

Financial Stability Review

OCTOBER 2016

Contents

Overview	1
1. The Global Financial Environment	3
Box A: Recent Growth of Small and Medium-sized Chinese Banks	14
2. Household and Business Finances	17
Box B: Banks' Exposures to Inner-city Apartment Markets	25
3. The Australian Financial System	29
Box C: Recent Developments in Australian Banks' Capital Position and Return on Equity	40
4. Developments in the Financial System Architecture	45

Reserve Bank

The material in this *Financial Stability Review* was finalised on 13 October 2016.

The *Financial Stability Review* is published semiannually. The next *Review* is due for release in April 2017. It is available on the Reserve Bank's website (www.rba.gov.au).

The graphs in this publication were generated using Mathematica.

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

Overview

A number of risks continue to weigh on the outlook for the global financial system. In China, the level of debt is high and rising despite slower economic growth and signs of excess capacity in some areas; much of the new debt is being extended by the more opaque yet interconnected parts of its financial system. Non-performing loans (NPLs) are increasing, albeit off a relatively low base. While the authorities in China retain levers to support growth, using many of them would likely entail a further increase in debt that could increase the risks to longer-term reform and stability. Some other emerging market economies, especially commodity exporters and those with high levels of foreign currency-denominated corporate debt, face a varying mix of low commodity prices, lower exchange rates, slower economic growth and fiscal pressures. Private debt-servicing burdens have risen in some of these economies, and bond defaults have picked up, though banking systems in most emerging economies seem reasonably well placed to weather higher corporate defaults.

Conditions in the banking sectors of many advanced economies are also challenging. European banks' prospects remain mired in an unfavourable mix of low profitability, high NPLs and weak equity prices. While the recent stress tests of European Union (EU) banks highlight the gradual rise in capital ratios, the financial position of some Italian and other banks is weak. The vote in the United Kingdom to leave the EU led to significant volatility in many financial markets though, other than the UK pound, most prices largely recovered soon after. Low or negative interest rates continue

to squeeze banks' net interest margins in Japan and elsewhere, and credit losses in the energy and related sectors have weighed on bank profits in some major countries. More generally, the ongoing low interest rate environment is boosting asset prices globally. Relatedly, housing prices in New Zealand have risen strongly, despite successive rounds of macroprudential measures; low milk prices are also weighing on prospects for New Zealand's dairy sector.

Domestic risks have continued to shift towards property development and resource-related areas. Risks to financial stability from lending to households have lessened a little over the past six months, as serviceability metrics and other lending standards have continued to strengthen and the pace of credit growth has slowed. Housing price growth is also slower than it was a year or so ago, although it has picked up a little in Sydney and Melbourne in recent months. The risk profile of new borrowing has improved further. The share of new high loan-to-valuation (LVR) lending and interest-only loans has fallen; high-LVR lending is now at its lowest share in almost a decade. Nonetheless, the household debt-to-income ratio is still drifting higher, even after adjusting for the rapid growth of balances in offset accounts. Non-performing mortgage loans have also picked up nationally but remain low. This pick-up has been most pronounced in mining areas where housing market conditions have deteriorated sharply, though only a small share of banks' mortgage lending is to these areas.

Risks around the projected large increases in supply in some inner-city apartment markets are coming to the fore, especially in Brisbane and Melbourne. There are signs that some settlements are taking longer and lending valuations are coming in below their contract price, though settlement failures to date remain low. Banks have recently tightened their serviceability requirements further by restricting lending to borrowers relying on foreign income; this might weigh on demand in some inner-city apartment markets. They have also taken steps to mitigate the associated risks by tightening lending conditions for new property developments. This could also help forestall future oversupply in some inner-city areas.

In office property markets, while yields in Australia and abroad have fallen in line with the global 'search for yield', weak conditions in Brisbane and Perth stand in contrast to the stronger performance in Sydney and Melbourne. Part of this divergence reflects lower demand for office space from resource-related firms in Brisbane and Perth. In contrast, there are few signs of stress in most other parts of the business sector.

Against these risks, the Australian banking system has continued to perform well and banks remain resilient to possible shocks. Bad debt expenses have risen from low levels, as performance has deteriorated for some exposures, namely lending to households and businesses in mining-reliant areas and to the New Zealand dairy sector. Profits

have therefore declined a little. Capital and leverage ratios are high and the banks have bolstered their liquidity positions. Favourable conditions in external funding markets have allowed Australian-owned banks to issue sizeable amounts of wholesale debt. In response to higher capital levels and lower profits, the major banks have scaled back some international exposures. Furthermore, their exposures to the resource-related sector are small and falling; in contrast, the mining-related and commercial property exposures of the Asian banks operating in Australia remain high as a share of their assets. The insurance sector faces a range of challenges, though it is well capitalised.

Looking ahead, the regulatory environment for the global financial sector continues to strengthen as further elements of the Basel III capital and liquidity frameworks are put in place. Efforts are now shifting towards assessing the effects of these reforms on the financial system and the wider economy. Similarly, in Australia, the Australian Prudential Regulation Authority is seeking to ensure that the banks' capital ratios remain 'unquestionably strong' given their risk profile. Australian banks have responded by boosting capital levels and at the same time reducing their focus on lower-return activities to meet their return-on-equity expectations over the medium term. These developments will need to be closely watched to ensure that any behavioural changes do not materially increase systemic risk. ✎

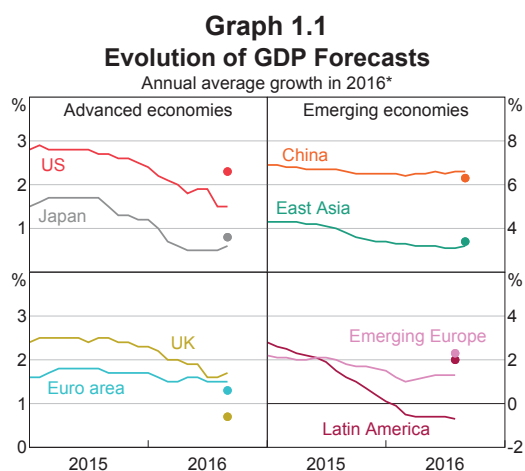
1. The Global Financial Environment

A range of risks still pose a threat to the stability of the global financial system. Among these, the potential for a disruptive adjustment in China remains pronounced, given the ongoing increase in debt at a time when the pace of economic growth has been moderating. In some other emerging markets, risks associated with the sharp decline in commodity prices and rising corporate leverage seen over recent years remain a challenge; however, these risks have receded somewhat of late as growth outlooks have stabilised, aided by some recovery in commodity prices (Graph 1.1). In the major advanced economies, banking system profitability remains under pressure given low rates of nominal growth and the low interest rate environment. For some European banking systems, these pressures are being compounded by a persistent large stock of non-performing

assets. Search for yield behaviour is still evident, including in some commercial property markets, raising the risk of a disruptive fall in prices in the event of a negative shock or a change in sentiment towards these assets. In this regard, volatility in financial markets increased significantly around the time of the UK referendum. Yet, markets generally continued to function well and the initial price movements were later largely unwound, with the notable exception of the fall in the UK pound.

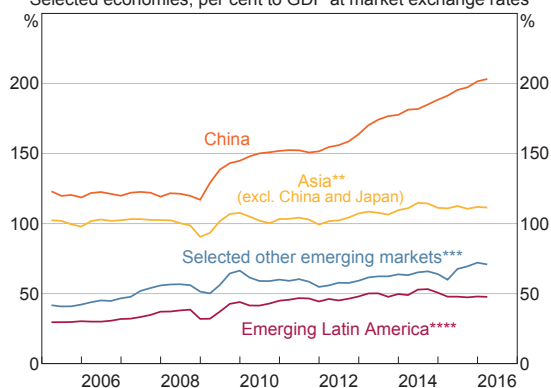
China

China remains a key locus of risk, given its increasing size in the global economy and ongoing run-up in debt (Graph 1.2). The interaction between high and



* Dots are the latest forecasts for 2017
Sources: Consensus Economics; RBA

Graph 1.2
Total Debt of the Private Non-financial Sector*
Selected economies, per cent to GDP at market exchange rates



* Loans and other debt funding provided by domestic and non-resident sources; includes publicly owned non-financial firms

** Hong Kong, India, Indonesia, Malaysia, the Philippines, Singapore, South Korea, Taiwan and Thailand

*** Czech Republic, Hungary, Poland, Russia, Saudi Arabia, South Africa and Turkey

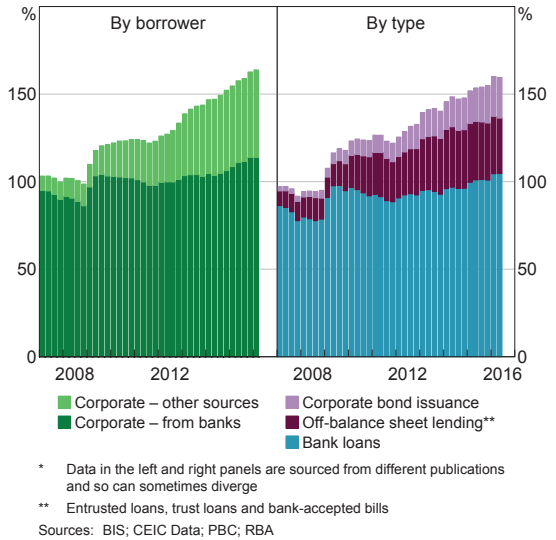
**** Argentina, Brazil and Mexico

Sources: BIS; CEIC Data; RBA; Thomson Reuters

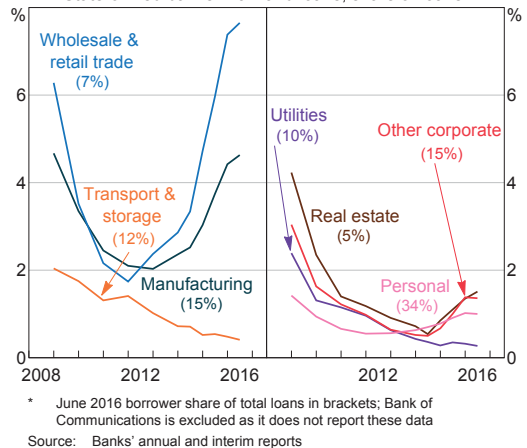
rising debt, slower economic growth and excess capacity in some areas is raising the chance of widespread loan defaults and economic disruption. Recent policy stimulus has helped stabilise parts of the economy, but has also helped to further fuel the rapid pace of credit growth. At the same time, the financial system has become increasingly large, opaque and interconnected. This has raised further concerns about asset quality and the funding positions of some of the fast-growing parts of the system, and increased the risk of financial contagion. However, there are few signs of broad financial distress so far, despite a gradual worsening in banks' reported loan performance, an increase in missed payments on corporate bonds and periodic bouts of financial market volatility. The Chinese authorities also retain many levers to support near-term growth and financial stability, but using many of them would likely entail a further increase in debt that could increase the risks to longer-term reform and stability.

The debt in China is concentrated in the non-financial corporate sector (which includes state-owned enterprises and various local government investment companies), and has been largely financed by the domestic banks (Graph 1.3). The high and rising level of corporate debt is a concern for three reasons. First, the faster the pace of credit growth, the more likely some of the lending is to be of poor quality – extended to marginal borrowers or unprofitable projects. Second, much of the rapid growth in recent years has been from the less regulated shadow banking sector. Third, as economic growth slows the most leveraged firms will find it harder to service their debts, particularly as investment growth has slowed sharply and many of these firms are in sectors exposed to investment demand. There is some evidence that this process has already begun with banks' loan write-offs increasing and reported non-performing loan (NPL) ratios rising (Graph 1.4). While Chinese banks remain profitable, their reported rate of return on equity has been declining

Graph 1.3
China's Non-financial Corporate Debt*
 Per cent to GDP



Graph 1.4
Chinese Banks' Non-performing Loans
 State-owned banks' mainland loans, share of loans*



for several years. Looking ahead, bank profitability is likely to remain under pressure. The economy is going through a period of adjustment and forward-looking indicators, such as the recent large rise in 'special mention loans' (where repayment is at risk), point to a further increase in NPLs. It is possible that NPLs could reach levels that require extensive banking sector balance sheet repair.

To date, the Chinese banking system has remained adequately capitalised. In keeping with regulatory requirements, the Common Equity Tier 1 (CET1) capital ratios for the large state-owned banks, and indeed for most commercial banks, were above 9 per cent in the first half of 2016. The latest data also show that the large state-owned banks meet the Liquidity Coverage Ratio requirement on a fully phased-in basis. But the aggregate measures mask vulnerabilities among individual banks. In particular, some small and medium-sized banks have thin capital buffers and are therefore less well placed to absorb losses.

While traditional bank loans account for most of the debt in China, much of the recent increase has come from the bond market and through the shadow banking activities of banks and other financial institutions. Growth of some types of shadow lending has slowed over recent years in response to government policy, but other types of shadow lending have emerged and grown quickly, often facilitated by banks (see 'Box A: Recent Growth of Small and Medium-sized Chinese Banks'). Shadow lending is significant in China, accounting for at least one-fifth of total debt and possibly substantially more. It is also likely to be comparatively risky, for several reasons. First, some of this lending will be to marginal borrowers that lack access to credit from the traditional bank channels. In this regard, some shadow lenders have less incentive to lend prudently, because they onsell loans to investors and so do not bear the credit risk themselves. Perceptions of implicit guarantees from sponsoring banks or the government could also foster lax lending practices. Second, shadow lending is subject to fewer prudential and other safeguards. Capital and provisioning requirements are reportedly less stringent than for bank lending, and shadow lenders lack formal access to liquidity support. Third, the growth of shadow lending has increased the links between banks, non-bank financial institutions and opaque investment products, making exposures less transparent and raising the risk of contagion.

