

1. The Australian and Global Financial Systems

The shock to global financial markets from the COVID-19 pandemic has been very large

The spread of the COVID-19 pandemic precipitated sharp falls in the prices of risky assets. Extreme volatility and poor liquidity in financial markets has been amplified by dysfunction in government bond markets, particularly for US government bonds, which play a crucial role as a pricing benchmark for other assets.

Major global sharemarkets have been extremely volatile, with falls of around 35 per cent from late February peaks before some recovery (Graph 1.1). The prices of corporate bonds and leveraged loans have also fallen, with yield spreads widening sharply to around the highest levels seen since the global financial crisis (GFC). Access to credit in a range of markets has at times been severely restricted, although market access has improved for high-quality borrowers with very large issuance used to bolster their liquidity positions.

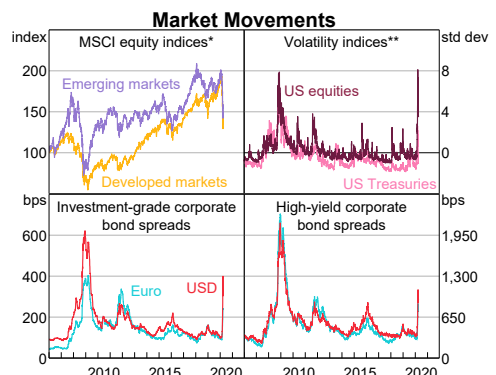
The significant repricing reflected expectations for a steep fall in corporate earnings, with larger price declines for industries most exposed to the economic slowdown (including aviation, energy and leisure). It also represented a reversal from previously very low compensation for credit, liquidity and interest rate risks.

Investors globally had taken on greater risk over recent years, driven in part by a search for yield in the low interest rate environment. As a result, most investors were not well placed to weather highly correlated price declines across multiple

asset classes. At times even advanced economy sovereign debt prices fell, with a large increase in demand for cash consistent with leveraged investors needing to meet margin calls, and funds needing to meet actual or expected redemptions.

Globally, funds that invest in bonds have experienced significant outflows driven by investors' rebalancing. The resulting demand for liquidity highlighted the vulnerability of funds that offered easy redemption terms while investing in illiquid assets. Large redemptions from prime money market funds in the United States – with assets under management falling by around US\$150 billion since early March – prompted the Federal Reserve (Fed) to set up the Money Market Mutual Fund Liquidity Facility to provide them with liquidity. A range of property funds in the United Kingdom, with assets totalling more than £20 billion, have

Graph 1.1



* Index = 100 on 1 January 2006
 ** Number of standard deviations away from historical median
 Sources: Bloomberg; ICE Data used with permission; RBA

suspended redemptions because of uncertainty about the values of their illiquid property assets and their inability to quickly sell such assets.

Most financial markets experienced a significant widening of bid-ask spreads, with turnover also declining in most markets other than equities. Indeed, the functioning of the usually highly liquid and resilient market for US government bonds was even impaired, with bid-ask spreads for 10-year bonds reaching multiples of their usually low levels (of around 0.2 basis points). This mostly reflected large-scale investor selling to raise cash, which overwhelmed the usual increase in demand for safe assets during periods of high risk aversion. Selling pressure was driven in particular by the unwinding of leveraged relative-value funds. Market liquidity was also constrained by reduced dealer balance sheet capacity since the GFC and lower operational capacity due to firms operating split sites and working from home in response to the pandemic. Given US government bonds' role as a critical benchmark for the global financial system, this dysfunction exacerbated price volatility in a broad range of asset markets. In response, central banks around the world introduced or expanded programs for buying government bonds, which saw some improvement in market conditions.

Commercial paper markets, which are particularly important in supplying short-term funding to corporations in the United States and Europe, also seized up. There was a sharp rise in yields amid low liquidity. Initially this reflected liquidity risk (demand for cash) but increasingly this morphed into credit risks as output contracted. To restore the smooth functioning of these markets, central banks, including the Fed, Bank of England and European Central Bank (ECB), announced facilities to purchase commercial paper.

