/bisbull37.pdf>>.
- [12] Data provided by ACSC on 10 August 2021. ACSC categorises reported incidents based on the severity of impact and extent of compromise; for details, see ACSC (2021), 'ACSC Annual Cyber Threat Report 1 July 2020 to 30 June 2021', September. Available at <<https://www.cyber.gov.au/sites/default/files/2021-09/ACSC%20Annual%20Cyber%20Threat%20Report%20-%202020-2021.pdf>>. The incident categories include: (1) national cyber incident (generally affecting national security, Australian essential services, critical infrastructure or impacting a large number of individuals or organisations); (2) highly significant incident (generally affecting the Commonwealth government, national infrastructure, the supply chain

of critical national infrastructure, national security, Australian essential services, or a large number of individuals or organisations); (3) significant incident (generally affecting Commonwealth or state governments, large organisations or the supply chain of critical national infrastructure); (4) substantial incident (generally affecting medium or large organisations, Commonwealth or state governments or academia); (5) moderate incident (generally affecting small to medium organisations); and (6) localised incident (generally affecting individuals or small organisations).

- [13] For a discussion on the cyber risks globally, see Maurer T and A Nelson (2021), 'The Global Cyber Threat', *IMF Finance & Development*, March. Available at <<https://www.imf.org/external/pubs/ft/fandd/2021/03/pdf/global-cyber-threat-to-financial-systems-maurer.pdf>>. For a recent discussion on the cyber risks facing Australian banks, see Byres W (2021), 'Speech to the 2021 AFR Banking Summit', 30 March. Available at <<https://www.apra.gov.au/news-and-publications/apra-chair-wayne-byres-speech-to-2021-afr-banking-summit>>.
- [14] APRA (2021), 'Response Paper – Strengthening Prudential Requirements for Remuneration', August. Available at <<https://www.apra.gov.au/consultation-on-remuneration-requirements-for-all-apra-regulated-entities>>.
- [15] See RBA (2021), 'Annual Assessment of ASX', September.

4. Domestic Regulatory Developments

Australia's key financial regulatory agencies – the Australian Prudential Regulation Authority (APRA), the Australian Securities and Investments Commission (ASIC), the Australian Treasury and the Reserve Bank of Australia – coordinate their activities via the Council of Financial Regulators (CFR). The CFR is chaired by the Bank, which also provides the secretariat. CFR agency heads meet quarterly; ongoing inter-agency collaboration occurs through a number of working groups, complementing the frequent informal bilateral contact between individual agencies.

In light of the resurgence of COVID-19 cases and renewed lockdowns in a number of states and territories, the CFR is once again closely monitoring the impact of the pandemic on the resilience of households, businesses and the financial system. While CFR members expect the economy will bounce back as vaccination rates increase and restrictions are eased, they remain alert to pockets of stress that may cause hardship and restrain the eventual recovery. The CFR welcomes the role that financial institutions are once more playing in supporting affected households and businesses, including by offering temporary loan payment deferrals. The CFR is closely monitoring risks relating to trends in household debt. Further, it has been discussing the financial risks from climate change and regulatory arrangements for electronic conveyancing and stablecoins. The CFR has engaged other Australian regulators in some of these important discussions.

The effects of the pandemic have once again been a key focus of the CFR ...

The recent lockdowns across several states and territories have led to a renewed focus by the CFR agencies on the effects of the pandemic on households, businesses and the financial sector. The CFR discussed these developments at its September 2021 meeting. As outlined in the earlier chapters of this *Financial Stability Review*, all three of these sectors entered this new period of lockdowns in a sound financial position, reflecting earlier support measures and the strength of the economic recovery to that point. This allowed lenders to again extend support to borrowers through loan payment deferrals, though in a more targeted way. Loan payment deferrals were again supported by regulatory relief provided by APRA. These measures have been working in conjunction with financial relief provided by the federal and state governments.

While there are isolated pockets of stress among households and businesses – some of which may persist for some time – CFR members remain confident that the economy will recover well once restrictions are eased. The financial sector is expected to remain healthy and well positioned to support a robust expansion from late 2021.

CFR members also discussed progress in settling the legal validity of business interruption insurance (BII) claims for businesses affected by the pandemic. An initial test case was finalised in June 2021 – it found that insurers could not rely on policy exclusions referencing the repealed

Quarantine Act 1908. Another test case is underway to clarify the interpretation of other details in BII policies. The CFR has encouraged insurers to proactively reach out to policy holders and settle valid claims quickly and efficiently once legal clarity has been established.

... as well as monitoring household borrowing and the housing market

The CFR closely monitors credit conditions, with housing credit a focus in 2021. As discussed in 'Chapter 2: Household and Business Finances in Australia', housing borrowing continued to pick up over the first half of the year, with strong housing market activity in most markets. In the context of very low interest rates and rising housing prices, CFR members have stressed the importance of maintaining sound lending standards. More broadly, members are carefully monitoring trends in household debt, and have discussed policy options to target growing risks due to household borrowing outpacing incomes. In early October, APRA announced that it would increase the serviceability assessment rate it expects banks to use when assessing prospective borrowers' home loan applications (see 'Chapter 5: Mortgage Macprudential Policies'). This action, which will increase the resilience of borrowers, was supported by the other CFR members. Given the increased focus on macroprudential measures in Australia and overseas, APRA will also soon release a paper on its framework for macroprudential policy.

CFR agencies are working with the industry to understand and assess climate change-related financial risks

The risks to the financial system from climate change are a growing focus of the CFR. Financial institutions, particularly banks and insurers, are exposed to physical, transition and legal climate risks that need to be proactively managed. In addition, climate change and institutions'

responses are increasingly influencing the capital allocation decisions of many investors; this could have implications across the financial system and the real economy. These developments highlight the need for regulators and financial institutions to understand and manage climate change risks, which in turn requires robust disclosure of those risks.

The CFR agencies' activities to promote understanding, transparency and management of climate change-related risks are coordinated through the CFR Working Group on Financial Implications of Climate Change. A substantial program of work is currently under way (see 'Box A: Australian Financial Regulators' Actions on Climate Change-related Risks'). The CFR strongly supports and regularly discusses this work, as well as the ongoing constructive engagement between regulators and financial institutions on this topic.

Financial regulation is adapting to innovation and evolving needs

With financial technologies and business models continuing to evolve, a priority for both the government and CFR members has been to ensure that regulatory frameworks continue to encourage innovation, while maintaining their effectiveness and a level playing field. The CFR agencies have therefore sought to cooperate on the development of regulatory approaches to a range of innovations – in some cases, in conjunction with agencies outside the CFR.

A range of recent innovations have related to the payments system. For this reason, the CFR has discussed on several occasions the government's Payments System Review and the Reserve Bank's Review of Retail Payments Regulation. Both reviews recognise the need for the regulatory framework to respond to the evolving nature of the payments landscape. The final report of the Payments System Review, in particular, noted that regulatory and governance arrangements could be enhanced to reduce

complexity and be positioned to adapt to new challenges and opportunities. Key recommendations included:

- a greater role for the Australian Government in setting the strategic direction of the payments ecosystem, in collaboration with regulators and industry
- increasing flexibility to regulate new and emerging payment systems, including by expanding the Bank's ability to designate payment systems and by introducing a new designation power for the Treasurer, guided by national interest concerns
- introducing a tiered licensing framework, which would apply to defined regulated activities and make it easier for payment providers to seek authorisation and access payment systems.