Along with the increase in shadow lending, banks – especially small and medium-sized banks – have also sourced more funding from the short-term interbank market over recent years. This has increased their liquidity risks and made them even more interconnected and systemic. If corporate defaults were to rise, investors and creditor banks may be reluctant to roll over such short-term funding, and so the interbank market could exacerbate financial problems at the banks bearing loan losses. It could also transmit distress to other institutions that investors consider to have a similar vulnerability.

Chinese authorities have taken steps to address the growth of shadow lending and risks in the financial system more broadly. In particular, they have increased scrutiny of banks' provisions and capital held against shadow credit products. Regulations on asset managers are also being tightened, including by restricting the type of investments that can be put into certain shadow credit products. The authorities are requiring greater transparency on NPLs and have launched pilot programs of NPL securitisations and debt-to-equity swaps, although substantial structural barriers to banks recognising and selling NPLs are likely to remain. The authorities also retain the ability to inject liquidity into the banking system should stress emerge.

As noted in previous *Reviews*, the policy trade-offs facing the Chinese authorities are central to the evolution of the risks in China. Policymakers have both a strong incentive and scope to support growth and maintain financial stability in the near term. But continued reliance on debt-financed growth and bank forbearance, along with official actions that reinforce perceptions of implicit government guarantees, add to existing vulnerabilities. Chinese authorities recognise these risks and have often expressed concern about the build-up in leverage. But implementing the wide sweep of financial reforms and other actions needed to address the growing vulnerabilities, within an increasingly large and complex financial system, will remain a key policy challenge.

The main connections between China and other economies that would be relevant in a negative scenario are trade volumes and commodity prices, as well as sentiment in global financial markets. The direct financial linkages between China and other economies remain limited because China's capital account is relatively closed, but they have grown. Chinese banks are increasingly lending overseas, and some banks in nearby financial centres like Hong Kong and Singapore have large exposures to China, which could transmit financial stress.

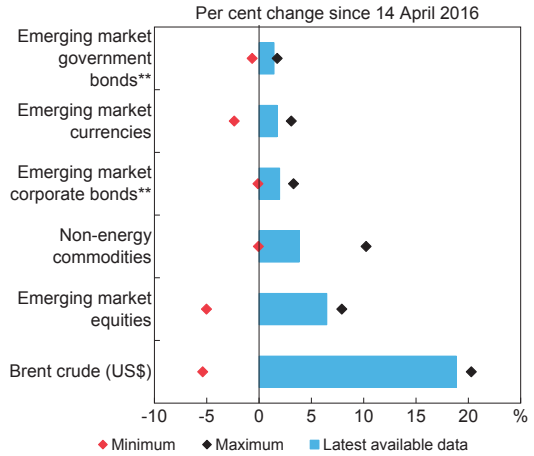
Other Emerging Market Economies

For emerging markets more broadly, growth outlooks have generally stabilised or been revised up since the previous *Review*, aided by some recovery in commodity prices. As a result, investor sentiment towards emerging markets has generally improved: capital inflows have picked up; exchange rates have stabilised or risen; corporate and sovereign bond yields have fallen; and equity prices have increased (Graph 1.5). Nonetheless, the increase in debt-servicing burdens over recent years remains a significant vulnerability (Graph 1.6). The rise has been driven by a sharp increase in debt, slower economic growth, lower commodity prices and some large currency depreciations (which raise the local currency cost of foreign currency-denominated debt). The risk of financial distress in some emerging market economies – particularly for commodity exporters – has therefore increased, and could be triggered if commodity prices fall further or US interest rates increase at a faster pace than currently expected. Political developments could also cause instability in some emerging markets.

The increase in emerging market private debt has been concentrated in the corporate sector, and has been particularly rapid in Turkey and the commodity-exporting economies of Brazil and Russia. There are several financial risks associated with this run-up in debt:

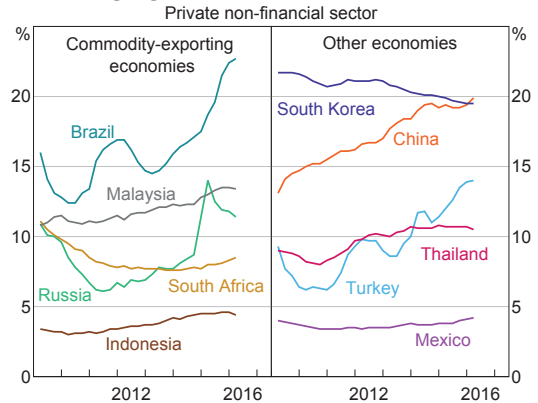
- Firms with higher leverage are likely to find it more difficult to service their debt, because

Graph 1.5
Asset Prices*



* Price movements are computed from aggregate indices
 ** Increases denote lower yields
 Sources: Bank of America Merrill Lynch; Bloomberg; RBA

Graph 1.6
Emerging Market Debt-service Ratios*



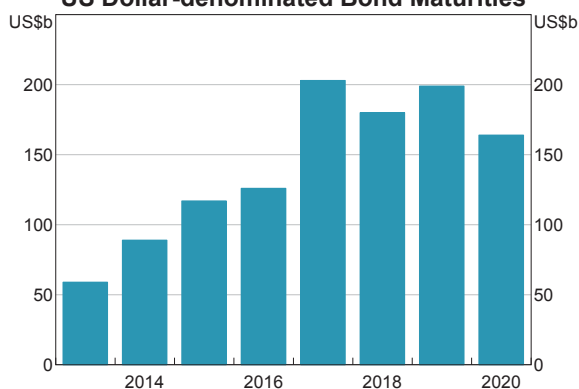
* Ratio of interest and principal payments to income
 Source: BIS

corporate profitability has declined with slower economic growth and lower commodity prices.

- Lower exchange rates will make foreign currency-denominated debt more costly to service. Although this type of corporate debt is relatively low or hedged, some firms in non-tradeable sectors – which typically do not earn significant foreign currency revenue – have increased their foreign currency-denominated borrowing.

- A large volume of emerging market US dollar-denominated corporate bonds is due to mature in the next few years (Graph 1.7). Even if borrowers roll over this debt, expected increases in US interest rates will increase interest costs on the renewed borrowing for at least some corporations.

Graph 1.7
Emerging Market Corporations’
US Dollar-denominated Bond Maturities



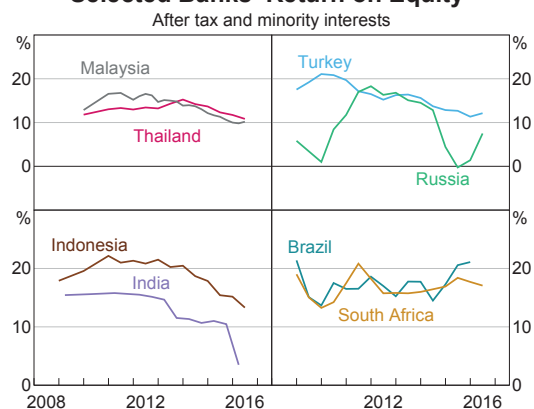
Source: Dealogic

These vulnerabilities appear to be most pronounced for commodity-exporting economies, because their terms of trade have fallen significantly and corporate leverage has increased for commodity-producing firms. These economies also face a challenging macroeconomic policy environment. Government finances have deteriorated alongside lower commodity prices. Also, some central banks have maintained high policy interest rates – despite slower economic growth – to contain inflationary pressures, which have been partly driven by lower exchange rates.

In line with these developments, corporate bond defaults have increased in 2016, including by issuers in commodity and energy-related sectors. If corporate distress became more widespread, emerging market banks would bear most of the immediate risk because they have financed the bulk of the corporate debt in their economies. However, key banking indicators suggest that most emerging market banking systems are well placed

to weather higher corporate defaults. Reported capital ratios are high by global standards and have continued to increase in recent years. Bank return on equity is commonly at or above estimates of the cost of equity, although it has been gradually declining (Graph 1.8). NPL ratios have started to rise, particularly at public sector banks in India where loan-loss provisions have also increased sharply. Elsewhere, the increase in NPLs to date has generally been modest, including in large commodity-exporting economies such as Brazil and Indonesia, and provisioning levels appear sound. Nonetheless, some of these metrics are backward looking.

Graph 1.8
Selected Banks’ Return on Equity*



* Coverage differs across jurisdictions; data are adjusted for significant mergers and acquisitions

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

Household sector risks have also increased in some emerging market economies. In Brazil, Malaysia, Thailand and Turkey, household indebtedness has risen over recent years alongside large increases in real housing prices. Most recently, housing prices have fallen in Brazil and Russia, where economic conditions have been particularly weak, which could add to the challenges faced by their banks.

With the increasing size and integration of emerging markets in the global economy and financial system, the potential for distress to spill over to other economies has risen. As for China, transmission channels include direct financial links, trade links and risk sentiment in international

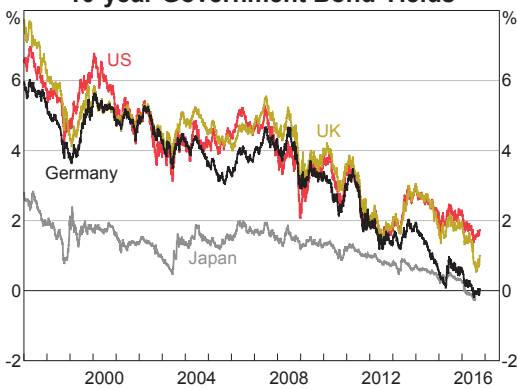
financial markets. Lending to emerging markets by advanced economy banks has increased significantly over the past decade and, while overall exposures are relatively small, some banks' exposures are significant.

Advanced Economies

Slow nominal economic growth and pressures on the profitability of banks and some other financial institutions continue to pose challenges to global financial stability. Over the past year, sovereign bond yields have generally fallen further, to reach new or be close to record low levels in a number of advanced economies, in part reflecting soft outlooks for long-run economic growth and prospects for ongoing very expansionary monetary policy (Graph 1.9). While low interest rates are supporting economic activity and assisting with debt serviceability, they can motivate excessive risk-taking and borrowing, boosting asset prices beyond fundamentals and potentially making them more sensitive to changes in risk premia.

The outcome of the United Kingdom's referendum in June surprised financial markets. As such, it initially led to large moves in bond yields, equity prices (especially banks) and exchange rates. Despite the sharp price movements, financial markets generally functioned in an orderly manner and in many financial markets much of the initial price movement was later unwound.

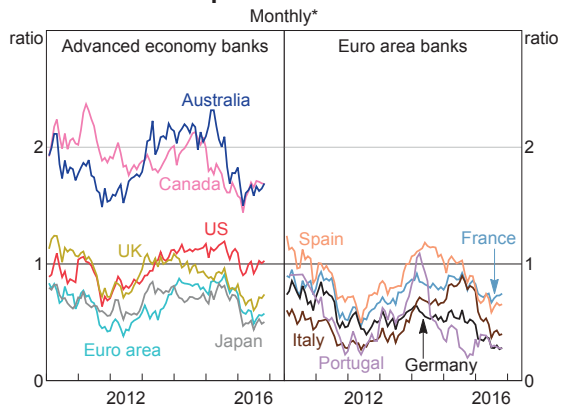
Graph 1.9
10-year Government Bond Yields



Source: Bloomberg

European banks' share prices fell sharply after the referendum. While the falls have been partly retraced in some countries, European banks' price-to-book ratios remain at very low levels (Graph 1.10). For some large banks, market concerns about their profit outlook can also be seen in the elevated cost of insuring against default on their debt and the relatively high yields on their Additional Tier 1 capital instruments.