Lower business and household incomes are increasing financial stress

While substantial policy stimulus measures have been announced, the COVID-19 pandemic will significantly reduce the incomes of many businesses and households. This will make it harder for them to service, roll over and repay their debts, raising the prospect of widespread defaults. The increase in financial stress may be more pronounced in jurisdictions that have experienced a large rise in household or business debt over recent years. Corporate debt, in particular, has risen in some advanced (and emerging) economies to historically high levels relative to GDP, most notably in the United States, France and Canada.

In the business sector, sharply lower incomes are being exacerbated by the pronounced tightening in financial conditions. Access to credit has become more costly and restricted, especially for riskier borrowers. For many large corporations, this is partly mitigated by their back-up lines of credit with banks, which have been rapidly drawn down in recent weeks, and large term issuance by higher-rated corporations. Central banks and fiscal authorities have taken a wide range of policy measures to support incomes and the provision of credit to businesses. These include purchases of corporate bonds, as well as term funding for banks with incentives to lend to smaller businesses.

While banks will be tested they are mostly more resilient

Post-GFC reforms have ensured that large banks had much bigger capital and liquidity buffers before the onset of the pandemic than they did prior to the GFC. Regulators are encouraging banks to draw down these buffers rather than curtail lending and other activities. Other parts of the global financial system have also been strengthened over the past decade, including over-the-counter derivatives markets. Consistent

with this, there have been few signs of systemic stress to date among large banks in advanced economies. For example, the widening in bank credit spreads has been in line with those on comparable securities for non-financial firms, and banks can still access most forms of funding at reasonable rates.

Nevertheless, banks globally will be challenged by the pandemic. Credit losses will inevitably rise because of higher business and household defaults. And an extended period of very low interest rates could further weigh on banks' profitability. Reflecting this, prices of bank equity and debt have fallen sharply (Graph 1.2).

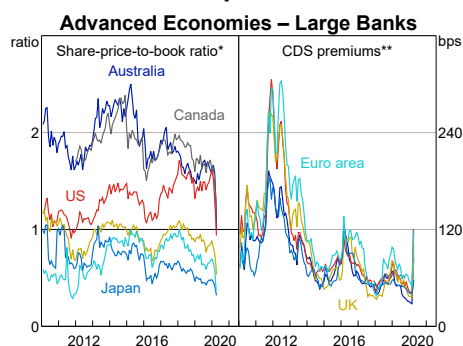
Financial institutions have rapidly adjusted their operating arrangements to respond to the pandemic and containment measures, including through staff working at split sites and remotely. While business continuity plans have needed rapid adaptation, they have generally worked well to date. The new arrangements will however test the operational resilience of banks, and financial institutions and infrastructure more broadly. Operational capacity has been reduced – which is already impacting market functioning – and the chance of technology failures or cyber attacks has increased.

Existing vulnerabilities in several regions are exacerbating stress

The pandemic is threatening to expose financial vulnerabilities in Europe, particularly in Italy, given the large scale of the outbreak in the region. European banks have increased their capital and liquid asset holdings since the GFC, although they still have rather low profitability and high non-performing loan ratios. Government debt exceeded 90 per cent of GDP in seven euro area economies in 2019, including Italy, Spain and France, and is set to increase sharply as policies to help cushion the impact of the shock on economic activity increase fiscal deficits. This has raised debt sustainability concerns, leading to higher spreads on European government debt (relative to German Bunds). The resulting falls in the market value of European government bonds threaten to further undermine the health of European banks, as government debt accounts for a sizeable share of their assets (often around 10 per cent for large banks in countries with very high sovereign debt). This raises the prospect of an adverse feedback loop re-emerging, whereby deteriorating bank health reduces the creditworthiness of the sovereign (due to the potential need for bank bailouts), leading to further capital losses for banks. However, the increase in European government bond yields has been restrained by the ECB significantly expanding its euro area government bond buying program.