The CFR discussed the recommendations at its September meeting, including their relevance to other CFR work streams. Members are also contributing to Treasury's consultation on the recommendations.

The Bank's Review of Retail Payments Regulation has been focused on the regulatory framework for card payments, along with broader issues arising from new entrants and innovation in retail payments. The Bank issued a consultation paper presenting preliminary conclusions in May 2021, which covered: issuance of dual-network debit cards and promotion of 'least-cost routing' of debit card transactions; debit card interchange fees; transparency of card network 'scheme fees'; and surcharging of 'buy now, pay later' systems. The final conclusions of the review will be released in coming weeks.

Earlier in 2021, the CFR formed a working group to investigate the regulatory implications of stablecoins – a type of crypto-asset that aims to maintain a stable value against one or more currencies or assets. While there has been almost no issuance of Australian dollar-denominated stablecoins and their use as a

payment method in Australia has been very limited, new arrangements could emerge that gain rapid adoption. The CFR has discussed the consumer and financial system risks related to stablecoins, as well as international regulatory developments. In light of increased activity in crypto-assets more broadly, the working group will merge with an existing group focused on distributed ledger technology, and examine possible regulatory arrangements in Australia for crypto-assets, including stablecoins. This will take into account the findings of the Payments System Review, earlier CFR recommendations on the regulation of stored-value facilities, and other recent developments.

CFR agencies have been working with other Australian regulators to address challenges in cross-border payments. This work has included coordinating on Australia's contribution to the Roadmap for Enhancing Cross-border Payments that has been developed by the Financial Stability Board (FSB) for the G20. The Roadmap is a five-year program of goals, milestones and responsibilities to address various frictions in wholesale and retail cross-border payment arrangements. These frictions contribute to the key challenges that end users and service providers of cross-border payments face – namely, high cost, low speed, limited access and insufficient transparency. The Bank is contributing to a number of Roadmap working groups, including those focused on: improving access to payment systems for new cross-border payment service providers; standardising payment messaging practices; and exploring issues presented by possible new infrastructure for cross-border payments, such as global stablecoins and central bank digital currencies. The G20 has requested that the FSB monitor progress and report annually, with the first progress report due in coming weeks.

A related issue has been the withdrawal of banking services ('de-banking') from some non-bank payments and other financial service

providers. This has included some remittance providers and financial technology companies. At a meeting with other government agencies in June 2021 (see below), the CFR discussed trends in, and the drivers of, de-banking, including the role of ‘know-your-customer’ obligations. A working group has been established to consider these issues in more depth and to investigate the feasibility of policy responses.

Regulation of financial market infrastructures will be enhanced

In June this year, the Australian Government announced that it would introduce reforms to the regulation of financial market infrastructures. The CFR welcomed this decision. The Bank worked with other regulators through the CFR to develop proposals for reforms to the regulation of clearing and settlement (CS) facilities, markets, trade repositories and benchmark administrators. The CFR consulted on these in 2019, before providing advice to the government in 2020.^[1] The reforms aim to support the effective regulation of the systems, services and facilities that underpin Australia’s financial system by strengthening the supervision and enforcement powers of ASIC and the Bank. CFR members will continue to engage closely as legislative reforms are developed.

Importantly, the reforms introduce a crisis management regime for licensed CS facilities. As part of this, the Bank would have a key role as the resolution authority for CS facilities; it would have the power to intervene in a distressed domestic CS facility in order to ensure that the facility’s critical functions continue to operate.

The regime will include powers and obligations to allow the Bank to prepare resolution plans and require providers of critical CS services to operate in a way that is consistent with effective resolution. Key resolution powers will include: giving a direction to a CS facility to take a

specified action; appointing a statutory manager; and transferring a facility to new ownership. If necessary for resolution to be effective, these powers may also be used over companies related to the CS facility licensee. The resolution regime will include a \$5 billion standing appropriation that may be used as a last resort, with Ministerial approval, to provide temporary funding to support resolution.

Work on cyber-security and other focus areas is progressing

Cyber-security in the financial sector is also a major focus of the CFR. The CFR’s Cyber Security Working Group is developing a Cyber Attack Incident Response Protocol, which will coordinate CFR agencies’ responses to a significant cyber-attack affecting one or many regulated entities. Agencies continue to refine and test a draft Protocol, which is expected to be finalised in coming months. CFR agencies are also working closely with the Department of Home Affairs on the development of new cyber-security obligations for ‘critical infrastructure’ assets; legislation that would enable the reforms is currently before Parliament. The reforms will bring financial services and markets within the scope of Australia’s critical infrastructure regime, and could place additional cyber-security obligations on the most critical entities in the financial sector. CFR agencies are working to ensure the new regime is as aligned as possible with existing cyber-security obligations placed on financial sector entities, including APRA standards. The Bank is also assisting the Department of Home Affairs to apply the reforms to the central operators of critical retail payment systems.

In June 2021, the CFR considered the recommendations of a working group formed to review the regulatory framework for financial settlement aspects of property e-conveyancing. The working group was comprised of CFR agencies, the Australian Competition and

Consumer Commission (ACCC) and state land title registrars. While there are well-developed governance and regulatory arrangements for the land titling aspects of e-conveyancing, the working group identified some areas where the regulation of financial payment and settlement aspects could be enhanced to promote consumer protection, resilience and competition in the e-conveyancing market. The CFR endorsed the working group's key recommendation that the e-conveyancing industry adopt a self-regulatory regime (comparable to arrangements for some payment clearing streams), governed by an industry code. Separate to the CFR's work on financial settlement in e-conveyancing, state land title registrars are currently developing a framework for interoperability between e-conveyancing platform providers, including new entrants. The CFR expects the industry code to be in place by September 2022, following the implementation of interoperability reforms.

The CFR engages with other regulators in Australia and New Zealand

The roles and interests of CFR agencies often intersect with other regulators, so the CFR

engages more broadly whenever appropriate. An important means of extending its coordination arrangements is via an annual meeting with other Australian regulators with an interest in the financial sector, notably the ACCC, the Australian Taxation Office and the Australian Transaction Reports and Analysis Centre. The most recent meeting occurred in June 2021. Topics discussed included agencies' actions to support recovery from the pandemic, cross-border payments, de-banking and regulation of stablecoins. Representatives of the ACCC also separately attend CFR meetings where appropriate, including recently for discussions of housing market risks and responses, as well as e-conveyancing.

The CFR agencies meet with their New Zealand counterparts through the Trans-Tasman Council on Banking Supervision (TTBC). The TTBC currently meets separately at the agency heads, deputies and working levels. The TTBC Heads met most recently in June 2021 and discussed economic conditions, cyber resilience, climate change risks to the financial system and bank resolution arrangements. 🏦

Endnotes

[1] For the CFR's Advice to Government and its Response to Consultation, which addressed submissions on the 2019 consultation paper on the proposed reforms, see CFR (2021), 'Financial Market Infrastructure

Regulatory Reforms: Response to Consultation and Advice to Government', Media Release No 2021-02, 8 June. Available at <<https://www.cfr.gov.au/news/2021/mr-21-02.html>>.