Graph 1.10
Banks' Share-price-to-book-value Ratios

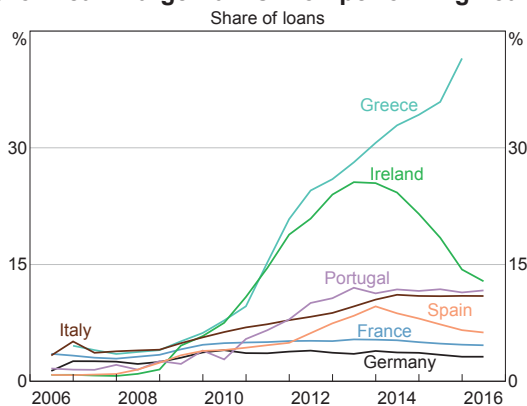


* End of month; October 2016 observation is based on latest available data
Source: Bloomberg

The profitability and resilience of European banks continue to be hampered by slow economic growth, which is restraining current revenues and making it more difficult to deal with the large legacy stock of NPLs (Graph 1.11). Managing the high level of NPLs is particularly challenging for Italian and some other southern European banks, where ineffective corporate insolvency procedures and corporate governance problems have contributed to a large stock of NPLs remaining on banks' balance sheets, typically at values that exceed their estimated market price. Although the ongoing low interest rate environment is supporting economic growth, it has weighed on banks' net interest margins and thus profitability. Some European banks, including Deutsche Bank, are also grappling with higher capital requirements, ongoing litigation costs and the need to restructure their business

Graph 1.11

Euro Area – Large Banks' Non-performing Loans*



* Definitions of 'non-performing loans' differ across jurisdictions; number of banks: France (6), Germany (9), Greece (4), Ireland (2), Italy (5), Portugal (3) and Spain (6)

Sources: Banks' annual and interim reports; RBA; S&P Global Market Intelligence

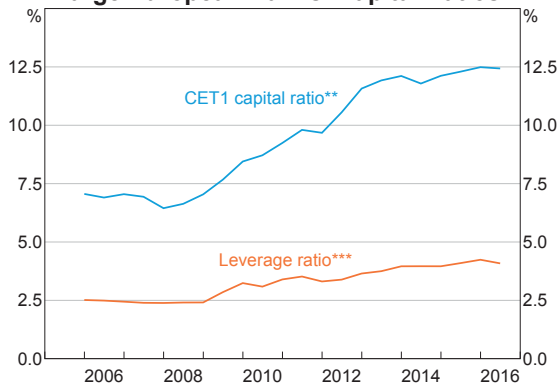
models in response to the post-crisis regulatory reforms.

Concerns about the Italian banks in particular came to the fore in the context of the European Banking Authority's (EBA) stress test results in July. These showed that Monte dei Paschi di Siena (MPS) – the fourth-largest bank in Italy – would have all of its CET1 capital wiped out under the EBA's severe stress scenario. Italian authorities have been reluctant to recapitalise banks under the European Union's (EU) new bank resolution rules because of the political and contagion risks associated with the requirement that subordinated Italian bank debt be bailed-in: much of this debt is owned by local households. A private recapitalisation of MPS has instead been proposed.

More positively, the EBA stress test highlighted the progress that many European banks have made in strengthening their regulatory capital in recent years (Graph 1.12). Projected capital ratios fell below regulatory minimums for only a small number of the 51 banks examined, even in the adverse stress scenario. But many of the smaller and weaker European banks, including those from Portugal and Greece, were not included in the stress test. Highlighting difficulties in its banking system,

Graph 1.12

Large European Banks' Capital Ratios*



* European-headquartered G-SIBs, excluding the UK

** Basel regulatory standards change throughout the sample period; data based on the contemporaneous regulatory standard; the current regulatory standard is the Basel III transitional framework

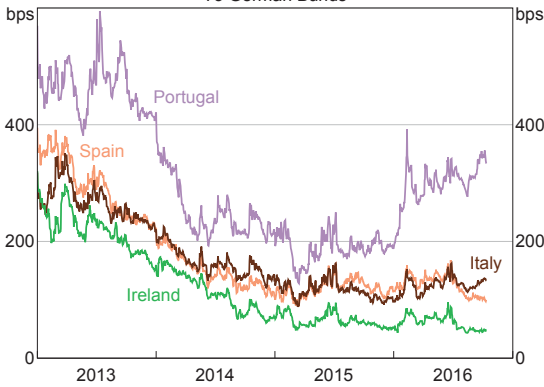
*** Tier 1 capital based on the contemporaneous Basel regulatory standard divided by total assets

Sources: RBA; S&P Global Market Intelligence

the Portuguese Government indicated in August that it will recapitalise the country's largest bank using public funds. The European Commission has reportedly given its preliminary approval, even though the plan does not include the bail-in of creditors as is usually required under state-aid rules. Instead, the plan appears to make use of an EU rule that allows public capital injections, without creditor bail-in, when they occur under 'normal market conditions'.

In addition, debt sustainability concerns persist in parts of Europe, particularly in southern European countries such as Portugal and Italy where government bond spreads have remained relatively high (Graph 1.13). As events in Greece in recent years have demonstrated, sovereign debt problems can quickly affect the local banking system, by reducing access to funding, weighing on asset values and weakening the broader economy. Political developments could also pose a risk to debt sustainability and banking sector prospects, in that growing support for Eurosceptic political parties could reduce the political will to undertake necessary reforms.

Graph 1.13
Euro Area 10-year Government Bond Spreads
 To German Bunds

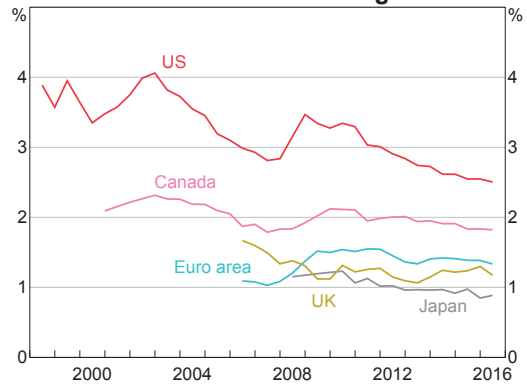


Sources: Bloomberg; RBA

Outside of Europe, banking systems in major advanced economies also face a range of profitability challenges. Low and, in some cases, negative policy interest rates, combined with relatively flat yield curves, continue to squeeze banks' net interest margins (Graph 1.14). Higher credit losses, often associated with deteriorating asset performance in the energy sector, have weighed on bank profitability in Canada, the United States and, to a lesser extent, Japan. This has been particularly pronounced for large Canadian banks. Their combined NPL ratio has increased recently, partly driven by an increase in consumer loan delinquencies in energy-producing provinces. Some advanced economy banks also have significant exposures to commodity-exporting emerging markets.

Japanese banks have significantly expanded their higher-yielding offshore activities over recent years (Graph 1.15), with a growing share of their assets denominated in foreign currency, partly funded through short-term wholesale markets. This has increased their foreign currency liquidity risks. The cost of Japanese banks' US dollar borrowing in particular has already risen noticeably over the course of 2016, both in swap markets and in short-term funding markets in the United States.

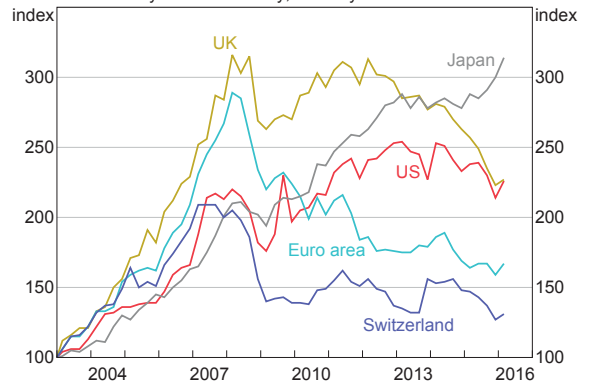
Graph 1.14
Banks' Net Interest Margins*



* Weighted average across selected large banks headquartered in each jurisdiction

Sources: RBA; S&P Global Market Intelligence

Graph 1.15
Foreign Bank Claims*
 By bank nationality, January 2003 = 100

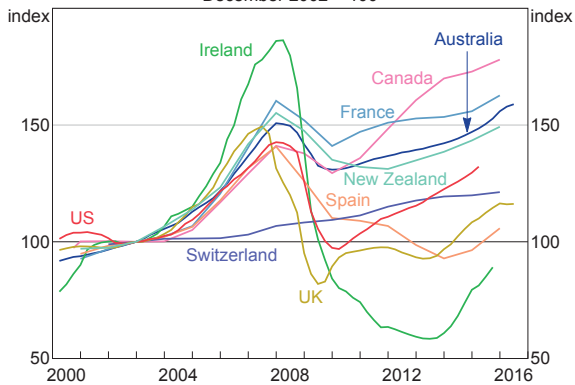


* Consolidated, immediate counterparty basis; series are approximately adjusted for breaks and exchange rate movements

Sources: BIS; RBA

As well as challenging bank profitability, low interest rates encourage investors to take on additional risk to maintain returns through 'search for yield' behaviour. This has boosted asset prices in a range of countries, raising the risk of a sharp and disruptive repricing, for example triggered by US monetary policy tightening. Commercial property prices have continued to increase strongly in many countries, including in the United States, Canada, New Zealand and parts of Europe (Graph 1.16), partly driven by robust domestic and foreign

Graph 1.16
Commercial Property Values*
 December 2002 = 100



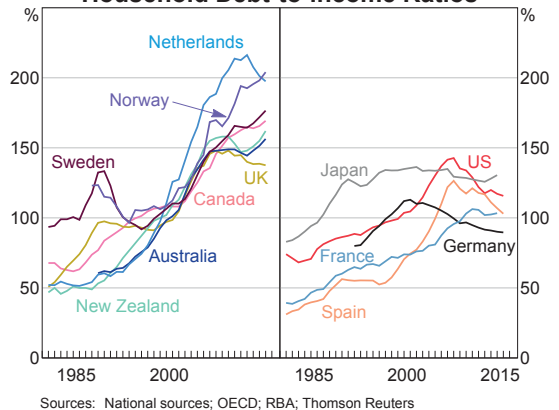
* Series are capital returns indices, which measure changes in an asset's value net of any capital expenditure incurred in purchasing, developing or improving the property; based on an equal weighting of office and retail commercial property
 Sources: Bloomberg; IPD; RBA

investor demand. Rental yields in several markets have declined as rents have risen more slowly than prices. These developments have attracted increasing regulatory attention, consistent with commercial property markets having contributed to many past episodes of financial instability.

Low interest rates have also contributed to growth in housing prices in a range of advanced economies over recent years. This has attracted particular attention in Canada, Sweden, Norway and Hong Kong, where high household debt has increased further, implying greater household vulnerability to a negative shock (Graph 1.17). In response, the authorities in some economies have imposed macroprudential regulations, including higher countercyclical capital buffers, to try to limit the build-up of financial risks.

Low interest rates also present challenges for life insurance firms and defined benefit pension plans that have previously offered to pay guaranteed benefits to policyholders based on earlier higher interest rates and asset yields. As outlined in previous *Reviews*, these institutions rely on asset returns to meet return promises that are payable

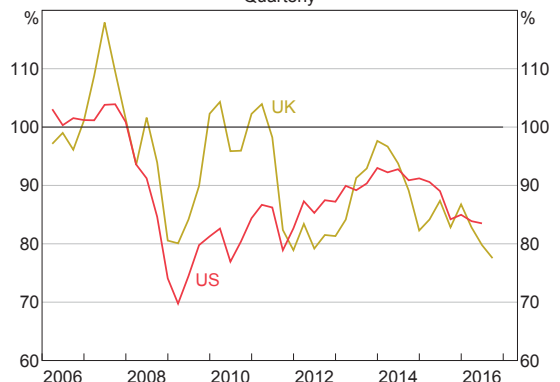
Graph 1.17
Household Debt-to-income Ratios



Sources: National sources; OECD; RBA; Thomson Reuters

long into the future, often longer than the available maturities on many financial assets.¹ The resulting maturity gap has led to a fall in funding ratios in some countries – the ratio of the present value of their assets to their liabilities – as interest rates have declined, creating significant funding shortfalls (Graph 1.18). Increasing longevity has also added to these firms' funding challenges. Although life insurance firms and defined benefit pension funds have been addressing their funding shortfalls, they

Graph 1.18
Defined Benefit Pension Plan Funding Ratios*
 Quarterly



* Aggregate ratio of funds' assets to liabilities; 'UK' includes funds eligible for entry to the Pension Protection Fund; 'US' includes private defined benefit pension funds
 Sources: UK Pension Protection Fund; US Federal Reserve Board of Governors

¹ RBA (2015), 'Box A: Effects of Low Yields on Life Insurers and Pension Funds'; *Financial Stability Review*, October, pp 16–18.

remain prevalent and could have adverse effects on the finances of the corporate and sovereign sponsors. The shortfalls could also encourage compensatory saving by concerned policyholders and prompt underfunded plans to invest in riskier assets in a ‘gamble for resurrection’.

Policy-makers remain concerned about the potential for low liquidity in some markets, and liquidity risks at asset managers, to exacerbate asset price falls and add to contagion. Liquidity risks are most prominent for asset managers who offer clients the ability to withdraw funds daily or even intraday despite investing in less liquid assets. Events following the UK referendum provided a timely illustration of these risks. Investor redemptions led to pronounced liquidity pressures at open-ended commercial property funds in the United Kingdom. Seven funds with around £18 billion in assets – or about half of the assets under management in this type of fund in the United Kingdom – responded by suspending redemptions; some other funds continued to allow redemptions but significantly raised the cost of doing so. These actions prevented widespread fire sales of commercial property, thereby protecting the interests of long-term fund investors and limiting contagion. However, these tools may not be available in all jurisdictions or be as effective in the event of a larger shock.