The COVID-19 pandemic affected China first and economic activity there is slowly recovering after a very sharp contraction in January and February, reflecting the lockdown of substantial parts of the country. Industrial production and fixed asset investment both fell by over 25 per cent in February. The financial system has been resilient to date, aided by a wide range of policy actions. However, financial vulnerabilities present before the onset of the virus remain elevated and near-term challenges are

Graph 1.2



* Number of banks: Australia (4), Canada (6), euro area (25), Japan (4), United Kingdom (4) and United States (18)

** 5-year senior CDS premiums; number of banks: Australia (4), Canada (5), euro area (8), Japan (3), United Kingdom (4) and United States (6)

Sources: Bloomberg; RBA; Refinitiv; S&P Global Market Intelligence

considerable. As in other economies, significantly lower business cashflow and income as a result of containment measures, combined with the very high level of corporate debt in China, raise the prospect of widespread defaults. Real estate firms in particular are facing acute pressures as they have high debt, including in US dollars, and their income and liquidity has been adversely impacted by lower sales. Local government finances are also likely to be further stretched. Stress tests by the People's Bank of China suggest that some larger banks would see substantial declines in their capital with weaker growth and higher defaults. Many smaller banks had seemed vulnerable before the COVID-19 pandemic, with thin capital buffers and already high levels of distressed debt. Extensive credit and liquidity risks in the non-bank financial sector could also crystallise and cascade through the financial system via a web of complex interconnections.

In other emerging market economies (EMEs), the weaker global economic outlook and reappraisal of risk in financial markets have triggered significant capital outflows. Currencies of the most affected economies depreciated by 15–25 per cent, equity prices fell by 35–45 per cent, and the price and availability of debt funding deteriorated. Oil-exporting EMEs have also been negatively affected by the sharp decline in oil prices, which fell by as much as two-thirds from levels at the start of the year. As a result, financial conditions have tightened abruptly. This is exacerbating the adverse effects of the pandemic on economic activity and is threatening financial stability. EMEs with high amounts of external financing or foreign currency debt are particularly vulnerable because they are more exposed to tighter financial conditions offshore, such as in US dollar funding markets. Reflecting these pressures, over 90 countries had requested emergency financial assistance from the International Monetary Fund (IMF) as of early April.

Authorities globally have responded with a wide range of policy measures

A wide range of policy measures have been implemented to mitigate the effect of the pandemic on macroeconomic and financial stability. Central banks have eased monetary policy aggressively, including through policy rate reductions and large increases in asset purchases. Large fiscal stimulus packages have been announced in many countries to support incomes. An array of measures seek to support the provision of credit to businesses and households:

- Central banks have provided substantial funding to banks, including with incentives to expand lending to smaller businesses.
- Governments have offered guarantees on business loans, direct grants and tax relief.
- Authorities have encouraged banks to use their capital and liquidity buffers.

Businesses and households are also being supported by temporary freezes on loan repayments, foreclosures and evictions in some countries. Some policies aim to support market functioning, including central banks' purchases of government, and even corporate, bonds. Prudential regulators are closely monitoring financial institutions and reviewing their pandemic plans to ensure operational resilience. They have also postponed regulatory changes and other supervisory activities to reduce the operational burden on institutions.

The Australian financial system has also been substantially disrupted by the COVID-19 pandemic

The Australian equity market also fell sharply and credit spreads widened significantly as investors found it difficult to price the anticipated shock to the economy, in particular firms' incomes. Reflecting the uncertainty and unwinding of various market positions, fixed income markets, including for government and corporate debt, at

times lacked liquidity. The weaker outlook and substantial rise in risk premiums in global equity markets have seen Australian banks trading at their lowest level (relative to book value) since the early 1990s.

Australian banks are well placed to withstand this current period of stress. Their liquidity positions are strong, and had strengthened over 2019 given growth in deposits and soft demand for credit. The Reserve Bank's Term Funding Facility (TFF), which commenced at the start of April, and strong deposit growth will provide enough funding for authorised deposit-taking institutions (ADIs) to offset almost all of their maturing bond funding for the next six months (see 'Annex: Selected Policy Responses to the COVID-19 Pandemic'). Major banks' capital ratios are estimated to be well within the top quartile of banks internationally and are also within the range that would have been sufficient to withstand historical bank crises. Bank profitability has been very healthy leading into this period, and bad debt charges have been historically low. As a result, banks can absorb a large increase in bad debts before making a loss. Stress tests suggest that Australian banks' strong capital positions and profitability should enable them to withstand a reasonably prolonged period of economic contraction without breaching their prudential minimums.