Box A

Australian Financial Regulators' Actions on Climate Change-related Risks

Banks, asset managers and other institutions in the financial system potentially face significant risks arising from climate change. As such, understanding and responding to these risks falls within the mandates of Australian financial sector regulators. Over recent years, Australian regulators have taken steps to ensure that financial institutions and other corporations manage the financial risks associated with climate change.^[1]

Coordinating their activities through the Council of Financial Regulators (CFR), Australian agencies are also actively engaged in international forums to learn about and contribute to the development of best practice in addressing climate-related risks.

The CFR's Working Group on Financial Implications of Climate Change facilitates agencies' coordination and collaboration on climate change-related financial risks. The Working Group, which was created in 2017, is currently chaired by the Reserve Bank of Australia (RBA) and includes the other three CFR agencies – the Australian Prudential Regulation Authority (APRA), the Australian Securities and Investments Commission (ASIC) and the Australian Treasury. This Box outlines the work underway and planned by CFR agencies in relation to climate-related risks, grouped under four broad themes:

- **Measuring and understanding climate-related risks** – a focus in 2021 has been a Climate Vulnerability Assessment (CVA) for Australia's five largest banks, run by APRA on behalf of the CFR agencies.
- **Setting supervisory expectations** – APRA and ASIC are setting expectations for the management and disclosures of climate-related risks by supervised entities.
- **Further improving disclosures** – CFR agencies are working to identify interim steps that will improve the ability of Australian firms to disclose climate-related risks, such as collecting higher-quality climate data and using consistent scenarios.
- **Impact of taxonomies and standards** – CFR agencies will consider how emerging international approaches to defining 'sustainable' activities or financial products, such as taxonomies, may affect Australian firms, and how these could be adapted to meet Australian needs.

Measuring and understanding the exposures of financial institutions and the financial system to climate-related risks

Many financial regulators globally have started work to identify and measure the risks to financial institutions posed by climate change, including by designing climate stress tests or conducting scenario analysis. APRA, on behalf of the CFR agencies, is currently conducting a CVA. Planning for the CVA began in early 2020, making Australia one of the first countries to undertake this type of analysis.

The CVA has three key objectives:

1. to measure the potential financial risks to banks posed by both physical risks (i.e. the impact on asset values and incomes from more intense and frequent extreme weather events and higher average temperatures) and transition risks (i.e. how profits and asset values are affected by changes in policy, technology and behaviours related to the move to a lower emissions economy)
2. to understand how banks could adjust their business models and implement management actions in response to the different scenarios
3. to improve banks' capabilities for managing climate risk.

Aggregated results for Australia's five largest banks are expected to be published in 2022. APRA intends that the experience gained from this CVA will be applied to similar future activities in the insurance and superannuation sectors to understand their climate risks, as well as inform future banking sector activities.^[2]

The RBA has also undertaken analysis to help understand the effects of climate change on banks from a more top-down perspective.^[3] This involved estimating the potential scale of banks' housing and business lending exposures to climate-sensitive regions or industries.

The CFR agencies closely coordinate with the Australian private sector on the measurement of climate-related risks. One notable industry-led collaboration is the Climate Measurement Standards Initiative (CMSI), involving banks, insurers, academics and climate service providers. The CMSI has developed physical risk scenarios for the analysis of climate-related damage to buildings and infrastructure.

CFR agencies are also contributing to work on understanding and measuring the climate-related exposures of financial institutions and the financial system via participation in a number of international groups. In particular, APRA and the RBA are members of the Network of Central Banks and Supervisors for Greening the Financial System, contributing to its work on the development of common climate change scenarios used for stress tests or scenario analysis.

Setting supervisory expectations for the management of climate-related risks

Like many of their international counterparts, APRA and ASIC have been setting expectations for how banks and insurers manage climate-related risks.

APRA is advising regulated institutions to consider climate risks within their governance and risk management frameworks. As part of this, in April 2021, APRA released for consultation a draft Prudential Practice Guide (PPG) on Climate Change Financial Risks. This PPG is designed to assist entities in developing frameworks for the assessment and monitoring of climate-related financial risks. APRA intends to publish a final version of the guidance by the end of this year.

ASIC's focus is on encouraging listed companies to manage and communicate their climate-related risks. This includes highlighting that, where climate-related risks are material, companies should consider providing further and more detailed voluntary disclosure under the recommendations developed by the global industry-based Taskforce on Climate-related Financial Disclosures.^[4]

CFR agencies are actively engaged in international forums and with peers to learn about and contribute to the development of best practice in addressing climate-related risks, including discussions about the supervision of climate risk to facilitate information sharing and the alignment of domestic and international actions.

Regulators are focused on further improving the quality, consistency and breadth of climate risk disclosures

ASIC is conducting surveillance of climate risk governance and disclosure practices of listed financial and other companies in Australia. It is also examining the extent of potential harms from greenwashing (i.e. representing financial products as more 'green' than they really are), and determining what interventions (if any) are necessary in light of those harms. ASIC's work in these areas draws on insights gained from engagement with international peers, including participation in working groups of the International Organization of Securities Commissions Sustainable Finance Taskforce.

An important development in this area is the International Financial Reporting Standards Foundation proposal to create a new International Sustainability Standards Board to drive greater consistency in sustainability reporting. In addition, some jurisdictions have, or are moving towards, mandating the disclosure of climate risks, including the European Union, New Zealand and the United Kingdom. The CFR Working Group on Financial Implications of Climate Change is considering possible impacts of these developments for Australian firms and whether and how Australia should respond to these international developments (noting

that any policy decisions would be determined by the Australian Government). A priority for 2021/22 is to identify and strengthen the building blocks that will be needed to improve the ability of Australian firms to disclose climate-related risks, through steps like improving data quality and developing consistent scenarios.

Monitoring the development of taxonomies

International efforts to use finance to support the transition to a lower emissions economy and other sustainability goals have resulted in the need for taxonomies and other approaches to define 'sustainable' activities or financial products. CFR agencies have engaged with relevant industry initiatives, including the Australian Sustainable Finance Initiative (ASFI) – an industry group that is investigating the potential for a sustainable finance taxonomy in Australia. ASIC and APRA have been observers at ASFI's steering committee, and expect to join a newly formed advisory committee.