Asset managers also pose risks to financial stability if their investment strategies are procyclical and highly correlated, which increases the potential for the mispricing of risk and asset price volatility. They are also highly connected to other financial intermediaries. This includes sovereign wealth funds (SWFs), many of which experienced strong asset growth when commodity prices were high and capital inflows to their economies were strong. If commodity prices fall further, some SWFs of commodity-exporting nations could further redeem funds from external managers or sell assets that they hold directly to address government budget pressures. This could exacerbate price movements of riskier assets, especially as their investment

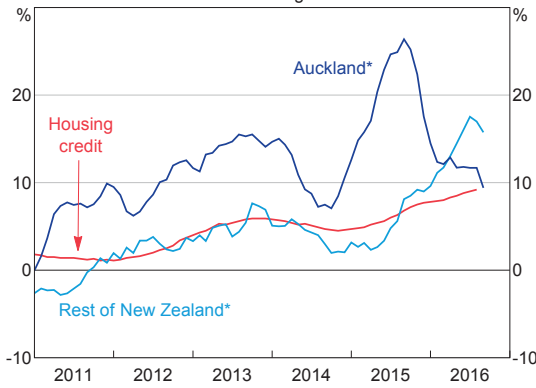
strategies are not transparent and some SWFs have large and concentrated positions in less liquid markets (because of their typically long investment horizons and low withdrawal risk).

New Zealand

Financial stability risks in New Zealand are of particular interest because the four major Australian banks all have large direct exposures to New Zealand through their subsidiaries and branches (see ‘The Australian Financial System’ chapter). There are also important similarities between Australia and New Zealand: banks have similar business models and economic and asset price cycles in the two countries are positively correlated. As a result, financial distress at a New Zealand institution could directly affect Australian banks and would likely occur at a time when Australian banks are also under stress.

Property-related risks in New Zealand bear similarities to Australia, but some appear to be increasing rather than receding. Both residential and commercial property prices have risen sharply in the global low-yield environment, with housing prices now at elevated levels relative to income and rents. New Zealand housing price growth is also being supported by large net migration inflow and constraints on housing supply. The Reserve Bank of New Zealand (RBNZ) has concluded that the sharp increase in housing prices, coupled with high household debt, increases the likelihood of – and potential losses from – rapid price falls in the future. The RBNZ has used macroprudential policies over the past four years to mitigate these risks, with a focus on lending at high loan-to-valuation ratios (LVRs) and to investors. In response, the share of all mortgage lending with an LVR greater than 80 per cent has fallen from around 20 per cent in late 2013 to around 12 per cent in mid 2016. LVR restrictions were tightened further from October 2016, due to the re-emergence of price pressures in Auckland and a marked pick-up in housing price growth elsewhere earlier in the year (Graph 1.19). The RBNZ

Graph 1.19
New Zealand Housing Credit and Prices
 Year-ended growth

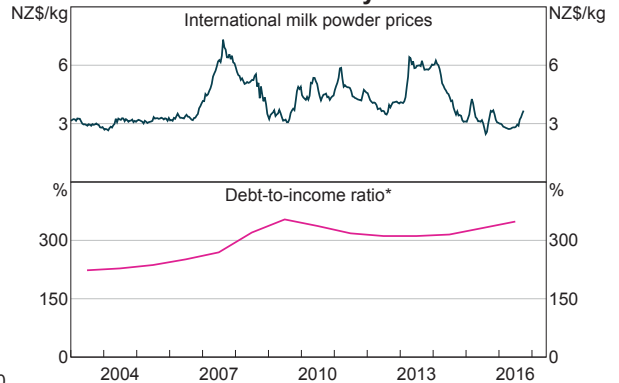


* Year to latest three months
 Sources: RBNZ; REINZ

is also considering debt-to-income ratio restrictions to improve households' resilience to income and interest rate shocks, and to further reduce the build-up of risks in the housing market.

Dairy sector risks are more idiosyncratic to New Zealand. Many dairy farmers are facing a third consecutive season of losses due to low milk powder prices (Graph 1.20). This has raised the risk of widespread defaults across the sector, although the risk has lessened of late as global prices have picked up. Dairy is New Zealand's largest export and accounts for around 7 per cent of GDP (compared with just 0.3 per cent of GDP in Australia). New Zealand banks' dairy exposures are significant, given both the importance of this sector to the local economy and higher levels of farm indebtedness. Banks' reported NPLs have increased only modestly to date, but have been held down by loan forbearance and favourable climatic

Graph 1.20
New Zealand Dairy Sector



* Income measure has been smoothed
 Sources: Bloomberg; RBA; RBNZ; USDA

conditions, as well as farmers' use of other income and assets; lower production costs (including the cost of debt service due to the current low interest rates) have also helped. Farmland prices have fallen, reducing farmers' equity buffers, but by less than in previous episodes of low dairy prices. Prices appear to have been supported by lower foreclosures, buying demand from institutional and overseas investors, and the ability to use agricultural land for alternative uses. It is not clear how long the current low dairy prices, or some of these mitigating factors, will persist.

The latest RBNZ stress test results for the major New Zealand banks suggest that the banks are resilient to a severe macroeconomic downturn, including large falls in housing and commercial property prices and a more gradual recovery in dairy prices and income. ❖

Box A

Recent Growth of Small and Medium-sized Chinese Banks

Small and medium-sized Chinese banks have grown rapidly over recent years, with their combined share of system assets rising from around 40 per cent in 2009 to 50 per cent in 2015 (Graph A1). In doing so, they have expanded less transparent forms of credit and increasingly relied on short-term funding, which has increased the risks of their distress and of contagion to other institutions. This box examines the recent growth and performance of smaller Chinese banks, and the associated risks to financial stability in China.

The banking system in China is highly regulated and banking activities are dominated by the state-controlled banks, which include the large state-owned banks and policy banks. The rest of the system is made up of a myriad of smaller banks: twelve joint-stock banks, hundreds of city and rural banks and thousands of credit cooperatives.¹ The

analysis in this box is based on the joint-stock banks and an available sample of city banks.²

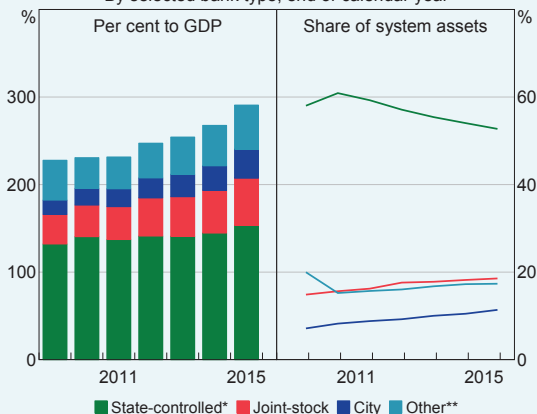
Recent Performance

For several years the reported rate of return on equity of Chinese banks has trended lower, yet remains high relative to global peers (Graph A2). As economic growth has slowed, smaller Chinese banks have expanded their balance sheets in an effort to support profitability despite higher write-offs and loan-loss provisions. While the return on equity for joint-stock banks has remained similar both in its rate and trend decline to that of the large state-owned banks, the return on equity for city banks has been persistently lower. The reported non-performing loan (NPL) ratios for all types of banks have been similar to date, increasing from low levels over recent years.³

Small and medium-sized banks face some risks from their traditional lending activities, which in some cases is heavily concentrated in just a few industries, such as the mining, farming and retail sectors. However, the rapid expansion of assets at small and medium-sized banks has in fact been driven by an increase in less transparent forms of credit via the shadow banking sector. In particular, there has been a sharp run-up in smaller banks' holdings of securities known as 'investments classified as receivables' (Graph A3). Much of this increase has reportedly been driven by 'shadow' credit products: investment products packaged together by trust and securities companies with loans and other

Graph A1
Chinese Banking System Assets

By selected bank type, end of calendar year



* Includes state-owned banks and estimates for policy banks

** Includes rural banks, foreign banks and credit cooperatives

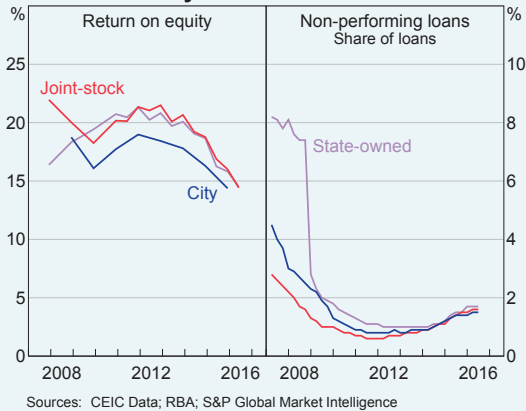
Sources: CEIC Data; RBA; S&P Global Market Intelligence

1 Foreign banks in China account for only a small share of system assets (less than 2 per cent).

2 The sample of city banks varies over the period of assessment. Data for many city and joint-stock banks are not yet available for 2016.

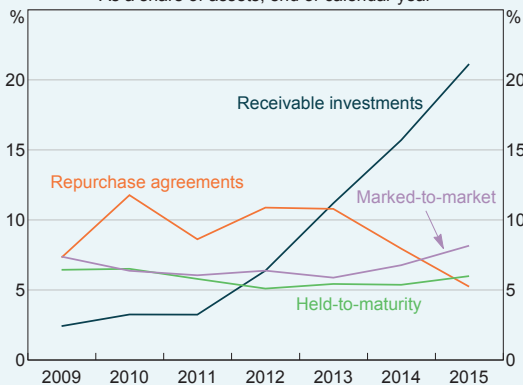
3 For more information about NPLs in China, see RBA (2016), 'Box A: Asset Performance in the Chinese Banking Sector', *Financial Stability Review*, April, pp 17–19.

Graph A2
Chinese Banks' Profitability and Loan Performance



Sources: CEIC Data; RBA; S&P Global Market Intelligence

Graph A3
Smaller Chinese Banks' Securities
 As a share of assets, end of calendar year



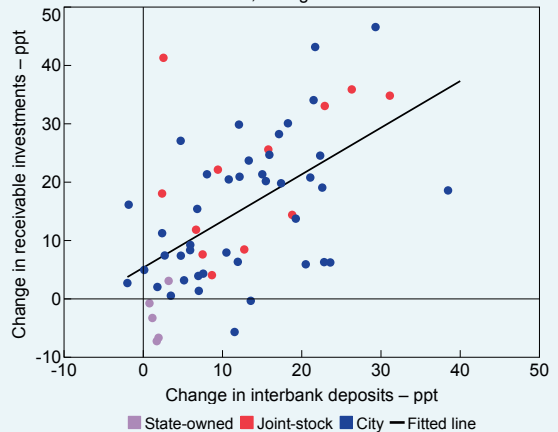
Sources: RBA; S&P Global Market Intelligence

credit products as the underlying assets (somewhat akin to asset-backed securities). These products have been purchased by banks and booked as securities on their balance sheets. In the highly regulated Chinese financial system, the use of this lending channel may have allowed smaller banks more discretion in lending decisions. In absolute terms, the rise in receivable investments has been driven by a few of the biggest joint-stock banks. But when scaled as a share of their assets, the increase in receivable investments varies widely across the smaller banks. While some banks report that these

securities now account for more than one-third of total assets, others report a much lower share. In contrast, the large state-owned banks have generally shied away from holding these types of securities.

Furthermore, on the liabilities side of their balance sheet, small and medium-sized banks have become more reliant on short-term funding from the interbank market (whose participants include non-bank financial institutions as well as banks). Interbank deposits at smaller banks in aggregate are estimated to have more than doubled from slightly over 10 per cent of liabilities in 2009 to be more than 25 per cent in 2015. The smaller banks that have most increased their reliance on interbank funding have also tended to be the ones that expanded their holdings of receivable investments the most (Graph A4).

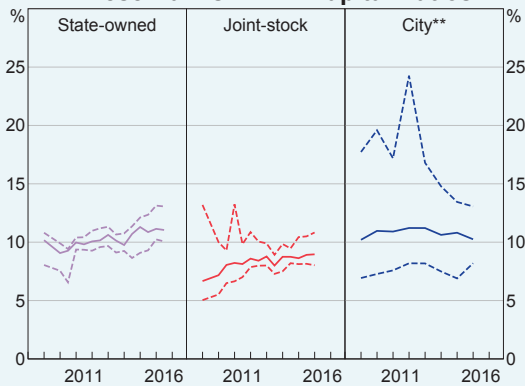
Graph A4
Interbank Deposits and Receivable Investments
 As a share of assets, change between 2009 and 2015



Sources: RBA; S&P Global Market Intelligence

The aggregate reported Common Equity Tier 1 (CET1) capital ratios of small and medium-sized banks meet international requirements. But individual banks' ratios vary widely, with some banks having thin capital buffers (Graph A5). The capital buffers at some banks may be even thinner than the reported figures suggest, especially since receivable investments may not be subject to the same level of risk-weighted capital as traditional loans. There are also reports that banks have packaged deteriorating loans into these securities to avoid recognising and provisioning for them, because securities do not seem to be subject to the same asset performance classification as traditional loans.

Graph A5
Chinese Banks' CET1 Capital Ratios*



* Dashed lines are for the maximum and minimum; solid lines are for the median

** Maximum for city banks is based on the 95th percentile

Sources: RBA; S&P Global Market Intelligence

Risks

The extent and nature of their recent asset growth suggest greater risk-taking by many smaller Chinese banks, as does their increased use of short-term interbank borrowing. As noted in the main text, the shadow lending that underpins much of their asset growth is, on average, likely to be riskier than traditional bank lending.

Taken together, these factors suggest that many smaller banks are exposed to a heightened risk of loan losses, particularly as overall economic growth slows in China. Larger banks' exposures to smaller banks appear to be relatively small, so direct contagion may not pose a material risk. But the banking system could be affected through indirect channels of contagion: high loan losses in one or more smaller banks could cause investors to reconsider their funding to other banks that they believe may have a similar vulnerability. In these circumstances, concerns about the financial system more broadly could quickly spread and test the authorities' ability to stem liquidity pressures, facilitate capital injections and resolve any small bank failures.