Other financial institutions have also been resilient to date. Financial market infrastructures (FMIs), such as central counterparties (CCPs), securities settlement facilities and payment systems, have maintained their operations despite a large share of staff working from home and sharply higher trading volumes. They have also effectively managed large fluctuations in variation margin. Managed and superannuation funds have required additional liquidity to fulfil member requests to redeem or reallocate assets and to make variation margin payments but they have, to date, been able to accommodate this. General and life insurance companies are

likely to have made losses on their investment portfolios at the same time as their liabilities have increased (because of lower discount rates). They are also likely to experience some increase in claims as a result of the pandemic. General insurers are highly profitable and have strong capital positions that make them resilient to these effects. And while life insurers' profitability has been significantly eroded over recent years by chronic underpricing of income protection insurance, their healthy capital positions should enable them to manage the current challenges.

Financial markets in Australia have been dysfunctional at times ...

Risk premiums have increased sharply across a range of financial markets since the start of the year. Australian equity prices fell by one-third from their peaks and credit spreads on BBB-rated corporate bonds rose by almost 100 basis points. Volatility in the price of equities and fixed income securities also rose to similar or higher levels than recorded during the GFC (Graph 1.3). And bid-ask spreads in the Australian Government Securities (AGS) market were many times higher at their peak than they had been over 2019, as market depth evaporated at times. Conditions have since improved as a result of measures implemented by the Reserve Bank, particularly direct purchases of AGS and semi-government bonds.

The primary driver of dislocation in financial markets has been the substantial deterioration in the economic outlook, which triggered a material reduction in risk appetite. However, the impact on markets was amplified by various investment strategies that were predicated on being able to quickly liquidate AGS when needed; more generally, the discount applied to illiquid assets over recent years has been very low. This resulted in a wide range of investors simultaneously seeking to sell their AGS to meet client redemptions or margin calls on

derivatives, creating a one-sided market at times. The use of leverage also amplified selling pressure in the AGS market. In particular, leveraged funds were heavy sellers of AGS due to losses arising from volatility in the relative price of these derivatives and the underlying security, as well as a desire to rebalance their portfolios following sharp losses on equity holdings. Reserve Bank purchases of AGS addressed these issues by increasing available liquidity and ensuring the AGS market was no longer one-sided.

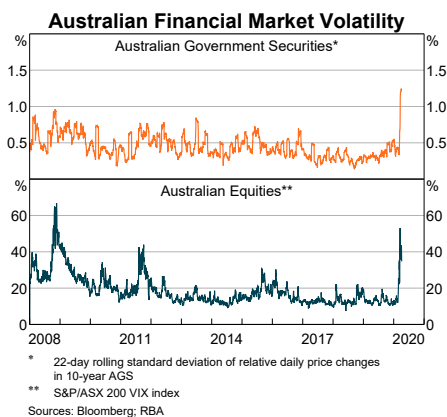
A rapid repricing of securities also occurred in bank funding markets. Spreads on Australian bank bonds (issued offshore) rose to levels last seen in the GFC (though yields remain much lower; Graph 1.4). This occurred amid a sharp reduction in turnover of bank bonds, especially domestically, as firms that normally invest in such debt refrained from buying in order to preserve liquidity. Domestic short-term debt funding markets have been more resilient; liquidity has still generally been present and, while spreads rose, they have not exceeded their trading range of recent years and fell back to very low levels. However, short-term debt markets in the United States, which Australian banks use in normal times to manage fluctuations in their liquidity needs, remain very stressed. This has caused the implied cost of

borrowing Australian dollars in offshore markets to increase significantly, despite the cost of swapping US dollars to Australian dollars falling slightly. In response, Australian banks have largely stopped issuing debt offshore.

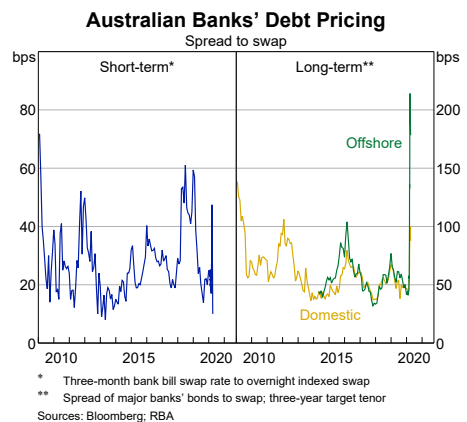
... but banks are well placed to navigate difficulties in funding markets ...