The development of consistent and widely recognised taxonomies internationally may have implications for the pricing of climate risk and investment in Australia. Taxonomies can be used to redirect money towards sustainable projects, and therefore may incentivise investment in particular sectors and industries. CFR agencies are using their involvement in international groups, such as the G20 Sustainable Finance Working Group, as a way to learn about and – where needed – seek to influence the development of taxonomies. The Working Group may also consider how broader international approaches to defining sustainability investments, including taxonomies, could be adapted to meet Australian needs. ✎

Endnotes

- [1] For further details, see CFR (2021), 'Council of Financial Regulators Climate Change Activity Stocktake 2021', September. Available at <<https://www.cfr.gov.au/publications/policy-statements-and-other-reports/2021/council-of-financial-regulators-climate-change-activity-stocktake-2021/>>.
- [2] For further details on the objectives and key design features of the CVA, see APRA (2021), 'APRA Publishes New Details on Climate Vulnerability Assessment', Media Release, 3 September. Available at <<https://www.apra.gov.au/news-and-publications/apra-publishes-new-details-on-climate-vulnerability-assessment>>.
- [3] See Bellrose K, D Norman and M Royters (2021), 'Climate Change Risks to Australian Banks', RBA *Bulletin*, September.
- [4] For example, see ASIC (2021), 'Corporate Finance Update', Issue 4, March. Available at <<https://asic.gov.au/about-asic/corporate-publications/newsletters/asic-corporate-finance-update/corporate-finance-update-issue-4/>>.

5. Mortgage Macroprudential Policies

Housing credit and price growth have picked up since the second half of 2020 in a range of advanced economies, including in Australia. The stronger growth, in an environment of prolonged low interest rates, has led to a build-up of systemic risks associated with high household indebtedness and, in some countries, concerns about the sustainability of housing market valuations (Graph 5.1). In response, there has been increased focus on mortgage macroprudential policies (MPPs) both internationally and in Australia. In early October, in response to risks associated with high and rising household indebtedness, the Australian Prudential Regulation Authority (APRA) increased the serviceability assessment rate it expects lenders to use to assess prospective borrowers, thereby reducing maximum loan sizes. This chapter discusses the international experience with MPPs and their use and likely efficacy in Australia.

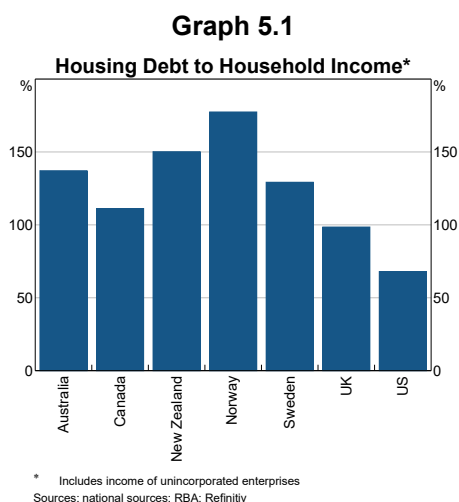
Mortgage MPPs aim to address systemic risks related to housing debt. These risks can threaten the stability of the financial system, as well as macroeconomic stability given the potential for highly indebted households to amplify economic shocks. Sound credit standards and microprudential policy measures that seek to manage risks to individual lenders are the first line of defence – but in some circumstances, there is a case to complement these with macroprudential measures.

In Australia, APRA is responsible for both microprudential and macroprudential policy. Its decisions about MPP are made in close consultation with the Council of Financial

Regulators (CFR), which is chaired by the Governor of the Reserve Bank. The CFR agencies have been paying particularly close attention to trends in household debt as loan commitments picked up sharply, as well as to developments in housing markets (see ‘Chapter 2: Household and Business Finances in Australia’). APRA has indicated it will publish later this year an information paper outlining its holistic framework for MPP, not just mortgage MPP. This paper will outline the objectives of MPP and how it can be implemented, including more formally as part of prudential standards.

The use of MPPs in advanced economies has increased

Since the global financial crisis, MPPs have grown in prominence. In part, this reflects the extended periods of low interest rates in a number of countries to stimulate economic



activity, which has boosted activity in housing markets and in some cases has been associated with excessive risk-taking. There are a range of MPP tools that have been used internationally to target different types of risks. The choice of tools depends on the structures of housing and lending markets, implementation costs, competition concerns and other distributional consequences for borrowers, as well as the policy tools the macroprudential authority has at its disposal.

The most frequently used measures include:

- Serviceability restrictions – these constrain lending to borrowers who would have limited income left after meeting basic living expenses and servicing their debt. Measures include interest rate buffers/floors and restrictions on debt-servicing costs relative to income.
- Debt-to-income (DTI) (or loan-to-income (LTI)) restrictions – these limit the maximum amount households can borrow relative to their incomes. For affected new borrowers, this would cap their debt-servicing costs for a given interest rate and ensure they have larger cash buffers when they take out their loan.
- Loan-to-valuation (LVR) restrictions – these limit the amount that can be borrowed relative to the value of the property, and constrain the supply of credit to borrowers with low equity and liquidity buffers. They can reduce the size of losses to lenders in the event of a mortgage default, and could also reduce the decline in household consumption when wealth falls (this decline can be magnified by leverage).

A range of other measures have been used less frequently, including amortisation-based tools and restrictions on the shares of specific types of loans. Amortisation restrictions typically require borrowers to pay off a minimum portion of the loan principal each year. These policies reduce

the chance of negative equity if prices fall and thereby reduce both the probability of default and loss given default. Restrictions on types of lending, such as interest-only (IO) lending, seek to reduce specific risks. Capital measures have also been used to address systemic risks. Such measures include the countercyclical capital buffer (CCyB) (which adjusts the capital buffer banks must hold to guard against systemic risk) and adjustments to risk weights to build lenders' resilience.

Serviceability restrictions typically work by adjusting requirements for the interest rates used by lenders to calculate maximum loan sizes. These requirements have typically been applied in a structural way to account for potential increases in interest rates and shocks to borrowers' income and expenses over the life of the loan, rather than being adjusted over time in response to changing systemic risk. In Canada, however, the regulator has recently tightened its interest rate requirements amid rising cyclical risks and announced it will review these requirements at least annually.

DTI restrictions (sometimes implemented as LTI restrictions due to data limitations over borrowers' full debt obligations) have been used in a number of countries (see Table 5.1).^[1]

Authorities in the United Kingdom and Ireland have implemented restrictions on high LTI ratios for owner-occupiers. Restrictions on LTIs are less effective for investors who have more than one housing mortgage as they do not capture their full debt holdings; as such, both countries have separate measures that target investors more directly. The Reserve Bank of New Zealand will start a consultation soon on implementing DTI restrictions.

LVR restrictions have been used in a range of countries because they directly target specific risks, and are typically easy to implement and explain. As a result, LVR limits are currently in place in a number of countries, including New Zealand, Ireland, Norway and Sweden. In New

Zealand, LVR limits differ for investors and owner-occupiers, while Ireland and Israel have different LVR limits for first home buyers (FHBs).

Amortisation policies have been implemented in Sweden and Norway, reflecting long mortgage terms and historically low rates of amortisation. High-LVR borrowers in Canada are also subject to minimum amortisation policies.