Recent Regulatory Developments

Chinese authorities have scope to tackle the build-up of risk in smaller banks' balance sheets. To start with, they have regulatory tools and frameworks to protect against liquidity risk. Recent guidance has also reinforced that banks should treat loan-like products as if they were loans for provisioning and capital purposes. As a result, some small and medium-sized banks will need to raise capital, and some have reportedly already done so. Some recent regulations also aim to enhance the recognition of impaired loans by limiting banks' ability to transfer new NPLs into shadow credit products. In addition, regulators have proposed rules to limit retail investors' indirect exposure to shadow credit products. Nonetheless, given the increasing complexity of the system and ongoing financial innovation, further supervisory actions might be needed. ▽

2. Household and Business Finances

Risks to the household sector overall have lessened a little further since the previous *Review*. Housing lending standards remain considerably tighter than they were a year or two ago and while price growth has picked up a bit of late in the capital city housing markets, it remains below recent peaks. However, in areas reliant on mining there are clear signs of increasing financial stress among households, with non-performing loans rising, albeit from low levels. Housing price falls in mining regions have been substantial, making it more difficult for borrowers in financial stress to resolve their situation by selling their property. More broadly, while current debt-servicing ability is well supported by the low level of interest rates, household indebtedness continues to drift up and, with incomes growing more slowly than in the previous decade, households may not be able to rely on income growth to make their debt easier to service.

In residential property development, the risks in some apartment markets are closer to materialising, as the foreshadowed large and geographically concentrated increase in supply approaches. These risks appear greatest in inner-city Brisbane and Melbourne, where the new supply is largest relative to the existing dwelling stock. Developers face the risk that off-the-plan sales of apartments in these areas fail to settle due to tighter lending standards for buyers (particularly non-residents or those relying on foreign income) and valuations at settlement below the contract price. To date, settlement failure rates have remained low, although in some cases settlement has been delayed because the buyer has had difficulty

accessing finance. While tighter lending standards have made accessing finance more challenging for some purchasers, it is nonetheless important that borrowers can afford to service their debt and that collateral is appropriately valued.

Banks have responded to these risks by tightening access to finance for new apartment developments. Together with greater difficulty achieving the required level of pre-sales, this has led some developers to delay their building projects. Given the significant volume of apartments expected to be completed in the next couple of years, some consequent slowing in construction in some areas could lessen the risk of oversupply.

Conditions in non-residential commercial property markets continue to vary across cities; Sydney and Melbourne are performing strongly, while Brisbane and Perth are facing difficult market conditions. The ongoing search for high-yielding assets in a global environment of low interest rates has been an important contributor to the strong price growth in Sydney and Melbourne. There is some uncertainty about the sustainability of demand at current yields, particularly if global interest rates were to increase or demand from Asia were to decline.

Businesses generally remain in good financial health, with aggregate levels of gearing around their historical averages and the earnings of listed corporations broadly in line with prior periods. Most businesses appear well placed to meet their debt obligations. An exception is companies in the resource-related sector, which continue to face much lower commodity prices than a few years

ago, weighing on earnings. While many resource-related companies have been able to cut costs and reduce capital expenditure, it is becoming progressively more difficult to lower costs further. There are signs that these difficult conditions are affecting the financial health of other businesses in mining-reliant areas. In response, banks have reduced their exposures to the resource-related sector over the past six months and overall the stresses in that sector appear to pose little direct risk to the domestic financial system.

Household Sector

Housing and mortgage markets

Housing price growth over the past six months has remained below recent peaks, especially in Sydney, which was previously the most buoyant market (Graph 2.1). In the more mining-intensive states, housing prices have been broadly flat in Brisbane and Perth. Nonetheless, housing market activity in Sydney and Melbourne has shown signs of strengthening in recent months. In both cities, price growth has nudged higher of late and auction clearance rates have risen to high levels.

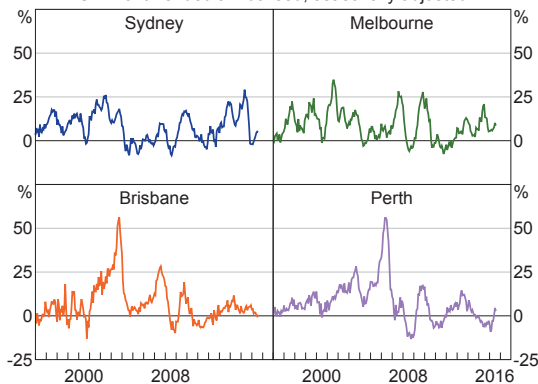
Since the previous *Review*, overall housing lending standards have tightened a little further. The substantial tightening that occurred in 2015 and

early 2016 has remained in place, notably the stricter serviceability policies and reduction in the share of riskier lending. Banks also continue to apply tighter lending policies for apartments and to selected suburbs or regions deemed higher risk. One notable change to lending standards of late is the tighter restriction banks have placed on lending to non-resident borrowers and those reliant on foreign income, following some cases of fraud in loan applications. In liaison, the domestic banks have indicated that they expect this restriction to have relatively little influence on overall credit growth because few loan applicants have foreign income. Nonetheless, it could affect segments of the housing market where foreign buyers are most prevalent, such as inner-city apartment markets.

The cost of mortgage finance has declined, however, and lenders are competing for new customers. Competition for investor loans in particular has increased, and banks have recently narrowed the pricing differential between investor and owner-occupier loans. But the tightening of lending standards in recent years has meant that the profile of this new lending is lower risk than it was a year or so ago. For both owner-occupier and investment lending, the share of loans at high loan-to-valuation ratios (LVRs; those greater than 90 per cent) is now around its lowest level since the series began in 2008. Similarly, the share of interest-only lending has declined to its decade average level, although the share of interest-only lending to investors has flattened out in the most recent data (Graph 2.2). Historically, high-LVR lending has tended to be a bit more likely to default than other housing lending. High-LVR and interest-only lending also involve higher losses-given-default than other housing lending, all else equal, because borrowers' equity is lower at the point of default. Although the share of investor lending has picked up in recent months, it remains well below its high level of a year ago.

Graph 2.1
Housing Price Growth

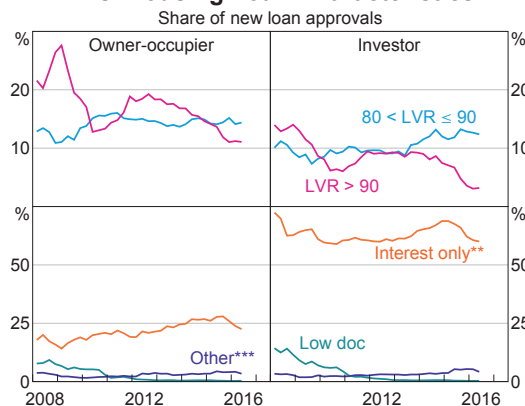
Six-month-ended annualised, seasonally adjusted



Sources: APM; RBA

Graph 2.2

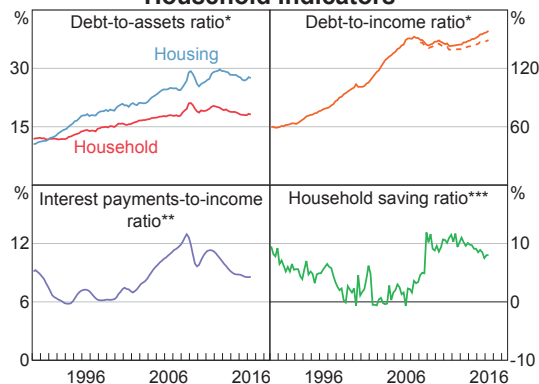
ADIs' Housing Loan Characteristics*



* Series are break-adjusted for reporting changes
 ** Investor series is seasonally adjusted
 *** 'Other' includes loans approved outside normal debt-serviceability policies and other non-standard loans
 Sources: APRA; RBA

Graph 2.3

Household Indicators



* Debt to the financial sector; dashed line is net of offset account balances
 ** Excludes unincorporated enterprises
 *** Net of depreciation
 Sources: ABS; APRA; RBA

Financial position and indicators of stress

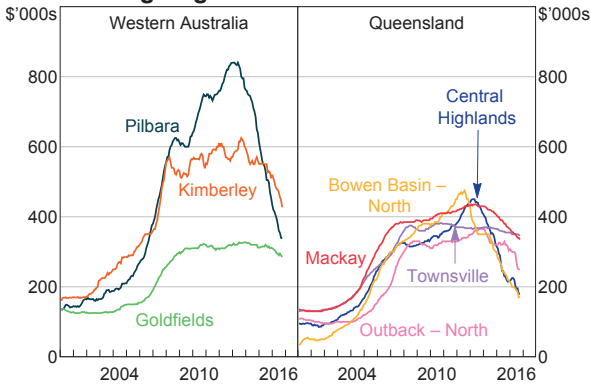
In aggregate, the financial position of the household sector is broadly unchanged since the previous *Review*. The debt-to-income ratio continues to drift up from already high levels, as housing debt has increased and income growth remains low (Graph 2.3). However, households' debt-servicing ability remains well supported by the very low level of mortgage interest rates. Households are also less leveraged than in 2012, when debt-to-asset ratios peaked. Although the household saving ratio has declined a little over recent years, it remains higher than in the decade or so prior to the financial crisis. Aggregate mortgage buffers – balances in offset accounts and redraw facilities – also remain high, at around 17 per cent of outstanding loan balances or around 2½ years of scheduled repayments at current interest rates. However, these aggregate figures mask significant differences across individual borrowers. Many borrowers have little or no buffer, especially the newest borrowers and those considered more at risk of experiencing financial stress, such as borrowers with lower wealth and income or higher leverage.

Although the household sector's aggregate financial position has remained broadly steady,

households in some parts of the country are experiencing increased financial stress. Housing loan performance in Western Australia and Queensland in particular deteriorated further over the first half of 2016. Applications for property possession in Western Australia have edged higher over the past two years, although nationally they continue to decline as a share of the dwelling stock. In liaison, the banks attributed this deterioration largely to declining incomes in the mining states rather than to unemployment. For investors in the mining regions, elevated vacancy rates and sharply falling rents are reducing earnings. Housing price falls in mining regions have been substantial, and banks reported in liaison that in some towns it is difficult to sell properties, even with large price discounts (Graph 2.4). For borrowers having difficulty servicing their loan, this makes it challenging to resolve their situation through the sale of their property. However, mining companies own a large share of the properties in the most affected areas, reducing the number of households affected by these steep housing price falls. The rate of personal administrations has also increased over the past six months, particularly in Queensland and Western Australia, though nationally it remains close to 15-year lows.

Graph 2.4

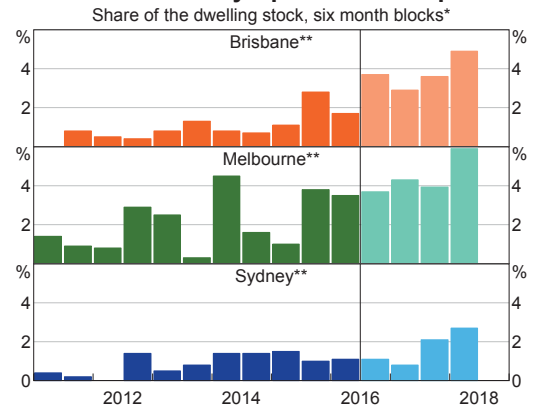
Mining Regions' Median House Prices



Source: CoreLogic

Graph 2.5

Estimated Inner-city Apartment Completions



* Estimated completions from June 2016 onward are from CoreLogic, completions prior to this are based on ABS building approvals with a two-year construction lag; dwelling stocks estimated by RBA

** Inner-city areas of Brisbane (SA4), Melbourne (SA3) and Sydney (SA3)
Sources: ABS; CoreLogic; RBA

Commercial Property

Residential development

The foreshadowed risk of oversupply in some apartment markets is nearing as a large volume of new apartments has started to come on line, and many more completions are expected in the coming two years. Risks appear greatest in Brisbane and Melbourne's inner-city suburbs, where the pipeline of construction is large relative to the existing dwelling stock (Graph 2.5). Conditions in these inner-city markets are fairly subdued, especially in Brisbane where rents are now falling (see further discussion in 'Box B: Banks' Exposures to Inner-city Apartment Markets'). In contrast, new apartments in Sydney are more dispersed across the metropolitan area and account for a smaller share of the existing dwelling stock. In Perth, the expected flow of new dwellings is more modest relative to the stock and is geographically dispersed, but these dwellings are entering the market at a time when housing prices and rents are falling and population growth is slowing.

One risk associated with the large volume of construction underway is that off-the-plan purchases fail to settle. Liaison with the property industry points to some concern that this will become more common in Brisbane, Melbourne and Perth. These concerns arise from a combination of tighter financing conditions for purchasers

(especially for non-residents and those reliant on foreign income) and valuations at settlement below the contracted price. Liaison with banks and industry suggests that in Melbourne, and increasingly in Brisbane, valuations for off-the-plan apartments are often a little below contract prices. However, the magnitude of the difference varies across individual projects and apartments.