Australian banks have not needed to issue term funding since late February, given their strong liquidity positions leading into this period. In particular, strong deposit growth and limited asset growth over 2019 meant that several banks had increased their holdings of liquid assets in the months prior to the recent market turmoil and had little need to replace maturing bonds. Consistent with this, banks' Liquidity Coverage Ratios (LCRs) – which measure their holdings of liquid assets relative to the potential outflows of funding that could occur in a short-lived but severe stress scenario – were around 125–135 per cent at the end of 2019, well above the regulatory minimum of 100 per cent. Outflows of superannuation deposits have, in some cases, seen LCRs decline a little since the pandemic began, while in other cases retail deposit inflows have supported increases. The introduction of the Reserve Bank's TFF also significantly increased banks' LCRs very recently.

Graph 1.3



Graph 1.4



Over-the-counter withdrawals of cash from banks were elevated over the second half of March as some customers with large balances sought to hold precautionary funds. This included a small number of customers making very large withdrawals (more than \$100,000, and in some cases into the millions of dollars). The Reserve Bank worked closely with the large banks and cash-in-transit companies to ensure branches had sufficient cash supplies. The focus of this work was on the logistics of moving cash to the right places as there was adequate total supply. The elevated demand has since abated.

Around \$30 billion of Australian bank bonds will mature during the June quarter, with a further \$50 billion maturing over the second half of 2020 (Graph 1.5). This equates to less than 3 per cent of system-wide funding. The Reserve Bank's TFF will provide banks with enough low-cost funding to replace almost all of their maturing bond funding over the next six months if bond markets remain dysfunctional. Banks' funding allowance under this facility equates to at least \$90 billion (3 per cent of total credit). The facility also enables banks to access additional funding beyond this if they expand business lending, through either drawdowns on existing committed credit facilities or new commitments. For credit extended to small and medium-sized enterprise (SME) customers, this 'additional allowance' is five times the credit extended. If some banks experience higher-than-normal superannuation deposit outflows or drawdowns by households of their offset accounts or committed credit facilities, they have excess high-quality liquid assets to manage their liquidity flows.

... and have sufficient capital to withstand a prolonged period of stress

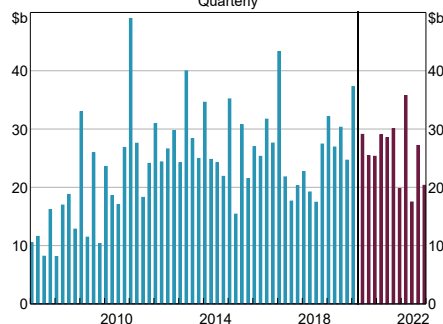
The four major banks' Common Equity Tier 1 (CET1) ratios are all above the level that the Australian Prudential Regulation Authority (APRA) considers 'unquestionably strong' and

well within the range that would have been sufficient to withstand historical bank crises (Graph 1.6).^[1] Their capital ratios are also estimated to be within the top quartile of large banks internationally when measured on a comparable basis. Compared with the 2008/09 financial crisis, the major banks have entered this period with much stronger capital positions. Major banks' Tier 1 capital ratios are 6 percentage points higher than they were in 2007, and their leverage ratios (the ratio of Tier 1 capital to non-risk-weighted exposures) have increased to be well above proposed minimum requirements of 3½ per cent now starting in 2023 (Graph 1.7). Smaller ADIs also have healthy capital ratios that are comparable with, or higher than, those of the major banks.