Many countries have used a combination of MPP policies simultaneously, aiming to target multiple risks and/or limit the distributional consequences for any one group of borrowers or lenders. Some authorities have introduced exemptions to shield specific groups or minimise negative side effects (e.g. avoiding disincentives to invest in new housing supply). ‘Speed limits’ that allow for a certain proportion of the number or value of new loans to be exempt from a particular measure are common. These limits reduce the need for regulators to pre-specify exemptions from certain policies (such as excluding bridging loans from DTI restrictions), thereby facilitating simpler policy implementation. One downside to speed limits is that they can lead to riskier lending shifting between lenders and therefore little reduction in aggregate risk. For example, in the United Kingdom some lenders *increased* their high-LTI lending following the introduction of LTI limits – high-LTI borrowers sought loans from lenders that previously made few high-LTI loans and as a result had scope to increase this type of lending.^[2]

Most countries have adjusted policy settings over time as risks have evolved. Authorities in New Zealand, Norway and Israel eased (or temporarily removed) policies or speed limits in response to the COVID-19 pandemic, and the Canadian regulator postponed a planned tightening of its interest rate buffer. In contrast, authorities in the United Kingdom and Ireland did not adjust their LTI and LVR restrictions. This more structural approach reflects a view that these limits operate as a ‘ceiling’ to insure

against risks building during periods of rapid credit growth, meaning they are not thought to unduly constrain credit supply at other times.

Regulatory authorities typically review the effectiveness of MPPs regularly – these reviews suggest there has consistently been reductions in the types of lending that the MPP policies have targeted. In some cases, there has been ‘bunching’ of new loans just below relevant thresholds. Some policies have had greater impacts on certain regions (e.g. because of higher property values, faster credit growth or greater investor activity). Authorities in some countries have reported evidence of policies being circumvented to a minor extent, although this is not widespread.

MPP measures need to be tailored to the nature of risks

As presented in ‘Chapter 2: Household and Business Finances in Australia’, loan commitments data suggest that housing debt could be growing by around 10 per cent in six-month ended annualised terms by early next year from an already high level, increasing systemic risk. In response to risks associated with household indebtedness, in early October APRA increased the serviceability assessment rate it expects lenders to use to assess prospective borrowers. This section discusses this measure as well as several other tools that have the potential to address systemic risks by ensuring that new borrowers have sufficient liquidity and/or equity buffers. In addition, there are other targeted measures that could be used to address specific risks if they were to arise. For example, in 2014 and 2017, APRA introduced restrictions on loans to investors and on interest-only lending.

Serviceability-based measures

Serviceability-based MPP measures seek to constrain lending to borrowers who would have very little income left after meeting basic living

Table 5.1: Mortgage Macprudential Policies in Selected Economies^(a)

Country	Measure	Date	Details
Canada ^(b)	Interest rate buffer	2018	2 percentage points above mortgage contract rate (or reference rate), subject to a floor of 5.25% ^(c)
Ireland	LTI limits	2015	3.5 for first home buyers (20% speed limit) 3.5 for other owner-occupiers (10% speed limit)
	LVR limits	2015	90% for first home buyers (5% speed limit) 80% for other owner-occupiers (20% speed limit) 70% for investors (10% speed limit)
Israel	LVR limits	2012	75% for first home buyers 70% for other owner-occupiers 50% for investors
	Debt payment to income limit	2013	50% for investors and owner-occupiers
New Zealand	LVR limits	2013	60% for investors (5% speed limit) 80% for owner-occupiers (20% speed limit) ^(d)
Norway ^(e)	Interest rate buffer	2015	5 percentage points above prevailing interest rate
	DTI limit	2017	5 for investors and owner-occupiers
	LVR limit	2015	60% for interest only loans 60% for secondary dwellings in Oslo 85% for other principal and interest loans
	Amortisation	2015	Annual repayments must not be less than 2.5% of the loan value or the payments that would be required on a 30-year annuity loan if the LVR is above 60%
Sweden	LVR limit	2010	85% for owner-occupiers and investors
	Amortisation	2016	Linked to a borrower's LVR and LTI ratio (e.g. borrowers with an LVR of 50–70% and an LTI less than 4.5 must amortise 1% of their loan)
United Kingdom ^(f)	LTI limit	2014	4.5 for owner-occupiers (15% speed limit)
	Interest rate buffer	2014	3 percentage points above the reversion rate for owner-occupiers

(a) Speed limits allow for a certain proportion of new loans to be exempt from a particular measure; excludes capital-based measures

(b) Mortgages with an LVR greater than 80% require mortgage insurance, which carry conditions including: maximum purchase prices; minimum deposits; debt servicing limits; and minimum credit scores

(c) This floor currently corresponds to a buffer of around 3 percentage points above the lowest available mortgage contract rates

(d) From 1 November 2021, the speed limit for owner-occupiers will be 10%

(e) At most 10% of mortgages may breach one or more of these rules; this limit is 8% for Oslo properties

(f) Expectations for minimum underwriting standards for investor loans are set out in a supervisory statement. These standards include a serviceability test and an interest coverage ratio test

Sources: National authorities; RBA

expenses and servicing their debt. This ‘unspent’ income is referred to as the ‘net income surplus’ (NIS). Survey data suggest that borrowers with a small NIS are more vulnerable to both falling behind on their loan payments and having lower liquidity buffers available to shield their

consumption in the event of an adverse shock to their income or expenses.

In Australia, lenders calculate the NIS by using information and various assumptions about borrowers’ incomes, expenses and loan repayment costs, although there is considerable variation in how lenders treat some components

of these calculations.^[3] The interest rate used by banks to determine loan repayments in the NIS calculation comprises the higher of either a lender-determined 'floor' rate or the current interest rate on the loan plus a serviceability buffer prescribed by APRA. This serviceability assessment rate accounts for potential increases in interest rates and shocks to income and expenses over the life of the loan.

The two main ways a serviceability-based MPP measure could be implemented are:

- A minimum dollar amount for the NIS – to implement this would require a significant standardisation of the calculations currently used by individual lenders. It would also disproportionately affect low-income borrowers and owner-occupiers.
- An increase to the serviceability assessment rate that is already incorporated into the NIS calculation – this approach does not disproportionately affect the maximum borrowing capacity of low-income borrowers as it scales with higher debt (and so incomes). As it scales with total debt, it also better captures investors with multiple loans and little surplus income.

In 2019, APRA indicated it expected banks to use a serviceability buffer of (at least) 250 basis points. In early October 2021, to address rising systemic risks, APRA increased the buffer it expects banks to use to at least 300 basis points. This change reduces maximum loan sizes, thereby constraining the availability of credit to those borrowers that are seeking to borrow at, or very close to, their maximums.

The share of borrowers who take out a loan close to the maximum amount that lenders would be prepared to extend to them based on prudent lending standards can vary across lenders and over time, reflecting cyclical, risk and competition factors. A reduction in mortgage interest rates will increase the loan amount that a given borrower can service given their income

and expenses, so all else equal would reduce the share of borrowers near their maximum loan size. In contrast, rising housing prices could induce borrowers to take out larger loans relative to their incomes and expenses, and so increase the share of borrowers near their maximum loan size. The increased prevalence of offset accounts in recent years and a tendency for lenders to offer lower interest rates on larger loans, may have induced some borrowers to take out a larger loan but deposit a portion in their offset account. This would increase the share of borrowers with an initial loan amount near their maximum, although not after taking account of their offset (or redraw) facility.