Nonetheless, liaison suggests that settlement failure rates to date remain low, although settlement on some projects is taking longer as purchasers are having more difficulty arranging finance. While the tightening in lending standards has made accessing finance more challenging for some purchasers and made it harder for some purchasers to settle on time, it is prudent that financial institutions lend only to borrowers who can afford the repayments and hold adequate collateral. In weaker markets, such as Perth, there have been some instances of developers offering discounts to contracted prices to ensure that settlement occurs. In some cases, larger developers have also offered vendor finance to foreign buyers who could not access bank finance.

Assessing the overall financial health of developers is difficult due to the paucity of data available for unlisted developers, who account for a large

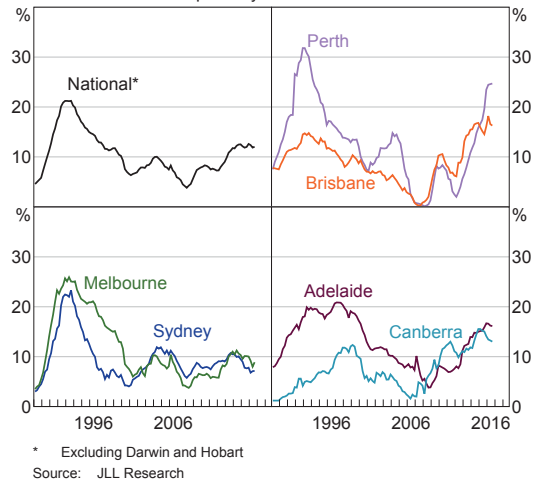
share of the sector, and foreign developers, who are becoming increasingly active in Australia. The limited data available suggest that, in recent years, developers have funded new apartment projects largely through bank debt, increasing these developers' leverage and leaving them more vulnerable to a downturn in apartment markets. Banks have mitigated the risks on this lending by tightening financing conditions for new developments over the past six months or so, through stricter pre-sales requirements, lower maximum LVRs and stricter geographic concentration limits. Their lending to developers is generally well secured and, as yet, the additional costs to developers associated with settlement difficulties have not resulted in losses to the banks. Nonetheless, if apartment markets were to turn down and settlement difficulties become more widespread, banks would be more likely to incur some loan losses (see 'Box B: Banks' Exposures to Inner-city Apartment Markets').

Some developers have responded to the tightening of access to bank finance by accessing finance from non-bank sources. While this finance can sometimes be at much higher interest rates, it may not always have the same degree of security as bank finance, and it is important that the entities funding developers understand the risk and price it appropriately. Industry liaison also suggests that developers are having more difficulty securing pre-sales in some markets, leading to wider use of buyer incentives, project delays and, in more severe cases, sales of development sites. Given the significant volume of new apartments coming to completion in the next couple of years, a slowing in the commencement of new projects could lessen the general risks of an oversupply in some areas.

Non-residential property

Conditions in non-residential property markets continue to differ significantly across cities (Graph 2.6). Brisbane and Perth are experiencing challenging conditions, while the Sydney and Melbourne markets are performing strongly.

Graph 2.6
Office Vacancy Rates
Capital city CBD markets



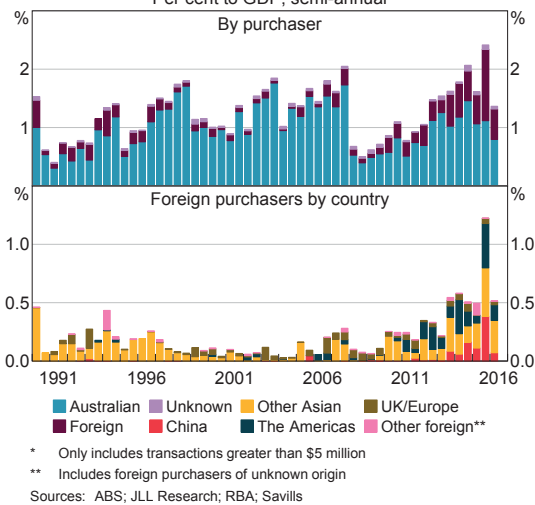
The slowing in mining investment and the fall in commodity prices are leading tenants to vacate offices in Perth and Brisbane, depressing rents in these cities. In Sydney, office rents are growing at their strongest rate in eight years, supported by local economic conditions and strong tenant demand from the technology and professional service sectors. The ongoing withdrawal of office space for infrastructure projects and residential conversion is likely to support the market over coming years. In Melbourne, rents have increased at a more moderate pace. Demand for smaller office spaces has been particularly strong in Sydney and Melbourne, in part due to the growth of start-ups.

Underlying conditions in industrial and retail property markets also vary by city. For industrial property, rental growth has been strongest in Sydney, underpinned by strong tenant demand and tight stock levels, and has recently picked up in Melbourne. In Brisbane and Perth, rents have been falling. In retail markets, rental growth has been soft nationally. Despite soft leasing conditions, retail redevelopment activity has been expanding, in part driven by international retailers entering the Australian market.

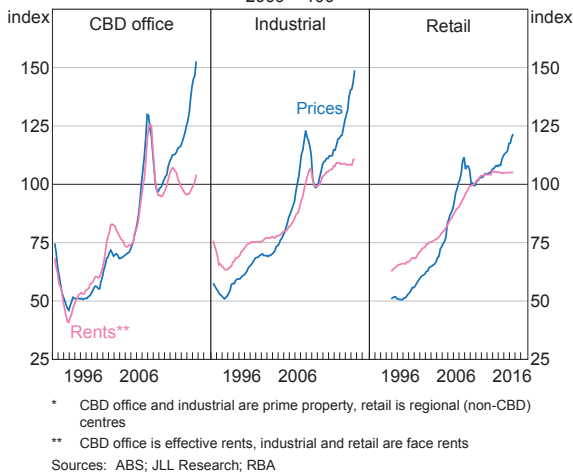
An ongoing dynamic in commercial property markets is a search for high-yielding assets in a global environment of low interest rates (as

discussed in the previous chapter). Yields on Australian commercial property remain higher than in many overseas property markets and other asset classes, which has attracted new investors into the sector. In recent years, foreign buyers have become increasingly active in Australian commercial property markets (Graph 2.7). The increase in investor demand, particularly in Sydney and Melbourne, has pushed prices higher relative to rents (Graph 2.8). By definition, this has compressed yields, most obviously in office and industrial property markets.

**Graph 2.7
Commercial Property Transactions***
Per cent to GDP, semi-annual



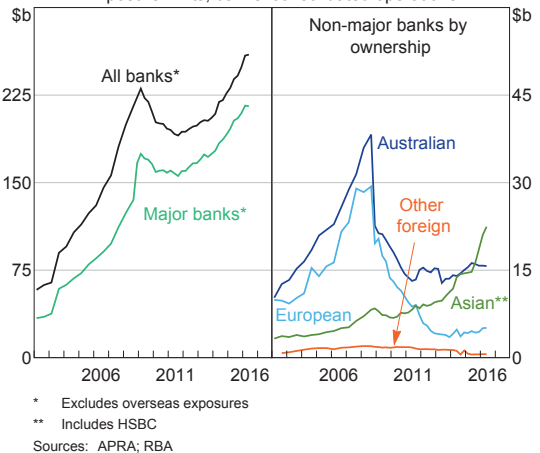
**Graph 2.8
Commercial Property***
2009 = 100



One concern is that the current low level of yields could prove unsustainable, particularly if global interest rates were to increase or demand from foreign buyers were to decline. If either of these occurred and valuations on properties declined, property investors could breach loan-to-valuation covenants on any bank debt. These investors would then be required to inject additional equity to support their loan facilities. A decline in valuations would therefore be more likely to affect highly leveraged investors, who are usually closer to their covenant thresholds. A related risk is that leasing conditions continue to weaken in the Perth and Brisbane office markets, which could reduce borrowers' ability to service their debts. Market analysts generally expect vacancy rates in these markets to stabilise over the next 12 months, aided by a shrinking supply pipeline.

Notwithstanding these risks, commercial property lending, including for residential development, has grown strongly over recent years. This growth has been broad based across office, retail, residential and land development and has been driven by the major banks and Asian banks (Graph 2.9). Asian banks have benefited from the entrance of foreign residential property developers into the Australian market, who have, in turn, been taking advantage of strong demand from Asian resident and new migrant buyers.

**Graph 2.9
Commercial Property Exposures**
Exposure limits, banks' consolidated operations

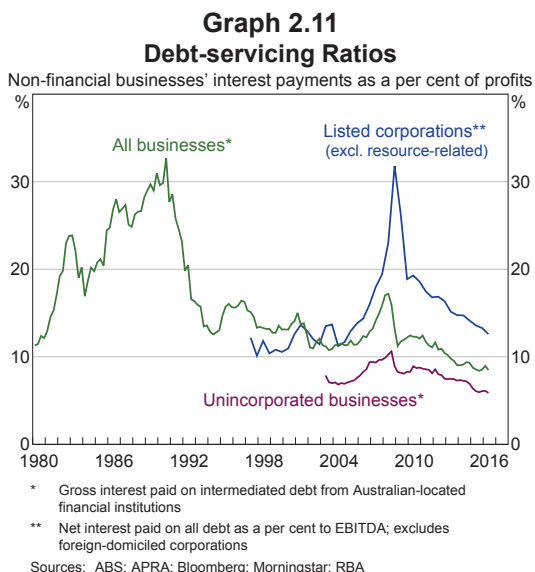


In recent months, APRA has commenced a review of banks' commercial property lending practices, including for residential development, with the aim of improving lending standards in this area.

Other Business Sectors

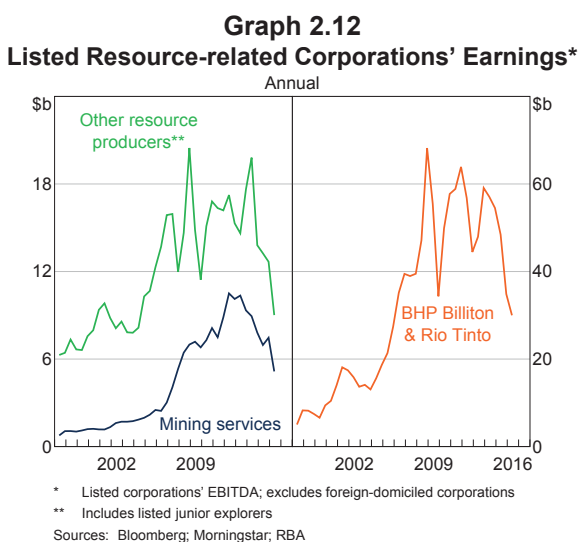
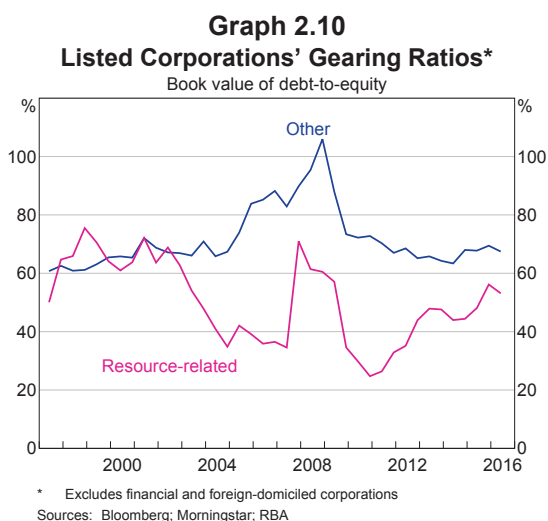
Outside commercial property and the resource-related sector, businesses generally are in good financial health. Survey measures of business conditions are above their long-run average levels; gearing ratios are around their historical averages; business failures remain low; and listed corporations' earnings have been broadly in line with the previous year (Graph 2.10). These positive indicators of financial health are occurring in an environment of low interest rates, reducing businesses' debt-servicing burdens. In addition, businesses in a range of industries continue to benefit from the depreciation of the Australian dollar and the decline in oil prices over the past few years.

Outside the resources sector, businesses generally appear to be in a strong position to meet their debt obligations. The aggregate debt-servicing ratio of listed corporations outside the resource-related sector has declined markedly in recent years, most recently driven by declining interest rates (Graph 2.11). The debt-servicing ratios of unlisted



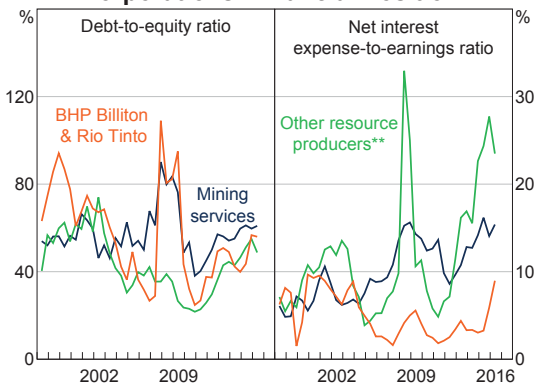
and unincorporated businesses have also fallen and are near historic lows.

In contrast, conditions remain challenging for businesses in resource-related sectors and regions. The decline in commodity prices in recent years has weighed on the earnings of resource-related companies, including the large low-cost producers (Graph 2.12). Many smaller coal producers have struggled to cover costs, leading some to suspend operations at higher-cost mines. Some producers



have been able to partly offset the effect of lower prices by reducing capital expenditure and operating costs, but generating further significant cost savings is becoming progressively more difficult. The debt-servicing ratios of resource-related companies have increased over recent years, reflecting lower earnings as well as increases in gearing ratios, as these companies have taken on more debt even while they reduce investment (Graph 2.13).