Despite their strong positions, large falls in banks' share prices reflect the fact that investors expect the pandemic will have a substantial effect on banks' profits. Price-to-book ratios for Australian banks declined to their lowest levels since the early 1990s and are currently below one for most Australian banks (Graph 1.8). This reflects both a decline in the earnings outlook and a reduction in investors' risk appetite, given uncertainty around this outlook. The fall in banks' share prices also implies that the distance to default, which measures the implied size of a shock required to cause a bank to default, has

Graph 1.5

Banks' Bond Maturities*
Quarterly

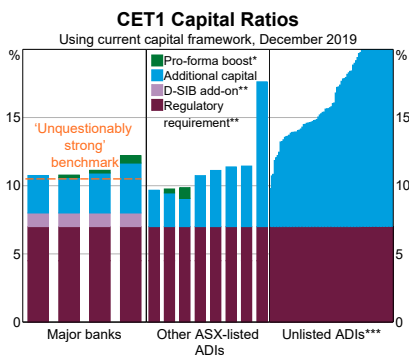


* Includes unsecured, securitised, covered and Tier 2 bonds; maroon bars depict upcoming maturities
Source: Bloomberg

reduced sharply.^[2] However, during periods of heightened volatility and market dysfunction, the signal from equity pricing may be distorted. Stress tests of Australian banks show they have sufficient capital to withstand quite severe downturns. ‘Top-down’ stress tests indicate that even if there is no economic recovery in the second half of 2020 (so that asset quality issues grow) banks will remain above their minimum capital ratios, although they may need to make use of their capital conservation buffer.^[3] This would be consistent with APRA’s recent emphasis that banks’ capital buffers are available

for use in times of stress, such as this, provided banks remain above their minimum prudential requirements. ‘Reverse stress tests’ – which estimate the magnitude and duration of stress that would result in banks breaching various capital thresholds – suggest that Australian banks would only breach their prudential minimums if a severe downturn lasts for at least 12 months, with the unemployment rate rising by more than 10 percentage points. There is always uncertainty about whether these models capture all elements of stress and even more so at present, given the unprecedented nature of the current situation. The nature of the substantial fiscal stimulus could reduce the impact on banks, even for a given contraction in GDP, because job and income support measures enhance households’ ability to continue repaying their debt. Banks’ willingness to defer customers’ loan repayments should also reduce defaults, but losses could still emerge quickly due to the recent move towards forward-looking provisioning (which could cause loan losses to be concentrated in the near term).

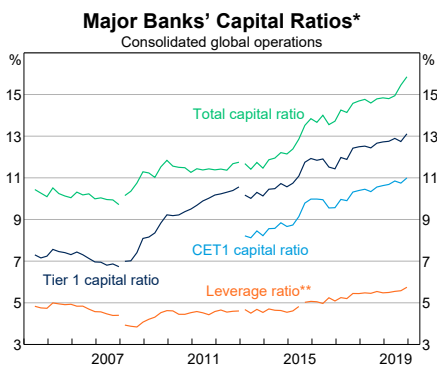
Graph 1.6



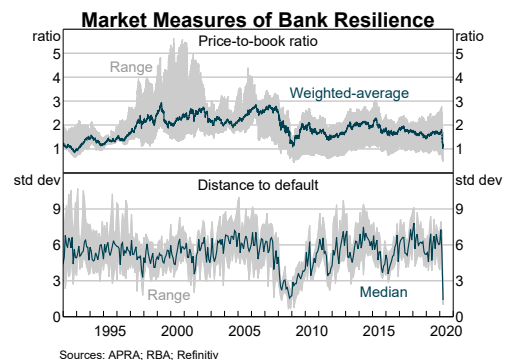
Strong profitability also supports the resilience of banks

Return on equity (ROE) for Australian banks leading into the pandemic was high by international standards. It was also significantly above their cost of equity (estimated to be

Graph 1.7



Graph 1.8



around 9–10 per cent), despite the gap between the two narrowing as ROE drifted down over the prior five years (Graph 1.9). Banks also entered the current period of financial market turmoil with bad debts that have been at historical lows. They are therefore well placed to withstand the inevitable deterioration of asset quality.

Lower interest rates have contributed to a narrowing of net interest margins (NIMs). This reflects that a portion of banks' deposits receive no or very low rates of interest, making them difficult to reprice lower when the cash rate declines. Larger banks hedge the interest rate risk on their non-interest bearing deposits (and capital), but these hedges expire after a few years and so only delay the effect. However, the effect of low interest rates on bank profitability has been less in Australia than in some other economies. In part this is because a large share of Australian banks' deposits pay above the cash rate (approximately two-thirds) and so interest rates on these have been able to fall with the cash rate. In addition, wholesale funding makes up a greater share of total funding for large Australian banks than many global peers, insulating them from a sustained period of low rates because wholesale interest rates are not constrained at zero. More generally, while low rates cause NIMs to narrow, the effect on profits is less clear because low interest rates also reduce credit losses and stimulate lending.