Borrowers with a low NIS tend to be higher risk, with both a higher incidence of self-reported financial stress and very low liquidity buffers (defined as the ratio of liquid assets, such as deposits, shares and bonds, to disposable income) (Graph 5.2). Estimates using biennial survey data from the ABS between 2003/04 and 2017/18 suggest that over half of 'low NIS' borrowers (those in the bottom quintile of the NIS distribution) with loans that were between one and three years old had liquidity buffers of less than one month's worth of their disposable income. Alternative survey data for owner-occupiers indicate that borrowers with a low NIS have persistently lower liquidity buffers in the years after taking out their loan relative to those with a high NIS. Owner-occupier borrowers with a low NIS are also more likely to report experiencing difficulty meeting their mortgage repayments. This increased probability of financial stress persists for many years after loan origination.

An increase in the serviceability assessment rate reduces the maximum loan size for all borrowers. Based on current interest rates and assuming a 30-year loan term, a 50 basis point increase in the serviceability buffer will reduce maximum loan sizes for households with no other mortgage debt by around 5 per cent. For a

given income and initial net income surplus, the effect on borrowers with existing mortgage debts (such as investors) would be larger, as the increase in the serviceability assessment rate also applies to a borrower's existing debts. In practice, the effect of the change in the serviceability rate will also depend on whether some borrowers previously would have had their maximum loan size determined by an interest rate floor, rather than the sum of their loan interest rate and the serviceability buffer. If the loan interest rate plus the serviceability buffer is less than the lender's interest rate floor, then their maximum loan size will be determined using the interest rate floor. For these prospective borrowers, the increase in the interest rate used to determine their maximum loan size will be less than the change in the serviceability assessment rate. This will apply to borrowers who are eligible for relatively low interest rates, including some low-risk owner-occupiers with principal and interest loans.

The effect of the change in the serviceability assessment rate on individual borrowers will depend on how close their desired loan is to the maximum amount they could borrow. As

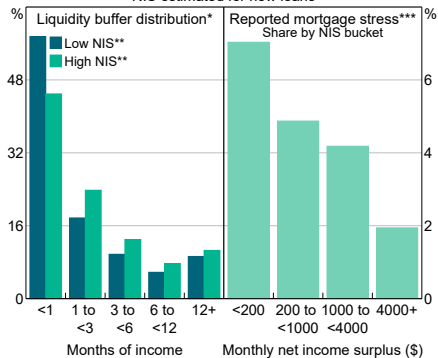
illustrated in the stylised example set out in Graph 5.3, households that choose to take out a loan that is well below their maximum (those on the right of the graph) will not be affected by a small change in the serviceability assessment rate. A much smaller share of borrowers will become (newly) constrained by the increase in the serviceability assessment rate. Their desired loan size will be only a few per cent larger than their new (lower) maximum loan amount and so most will likely take out this new, slightly lower maximum loan and make other adjustments to their finances. For other more constrained borrowers, including some who would have taken out their maximum loan even before the adjustment to the serviceability buffer, the reduction in the amount they can borrow will cause them to choose not to borrow at all at this time, say by delaying a property purchase. Estimates from survey data suggest that FHBs are more likely than other owner occupiers to take out a loan that is very close to their maximum. While this suggests that FHBs are more likely to be constrained than other owner-occupier borrowers, the overall share of FHBs that will be affected is estimated to be very small.

The overall direct reduction in the flow of new lending resulting from the change in the serviceability buffer will depend on how many potential borrowers take out a smaller loan and how many decide not to borrow at all. There can also be indirect effects on new lending – less competition for properties can reduce price pressures, which in turn can lower price expectations and so curtail prospective property purchasers' urgency to buy.

Debt-to-income measures

Restrictions on high-DTI lending can increase the cash buffers available to affected borrowers by restricting the amount of debt they are able to take on relative to their incomes. This can in

Graph 5.2
Risk Metrics for High and Low NIS Borrowers
NIS estimated for new loans



* Ratio of liquid assets to disposable income; calculated for loans that are between one and three years old; includes owner-occupier and investor loans
 ** A low (high) NIS is in (not in) the bottom 20 per cent of the distribution of NISs for loans up to three years old (around \$270 per month in 2017/18 dollar terms)
 *** Owner-occupiers only; loans of all ages; mortgage stress reflects an inability to meet a housing loan repayment due to financial difficulties
 Sources: ABS HES and SIH; HILDA Survey Release 19.0; Melbourne Institute; RBA

turn reduce the effect that major shocks to their incomes would have on their consumption.

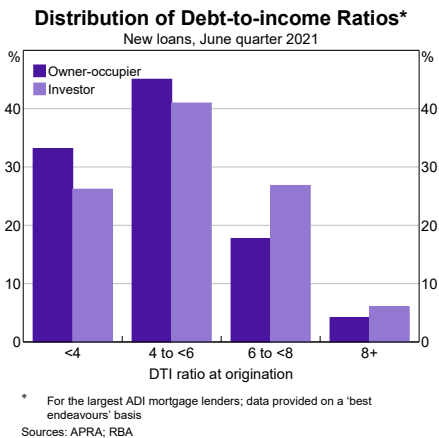
In Australia, a DTI measure rather than an LTI measure is feasible, as recently introduced comprehensive credit reporting provides visibility of prospective borrowers' overall indebtedness, including for investors with multiple housing loans.

APRA data indicate that restrictions on high-DTI lending would constrain a larger share of investors than owner-occupiers. Around one-third of investors took out a loan with a DTI ratio above six in the June quarter of 2021, compared to around 20 per cent of owner-occupier borrowers (Graph 5.4). Investors tend to be more highly indebted as many have loans for multiple properties (e.g. they may have both an owner-occupier and an investor loan, or multiple investment loans) and tax incentives discourage them from paying down the debt on their investor properties ahead of schedule.

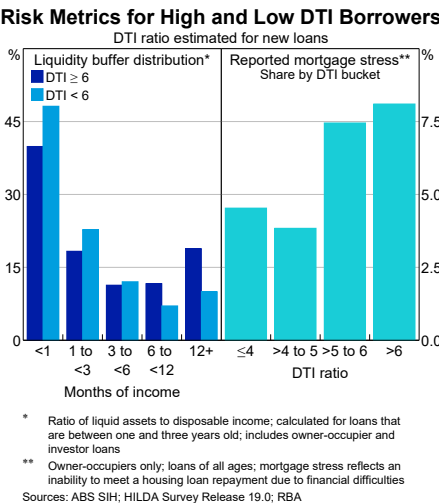
Survey data from recent years indicate that owner-occupiers with higher DTI ratios are more likely to report financial stress than those with lower DTI ratios (Graph 5.5). However, borrowers with higher DTI ratios tend to have much higher liquidity buffers than borrowers with lower DTI ratios. This pattern is driven by investors with a DTI ratio above six, who are more likely to have

very high liquidity buffers than owner-occupiers with a DTI ratio above six. In addition, around 35 per cent of investors with high DTI ratios have incomes in the top 40 per cent of the income distribution for new borrowers, further reinforcing their ability to repay their loans. The reduction in interest rates in recent years has increased the ability of borrowers to take out high-DTI loans and indeed very recently there has been an increase in high-DTI lending. These more marginal high-DTI borrowers could be riskier.