Graph 2.13
Listed Resource-related Corporations' Financial Position*



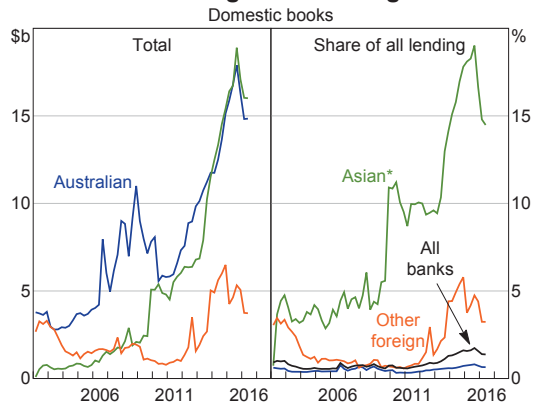
* Excludes foreign-domiciled corporations; book value
** Includes listed junior explorers
Sources: Bloomberg; Morningstar; RBA

Over the past few months, commodity prices have increased, although they remain substantially lower than their levels a few years ago. The recent uptick in prices has seen yields on resource-related companies' bonds decline and spreads narrow. This is consistent with improved market confidence in the ability of resource-related companies to meet their debt obligations and, if sustained, should make it easier for these companies to roll over their debt. Despite this improvement in the past few months, the more marginal resource-related companies remain vulnerable to further falls in commodity prices.

As emphasised in previous *Reviews*, stress in the resource-related sector poses little direct risk to the domestic financial system. Banks' mining-related lending has decreased over the past six months and is now only around 1½ per cent of their lending

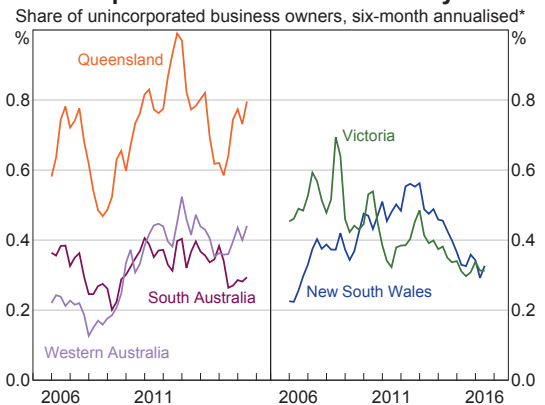
(Graph 2.14). However, this narrow measure of resource-related exposures excludes non-resource-related businesses operating in mining regions. Liaison with banks and industry suggests that the challenging conditions for the resource-related sector have weighed on other businesses in mining regions through second-round effects on household and business spending. Unincorporated business failures have increased in areas of regional Queensland exposed to coal and base metal mining, and smaller increases have been reported in Perth and regional Western Australia (Graph 2.15). ↘

Graph 2.14
Banks' Lending to the Mining Sector



* Includes HSBC
Sources: APRA; RBA

Graph 2.15
Unincorporated Business Failures by State



* Number of unincorporated business owners by state estimated from September quarter 2015
Sources: ABS; AFSA; RBA

Box B

Banks' Exposures to Inner-city Apartment Markets

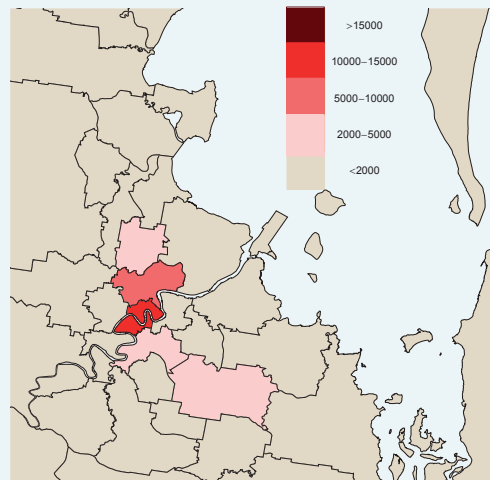
The large number of new apartments recently completed and currently under construction in many capital cities raises the risk of a marked oversupply in some geographic areas. The banking system's exposure to these apartment markets arises from its financing of apartment construction as well as lending to the purchasers of the apartments once construction is complete. This box examines the banking system's development and mortgage exposures in the inner-city areas of Brisbane, Melbourne and Sydney, where apartment construction has recently been most concentrated.¹

As indicated here, if apartment market conditions were to deteriorate in these inner-city areas it is more likely that banks would experience material losses on their development lending rather than on their mortgages. This is because of both a higher probability of default and higher loss-given-default on their development lending than on their mortgage lending for apartment purchases. However, while this box examines the situation for the Australian banking system as a whole, individual banks may have more concentrated exposures in certain geographic areas, including exposures to riskier or lower-quality developments, and hence it is unlikely that losses would be evenly distributed across the banking system if a downturn were to happen.

Current Market Conditions

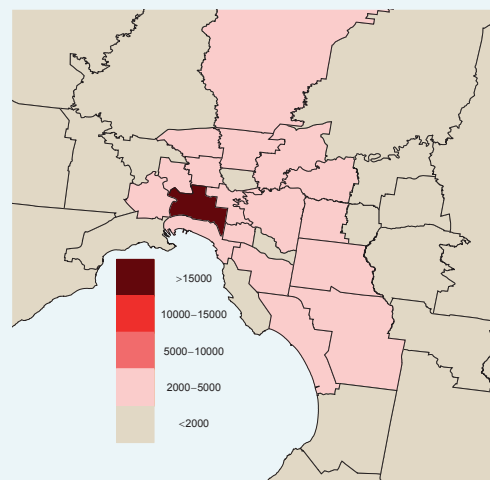
Following the marked pick-up in apartment construction in recent years, inner-city Melbourne is forecast to have the largest number of completions (around 16 000) over the next two years, followed by Brisbane (12 000) and Sydney (10 000) (Figure B1a, Figure B1b, Figure B1c). In

Figure B1a
Brisbane – Expected Unit Completions
During 24 months to August 2018



Sources: CoreLogic; RBA

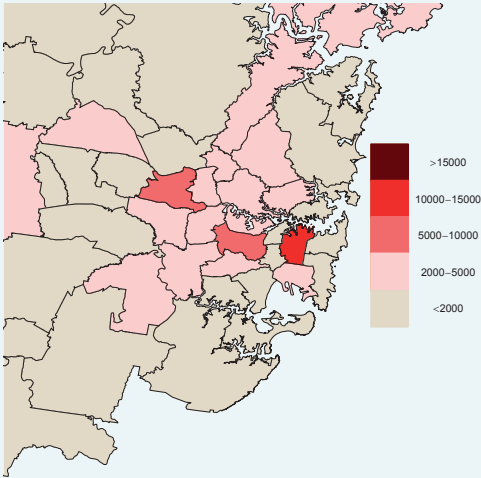
Figure B1b
Melbourne – Expected Unit Completions
During 24 months to August 2018



Sources: CoreLogic; RBA

¹ Specifically, this box considers Brisbane Inner City (statistical area level 4), Melbourne City and Sydney Inner City (statistical areas level 3).

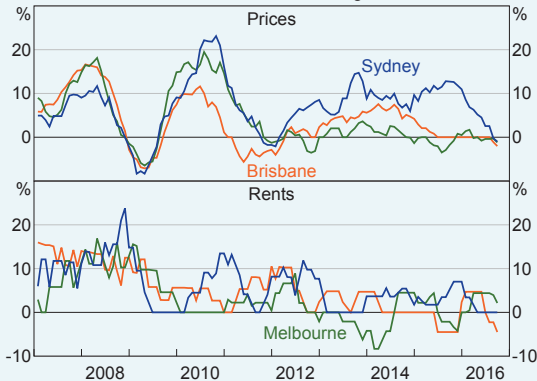
Figure B1c
Sydney – Expected Unit Completions
 During 24 months to August 2018



Sources: CoreLogic; RBA

Brisbane and Melbourne these new apartments will represent a far larger increase in the dwelling stock than in Sydney. Furthermore, apartment price and rental growth in Brisbane and Melbourne are relatively subdued – notwithstanding some strengthening in rents in Melbourne of late – and rental vacancy rates are higher than in Sydney (Graph B1). It is

Graph B1
Inner-city Apartments*
 Six-month-ended annualised growth**



* Inner-city areas of Brisbane (SA4), Melbourne (SA3) and Sydney (SA3)

** Underlying series are twelve-month median values

Sources: CoreLogic; RBA

therefore foreseeable that these additions to the stock will have a greater effect on housing market conditions in these areas.

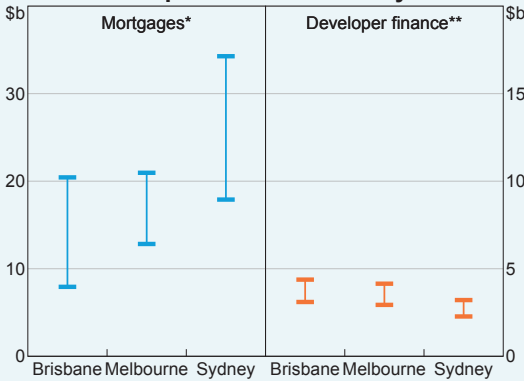
Exposures

The routine regulatory data disclosures do not require banks to report their exposures by geographic region. Nonetheless, data on banks' total Australian mortgage and development lending – along with data on construction activity, housing prices and buyer profile in these areas – can provide some rough estimates of the magnitude of these exposures and hence a broad indication of how exposed banks are to a downturn in these markets.

Overall, these estimates suggest that, by value, banks are most exposed to inner-city housing markets through their mortgage lending rather than via their development lending (Graph B2). The data suggest that around 2–5 per cent of banks' total outstanding mortgage lending is to inner-city Brisbane, Melbourne and Sydney, and this share is likely to grow as the apartments currently under construction are completed. At around \$20–30 billion, mortgage exposures are estimated to be larger in Sydney, reflecting Sydney's higher apartment prices and greater number of mortgaged dwellings, than in Brisbane and Melbourne where mortgage exposures are estimated at around \$10–20 billion in each inner-city area. By contrast, the available data suggest that around one-fifth of banks' total residential development lending is to these areas. Development exposures are a little larger in Melbourne and Brisbane than in Sydney, due to the greater volume of apartment construction currently underway, though they are each less than \$5 billion.

Graph B2

Banks' Exposures to Inner-city Areas



* Upper bound represents all mortgage lending; lower bound represents exposures on newly completed apartments

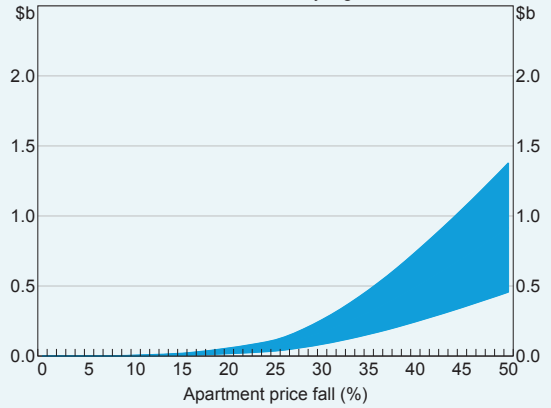
** Upper bound represents exposure limits; lower bound represents actual exposures

Sources: ABS; APRA; CoreLogic; RBA

Graph B3

Scenario of Mortgage Losses*

Combined inner-city regions



* Assuming a probability of default between 5–15 per cent

Sources: ABS; APRA; CoreLogic; RBA

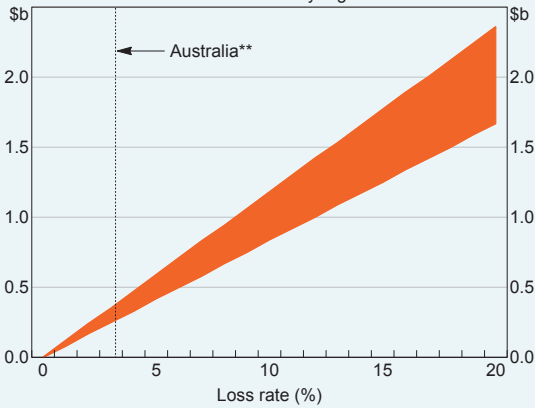
Potential Losses

Banks would experience losses on these exposures in default events where the value of the properties is insufficient to cover the debt outstanding.

Australian mortgage lending has historically had very low default rates – around ½ per cent – and had high levels of collateralisation. In Sydney in particular, a very large price fall would be required before the banks would experience sizeable losses, since the rapid price growth over recent years has increased borrowers' equity in their apartments and thereby lowered banks' losses-given-default. In contrast, inner-city Melbourne and Brisbane have experienced far less price growth, limiting borrowers' accumulation of equity. To gain a broad indication of the size of potential losses to banks, one can consider a hypothetical scenario where default rates rose to between 5 and 15 per cent on inner-city mortgages, and then combine this with a range of housing price falls. Under this scenario, bank losses remain very low until price falls reach over 25 per cent or so (Graph B3).