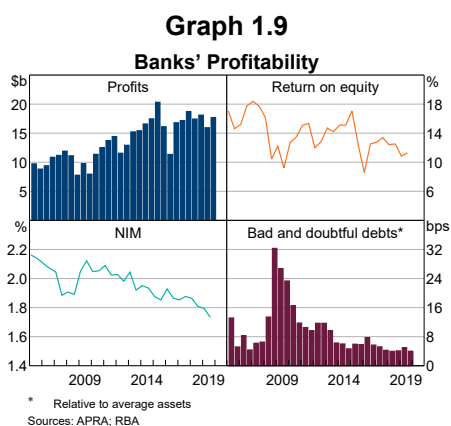
Additional policy announcements by the Reserve Bank will also reduce this pressure. In particular, the TFF will provide banks with term funding at a spread that is about 50 basis points lower than they had been accessing three-year funding late last year. The lift in the rate of remuneration of exchange settlement balances (relative to the cash rate target) will also add a little support to profits.

The outlook for credit quality has weakened, but from a strong position

Asset quality is expected to deteriorate with the likely substantial economic downturn resulting from the COVID-19 pandemic. The closure of non-essential services will adversely affect the credit quality of a wide range of business loans. This will be alleviated to a significant extent by fiscal support for businesses; this support includes wage subsidies, credit guarantees for SMEs, assurance that responsible lending guidelines should not impede new lending, and temporary relief measures to support the management of insolvency risks (See 'Annex: Selected Policy Responses to the COVID-19 Pandemic'). Banks are also offering repayment moratoriums and other hardship arrangements for affected firms. The expected rise in unemployment will lower households' ability to service their debts, but government transfers to directly affected households and wage subsidies for affected employees will mitigate this to some extent. Moreover, loan performance for businesses had been very strong leading into this period and the performance of household loans had begun improving (Graph 1.10). Most housing loans remain well secured, limiting the share of non-performing loans that are impaired.

Reduced liquidity has affected fund managers

Fund managers have faced reduced liquidity for some assets at the same time as many have had



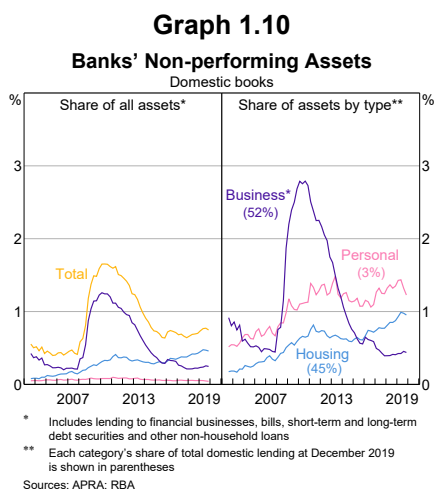
greater need for liquidity. The decline in liquidity of some assets held by fund managers has been most notable for fixed income, including even sovereign debt. Some other assets they hold are never liquid, such as property and infrastructure. This has made it difficult for managed funds that invest in loans and bonds ('credit funds') to rebalance and/or liquefy their assets. At the same time, fund managers have needed additional cash for a range of reasons. Redemption requests by investors in open-ended managed funds have been elevated as investors sought the additional safety and liquidity of cash. Several credit funds have responded to this situation by increasing the cost of redeeming. This, along with drawdowns on funds' cash reserves and sales of short-term debt, has so far enabled them to meet cash demands without having to suspend redemptions, as permitted under legislation. Superannuation funds have similarly required additional liquidity to cover higher member requests to switch from high- to low-risk investment options, in addition to needing to pay variation margin on the derivatives they use to hedge foreign currency assets. Superannuation funds hold liquidity buffers that have enabled them to manage these liquidity demands and have been redeeming term

deposits to increase their liquidity. Some trustees have also lowered the value of their unlisted assets to ensure that investors reducing their exposures now are not overcompensated at the expense of remaining members. However, superannuation funds have also had to prepare for members using the changed early release option, which was included in the Government's stimulus package. For some funds, in particular those with many young members working in industries heavily affected by the pandemic, this will represent a relatively large share of funds under management and therefore a large liquidity drain.