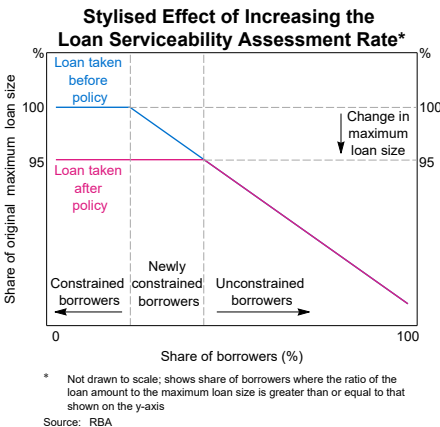
Graph 5.4



Graph 5.5



Graph 5.3



A DTI-based restriction can be effective in limiting the overall portfolio credit risk for a bank by constraining the share of lending to highly indebted borrowers. While serviceability measures contain the maximum risk for individual borrowers, DTI-based restrictions limit the overall portfolio credit risk that can build on a bank's balance sheet. The calibration of DTI-based restrictions would need to take into account the structure of lending and any other restrictions in place at that time. A DTI-based restriction can constrain the same risky borrowers as a serviceability-based restriction. Specifically, the vast majority of borrowers with a DTI ratio above six with less than one month's worth of liquidity buffers also have a low NIS (in the bottom 20 per cent of the distribution). However, limits on high-DTI lending, depending on their calibration, may also constrain some borrowers, particularly investors, who are well placed to service their debt. Combining DTI restrictions with LVR restrictions could help to avoid this problem by capturing riskier borrowers without constraining high DTI lending to borrowers who are much lower risk.

Loan-to-valuation measures

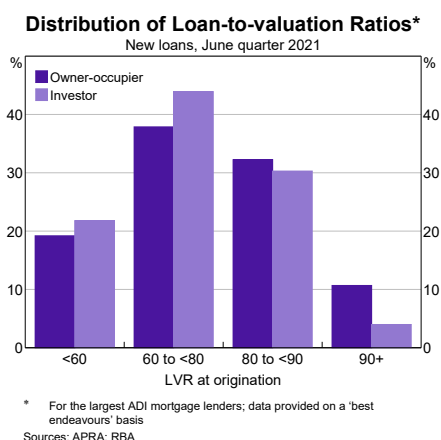
Restrictions on high-LVR lending can limit the supply of credit to borrowers with low initial equity buffers. This not only reduces the size of losses to lenders in the event of default, but could also reduce the decline in consumption when wealth falls (as this decline can be magnified by leverage). Borrowers with higher LVRs at origination tend to have lower liquidity buffers, and so are less able to absorb adverse income or expense shocks. Research by the Bank has shown that Australian households with negative equity who are in arrears are more likely to end up in foreclosure (presumably because they can't repay their loan in full by selling the property).^[4] For a given rate of amortisation and housing price growth, loans

with higher initial LVRs are more likely to be in negative equity.

APRA data indicate that high-LVR loans are more common among owner-occupiers than investors. This is because FHBs, who tend to have less equity, are more likely to be owner-occupiers than investors, and because investors tend to choose a purchase price and loan size to avoid costs such as mortgage insurance. In the June quarter of 2021, around 10 per cent of new owner-occupier loans had an LVR at origination above 90 per cent, compared to only 4 per cent of investor loans (Graph 5.6).

Limits on high-LVR lending are likely to be relatively effective at reducing lending to higher-risk borrowers, without unduly restricting the supply of credit to borrowers who are genuinely less risky. Survey data suggest that around half of new borrowers with LVRs above 90 per cent have less than one month's worth of liquidity buffers, while fewer than 5 per cent have buffers in excess of one year (Graph 5.7). There is also evidence that high-LVR borrowers continue to have noticeably lower liquidity buffers many years after they take out their mortgages. Owner-occupiers with LVRs above 90 per cent are also more likely to report experiencing mortgage stress than those with lower LVRs.

Graph 5.6



FHBs tend to take out loans with high LVRs, as accumulating a deposit is often their main barrier of entry into the housing market. In the June quarter of 2021, over a quarter of loans to FHBs were originated with an LVR greater than 90 per cent, compared to around 10 per cent for other owner-occupier loans (Graph 5.8). Because of concerns about the impact of LVR restrictions on FHBs, both Ireland and Israel apply higher LVR limits to FHB loans. An alternative approach could be to impose a higher LVR limit for FHBs but combine that with a DTI restriction or (NIS-based) serviceability measure to ensure that FHBs are not financially overstretched.

Restrictions on specific types of loans

Another class of MPPs are directed at loans that are judged to make a greater contribution to systemic risk given their terms or loan type, rather than being aimed at reducing lending to borrowers who are individually risky.

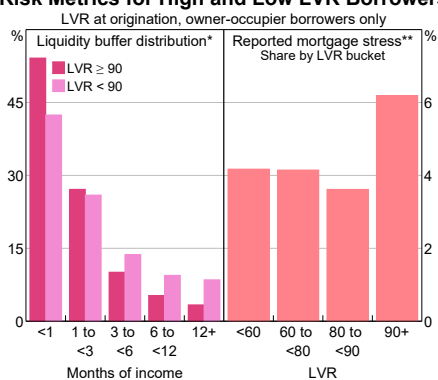
Australia's previous experience with restrictions on the growth of lending to investors and on the share of new lending on interest-only (IO) terms are examples of this type of policy. When these measures were announced, investor and IO lending made up around 40 and 45 per cent

of new lending, respectively (Graph 5.9). Investor and IO loans historically have not had higher default rates than owner-occupier or principal and interest loans in Australia, although this may reflect the absence of a large downturn in available Australian data. Nevertheless, in 2014 and 2017 these types of lending were judged to be contributing to unsustainable debt trends and thereby increasing the economy's sensitivity to macroeconomic shocks.

Analysis by the Bank previously concluded that the investor and IO lending restrictions were effective at slowing growth in both forms of lending.^[5] However, they did not slow aggregate housing credit growth, reflecting some substitution towards non-constrained types of lending. APRA announced the removal of these limits in 2018 when the risks associated with these types of lending were judged to have subsided (in large part because other lending standards and practices had by this stage also improved). The share of new lending on IO terms has remained below 20 per cent since late 2017, compared to a peak of 55 per cent in 2015. Investor loan commitments have picked up since the beginning of the year, but investor credit growth remains much slower than growth in owner-occupier credit.

Graph 5.7

Risk Metrics for High and Low LVR Borrowers



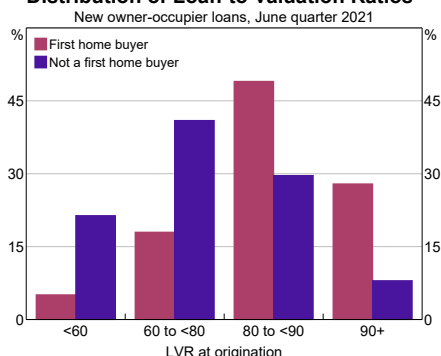
* Ratio of liquid assets to disposable income; calculated for loans that are between one and three years old

** Loans of all ages; mortgage stress reflects an inability to meet a housing loan repayment due to financial difficulties

Sources: HILDA Survey Release 19.0; RBA

Graph 5.8

Distribution of Loan-to-valuation Ratios*



* For the largest ADI mortgage lenders; data provided on a 'best endeavours' basis

Sources: APRA; RBA

The impact of MPP measures can differ across individual lenders ...