A substantial rise in the cost of issuing asset-backed securities has also limited the ability of non-ADI lenders to raise new funds. Some planned issues were subsequently deferred. Non-bank lenders have been able to do this because their warehouse funding facilities have been ample, having increased over recent years. However, the initial transactions from the Australian Government's \$15 billion fund for investing in asset-backed securities and warehouse facilities has already resulted in a significant easing in funding conditions for these lenders.

Other parts of the financial system have been resilient to the effects of the pandemic ...

Providers of FMIs operating in Australia have maintained their critical functions during the COVID-19 pandemic, despite the operational challenge of a high number of staff working from home. There have been no material system outages affecting FMIs during this time. FMIs have also appropriately dealt with the risks arising from increased market volatility and trading volumes over this time. The CHES system used by the ASX to clear and settle cash equities experienced processing delays during record trading volumes in March, but more than 99 per cent of trades still settled on time. CCPs



have also required firms to regularly post large amounts of additional variation margin as market prices have moved erratically. They have also increased margin requirements to cover risks associated with further volatility. These margins calls have been met without apparent difficulty.

The financial effects of the COVID-19 pandemic are unlikely to be material for insurers, despite the severity of the pandemic. Claims for both general and life insurance are likely to rise somewhat, but various limitations and some specific exclusions mean that pandemic-related claims are not always covered by insurance policies. General insurers have potential exposure in workers' compensation to hospital or healthcare workers who are infected in the course of their employment, but the impact is likely to be small except in an extreme scenario. For life insurers, payouts may increase but the severity of the outbreak would have to be extreme to have a material impact on mortality insurance. There could also be income protection insurance payouts, but waiting times significantly limit the extent of these claims. Similarly, the implications for health insurers are likely to be limited because most of the cost will be borne by the public health sector. Both general and life insurers are likely to have revised up the present value of their future liabilities as risk-free rates have fallen, and to have experienced losses on their holdings of corporate bonds and equities. These effects

should be readily managed by general insurers, given their high ROE and strong capital position. However, life insurers' profits have been very weak over recent years, reflecting chronic underpricing in individual disability ('income protection') insurance.

... and institutions are so far managing the operational risks that have arisen

Australian banks, insurers and FMI providers have all successfully enacted pandemic plans which are designed to ensure they can continue operating even if COVID-19 spreads more widely in Australia. These plans address considerations such as how to enable critical functions to continue (and ensure they are appropriately resourced) while protecting staff from transmission (for example, by working remotely or in split-team arrangements). Despite this, the unprecedented nature of the pandemic has tested financial institutions' business continuity plans and has strained systems. One challenge has been how robust various IT systems are when a large share of employees are accessing them remotely from home and have slow or unreliable internet access. Many institutions have successfully rapidly increased the number of staff who can simultaneously work remotely. Institutions have also had to quickly bring some critical functions back onshore. The risk of cyber attack has also increased given institutions will be operating with reduced staffing and/or with more staff working remotely. ✎

Endnotes

- [1] An IMF study found a Tier 1 capital ratio of 15 to 23 per cent is appropriate for many advanced economies (see Dagher J, G Dell'Ariccia, L Laeven, L Ratnovski and H Tong (2016), 'Benefits and Costs of Bank Capital', IMF Staff Discussion Note No 16/04). In comparison, the major banks' Tier 1 capital ratios are equivalent to at least 17½ per cent on an internationally comparable basis, accounting for APRA's stricter application of global bank standards.
- [2] The implied probability of default can be derived using a Merton-style 'distance-to-default' model, as done in MacDonald C, M van Oordt and R Scott (2016), 'Implementing Market-Based Indicators to Monitor Vulnerabilities of Financial Institutions', Bank of Canada Staff Analytical Note No 2016-05.
- [3] For further details on the model, see RBA (2017), 'Stress Testing at the Reserve Bank', *Financial Stability Review* Box D, October, pp 46-49.