MPP measures have often been implemented by constraining the amount of specific types of lending by individual lenders. However, this can present two related challenges. First, such rules can limit the effectiveness of MPP (and potentially even increase systemic risk) if they cause riskier borrowing to shift between lenders (including to less-regulated lenders). Second, certain types of MPP can potentially entrench lending market shares and diminish competition.

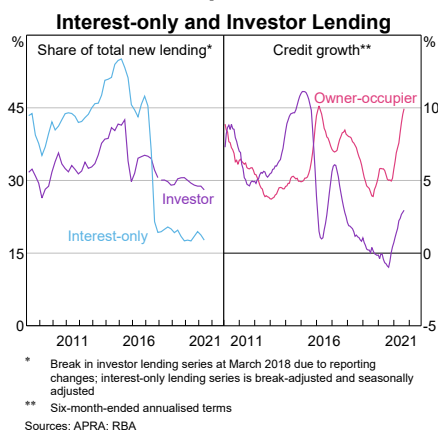
Because lenders have different risk profiles and customer bases, the targeted types of lending will account for different shares of each institution's lending. As a result, thresholds that are applied at the lender level create scope for lending and risk to shift within the financial system. Specifically, the share of the targeted type of lending would be expected to decline for lenders that were above the imposed threshold at the time it was implemented but could *increase* at other lenders as those riskier borrowers seek out loans from unconstrained lenders, as has occurred in some other countries. Risky lending could also shift to non-bank lenders that are not prudentially regulated. The scope for this to increase systemic risk in

Australia is limited, however, as APRA's reserve powers would allow it to regulate the lending activities of non-bank lenders if they were to become large enough to pose material risks to the financial system.

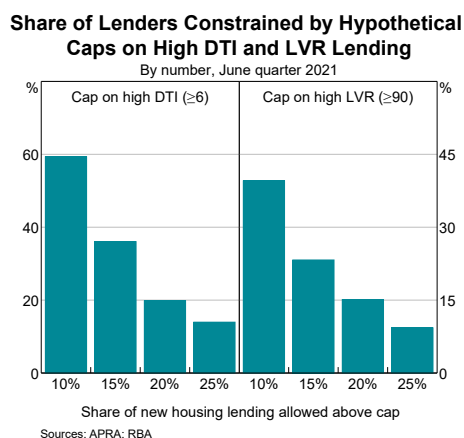
The differences in lenders' shares of high-DTI and high-LVR lending can be demonstrated with APRA data. For example, in the June quarter of 2021, loans with a DTI above six accounted for at least 10 per cent of mortgage lending at 60 per cent of lenders, and at least 20 per cent of mortgage lending at 20 per cent of lenders (Graph 5.10). This highlights the uneven impact across lenders if DTI restrictions that limited the share of lending that could occur above a given threshold were imposed. Similarly, loans with an LVR above 90 per cent accounted for at least 10 per cent of mortgage lending at 40 per cent of lenders, and at least 20 per cent of mortgage lending at 15 per cent of lenders.

Measures that impose constraints at the institution level can also diminish competition in the lending market by constraining the growth of some lenders' loan books.^[6] However, it is worth noting that competition and financial stability objectives can at times conflict with each other – for example, in circumstances where strong competition results in weaker lending standards. Under these circumstances,

Graph 5.9



Graph 5.10



the benefits of supporting financial stability with MPPs could outweigh the costs to competition (particularly if these costs are temporary) but a careful assessment of this trade-off would be appropriate.

... and policy design and calibration matter

Both the domestic and international experiences suggest that MPPs have mostly been effective at addressing the specific risks they were set up to target. MPPs work by restricting the availability and/or raising the price of credit to specific borrowers; as such, their design and calibration matter for their efficacy and efficiency. MPPs are typically designed to reduce the supply of credit to those borrowers who are contributing most to the identified systemic risk, without excessively constraining other borrowers or activity in the housing market. In many instances, this suggests MPPs should target new borrowers. Policies that affect the cost of borrowing for existing borrowers can impede the transmission of monetary policy, while policies that limit borrowers' ability to refinance existing debt can hamper competition.

APRA increased the serviceability assessment rate by 50 basis points in early October 2021. This is an appropriate response to target the extent and type of systemic risks that have been building. The direct effect on the flow of new credit is likely to be moderate – but by ensuring borrowers have larger buffers between their income and mortgage and other expenses, it will ensure greater resilience of new borrowers, thereby reducing systemic risk.

The maximum impact of this policy change could take several months to be realised. It may take some lenders several weeks to adjust to the new settings, and some households will have already planned or committed to purchase based on previous lending policies. Indirect effects may take even longer than the direct effects, although changes in potential buyers' expectations could bring forward the impact of the policy change.

Over time, if the extent of systemic risk changes, then the MPP settings may need to be adjusted, as has frequently been the case internationally. The nature of risks at that time would determine what types of MPPs might be best suited to the situation. 🏠

Endnotes

- [1] See Bank of England (2016), 'The Financial Policy Committee's Powers over Housing Policy Instruments', Draft Policy Statement, November. Available at <<https://www.bankofengland.co.uk/-/media/boe/files/statement/2016/the-financial-policy-committee-powers-over-housing-policy-instruments.pdf>>; Central Bank of Ireland (2015), 'Feedback Statement on CP87: Macro-prudential Policy for Residential Mortgage Lending', January. Available at <<https://www.centralbank.ie/docs/default-source/publications/consultation-papers/cp87/cp87-feedback-statement.pdf?sfvrsn=4>>.
- [2] See Belgibayeva A (2020), 'Changes in the Mortgage Market Post 4.5 Limit on Loan to Income Ratios', Financial Conduct Authority Occasional Paper 53, February. Available at <<https://www.fca.org.uk/publication/occasional-papers/occasional-paper-53.pdf>>.
- [3] APRA provides guidance, but is not prescriptive, on the measurement of various parameters that enter lenders' serviceability assessments. See RBA (2018), 'Box B: The Impact of Lending Standards on Loan Sizes', *Financial Stability Review*, October.
- [4] See Bergmann M (2020), 'The Determinants of Mortgage Defaults in Australia – Evidence for the Double-trigger Hypothesis', RBA Research Discussion Paper No 2020-03, March.
- [5] For further information on the impacts of these measures, see Garvin N, A Kearney and C Rosé (2021), 'Macroprudential Limits on Mortgage Products: The Australian Experience', Research Discussion Paper No 2021-07, July; RBA (2018), 'Chapter 5: Assessing the Effects of Housing Lending Policy Measures', *Financial Stability Review*, October.
- [6] The investor and IO limits previously imposed in Australia were criticised by both the Productivity

Commission and the ACCC for reducing the degree of price competition in the mortgage lending market; however, RBA analysis found evidence of only a short-term decline in competition for IO loans and no evidence of a statistically significant effect on

competition for investor loans. See Garvin N, A Kearney and C Rosé (2021), 'Macroprudential Limits on Mortgage Products: The Australian Experience', Research Discussion Paper No 2021-07, July.

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