Repeating this scenario for developer exposures is challenging, because the exposures are more idiosyncratic and the largest losses can be on incomplete developments. In addition, the average level of developer equity in their apartment projects is not readily available and anecdotal evidence suggests that it varies significantly by building. A simple way to model potential losses on developer lending is to use loss rates in line with those seen on all Australian residential development lending during the financial crisis. In this scenario, losses still remain fairly small (Graph B4). Alternative comparisons are the Spanish and Irish financial crisis experiences, which were associated with housing price falls of more than 30 and 50 per cent, respectively, and impairment rates on commercial property of over 30 per cent. In these situations, the losses to banks would be several times larger than the recent Australian experience. However, Australia is not facing the same economic and financial headwinds as Spain or Ireland did during the financial crisis, where

Graph B4
Scenario of Developer Lending Losses*
 Combined inner-city regions



* Upper bound is exposure limits; lower bound is actual exposures
 ** Loss rate on residential development lending experienced during the financial crisis

Sources: ABS; APRA; CoreLogic; RBA

the extent of overbuilding was much greater and prevalent across their entire countries, contributing to very sharp deteriorations in economic conditions. More likely, any oversupply in Australia would be more localised to certain geographic areas, and potential price falls tempered as the population moved to absorb the new (and cheaper) supply of housing in these areas over time. ✎

3. The Australian Financial System

Overall, the Australian banking system remains in good shape after a number of years of strong profit growth and efforts to strengthen bank resilience. Nonetheless, the performance of banks' domestic assets has deteriorated a bit this year, from a very strong position. The weakening has been evident in both banks' consumer and business lending portfolios, and has been concentrated in mining-related industries and regions. There has also been some worsening in the performance of banks' New Zealand exposures, particularly to the dairy sector. These factors resulted in a marked increase in the charge for bad and doubtful debts in the most recent half, albeit off a low base after declining over several years. Rising bad debt charges have, in turn, contributed to bank profits declining recently to levels of around two years ago. Analysts expect these charges to rise further over coming years.

For some time banks have been tightening lending standards and taking other steps to strengthen their resilience, in part prompted by regulatory expectations. Of late, the Australian banks have further tightened lending standards and collateral requirements for higher-density residential projects and other commercial property development, and reduced their exposures to resource-related businesses. Some of this pull-back by Australian banks has been offset by a persistent and rapid expansion of Asian banks' lending, including for commercial property development. Banks have also maintained tighter standards for mortgage lending, following a number of changes that were introduced over the past year or so. These developments have contributed to a slowing in the pace of overall credit growth over the past six months or so.

As a consequence, the Australian banks continue to be well placed to address the risks they face. Each of the major banks has a sizeable buffer to the regulatory capital ratios required, and they are expected to steadily accumulate capital as the Australian Prudential Regulation Authority (APRA) provides additional details on a framework for achieving 'unquestionably strong' capital standards. Banks have also increased their resilience to liquidity shocks over recent years, with further efforts underway in advance of the implementation of the Net Stable Funding Ratio (NSFR) requirement from 2018. Access to long-term debt funding has been favourable for Australian banks this year, and they have used this opportunity to raise considerably more funding from debt markets than in recent years, often at longer tenors.

The profitability of the general insurance industry remains lower than a few years ago, reflecting modest investment returns and below-average underwriting results as commercial premiums continued to decline. Life insurers' profitability continues to be affected by the under-pricing of individual disability income insurance. The profitability of lenders' mortgage insurers has been relatively stable to date. However, their revenue will come under pressure from the declining volume of high loan-to-valuation ratio (LVR) loans following banks' tightening of mortgage lending standards, and they will face higher claims if housing loan performance deteriorates further. Insurers in all three segments maintain capital well in excess of the regulatory minimum and appear well placed to manage these challenges.

Bank Asset Performance and Lending Conditions

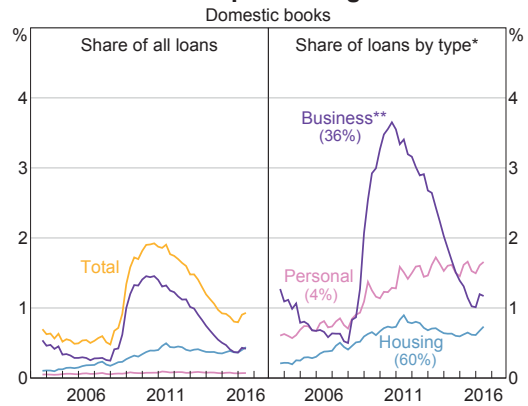
Australian banks' domestic asset performance deteriorated slightly over the first half of 2016, after several years of steady improvement. The non-performing assets ratio rose by 13 basis points to 0.9 per cent at June 2016, though it remains well below its mid 2010 peak (Graph 3.1).¹ This recent weakening in asset performance was broad based across loan types. The deterioration in housing loan performance has been most pronounced in Western Australia and Queensland (as discussed in the 'Household and Business Finances' chapter). To date, the pick-up in the non-performing housing loans ratio has been almost entirely in 'past-due' rather than 'impaired' loans, suggesting that, at current prices, banks generally expect to recover the full amount of their loans.² Nonetheless, impairments could increase, especially if housing markets in mining regions deteriorate further or if weaker conditions spill over further into the broader Perth or Brisbane markets. The non-performing personal loans ratio remains elevated, also partly reflecting economic conditions in Western Australia and Queensland.

The increase in the non-performing business assets ratio also reflects the deterioration in the performance of loans to mining-related business and other businesses in mining regions, along with the impairment of a few large national corporate exposures. The major banks have lifted provisioning and reported higher stressed exposures in the mining and New Zealand dairy industries. Their share of corporate exposures with an estimated probability of default of at least 10 per cent has increased since early 2015 but remains at a low level (Graph 3.2); on average, less than one-tenth of these

1 Following guidance from APRA, some banks have recently changed their reporting of the non-performing status of loans granted hardship concessions. These changes have accounted for a small part of the recent increase in the non-performing loans ratio.

2 Past-due loans are at least 90 days in arrears, but remain well secured. Impaired loans are not well secured and there are doubts as to whether the full amounts due will be obtained in a timely manner.

Graph 3.1
Banks' Non-performing Assets

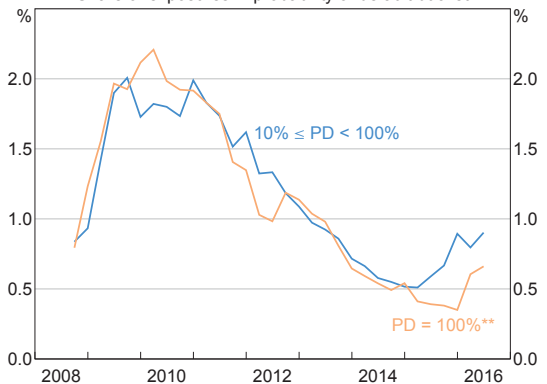


* Each category's share of total domestic lending at June 2016 is shown in parentheses

** Includes lending to financial businesses, bills, debt securities and other non-household loans

Sources: APRA; RBA

Graph 3.2
Major Banks' Corporate Exposures*
Share of exposures in probability of default bucket



* Level 1 basis; on- and off-balance sheet exposures assessed under the internal ratings-based approach before credit risk mitigation techniques

** Defaulted exposures

Source: APRA

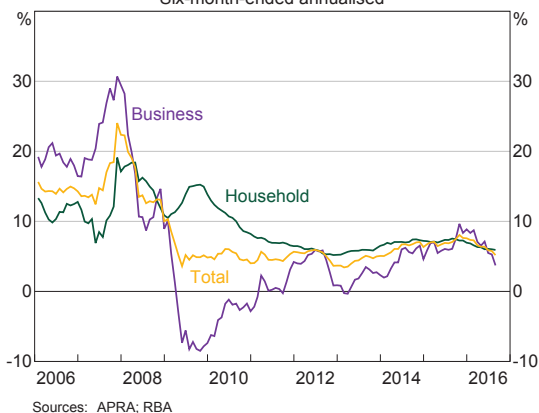
exposures have an estimated loss-given-default of 70 per cent or more of the exposure value.

Future asset performance will largely depend on the evolution of macroeconomic conditions, especially conditions in property markets and the resources sector. Nonetheless, the considerable strengthening of housing lending standards over the past year or so should assist with future loan performance. In the business sector, banks have further increased

borrowing rates and tightened lending standards for commercial property since the previous *Review*, lifting presales requirements and lowering loan-to-development cost ratios for residential development. Banks also continue to closely monitor conditions in the resources sector. In recent years, they have imposed lower maximum LVRs for business loans in mining regions. Nonetheless, competition between lenders remains strong for most other industries in an environment of moderating growth in banks' domestic business loan books.

Growth in banks' domestic loan books has slowed over the past six months, partly reflecting the tightening of standards in some segments (Graph 3.3). For example, banks have reduced their business lending to some industries where loan performance has recently deteriorated, such as mining. The major banks have also pulled back somewhat on their commercial property lending recently, although Asian banks' lending to the sector continues to grow rapidly. Investor housing lending is growing at a slower pace than in recent years, despite picking up modestly of late, as banks have tightened lending to meet APRA's growth benchmark. However, the slowing in domestic loan growth also reflects some easing in demand for household and non-property business credit. In this environment there is a risk that banks compete

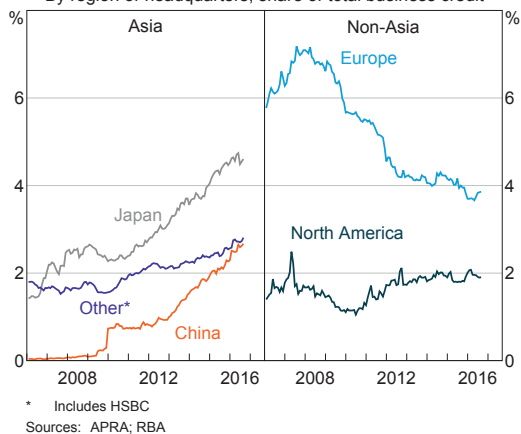
Graph 3.3
Banks' Domestic Credit Growth
Six-month-ended annualised



excessively on price or non-price terms for the available customers, although business lending margins have widened a bit in recent months.

In contrast, foreign banks operating in Australia, particularly Asian banks, have continued to increase lending to businesses rapidly over the past year (Graph 3.4). A key risk is that such lending by foreign banks can be highly procyclical, especially when extended to more marginal borrowers, which could exacerbate asset price and economic cycles.

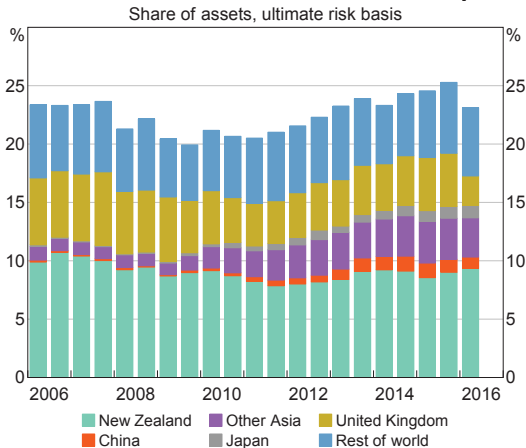
Graph 3.4
Foreign Bank Business Credit in Australia
By region of headquarters, share of total business credit



International Exposures

Australian-owned banks have significantly reduced their international exposures over the past six months, which has made them less vulnerable to risks arising from foreign shocks, different regulatory environments and competitive offshore markets. Much of this decline reflects NAB's sale of its UK Clydesdale subsidiary, but there has also been a further decline in exposures to the Asian region as some banks increase their focus on core activities in the domestic market (Graph 3.5). International exposures now account for less than one-quarter of total consolidated assets and are likely to decline a little further in coming years as ANZ looks to divest low-return or higher-risk assets in Asia as part of a broader strategy to increase the group's return on equity.

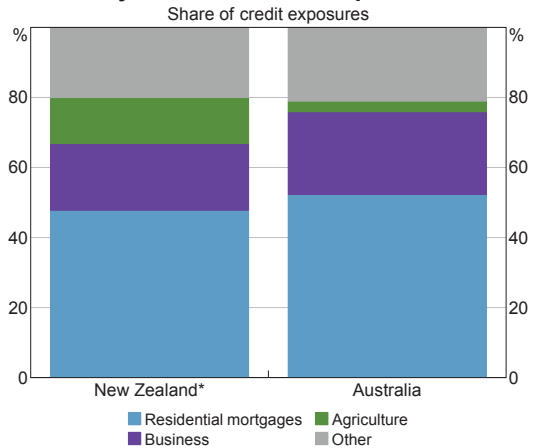
Graph 3.5
Australian-owned Banks' International Exposures



New Zealand still accounts for by far the largest share of Australian banks' international exposures, at around one-tenth of their consolidated assets, as each of the major banks has substantial banking operations there. The balance sheets of the major banks' New Zealand subsidiaries are very similar to those of their Australian parents, and housing lending accounts for a little under half of their total credit exposures (Graph 3.6). As discussed in 'The Global Financial Environment' chapter, one of the main sources of risk to the New Zealand financial system is the combination of rapid housing price growth and high levels of household debt, which might increase the risk of large housing price falls in the future. So far, however, the performance of the major banks' New Zealand housing portfolio has remained strong, with the non-performing loan (NPL) ratio declining steadily to 0.2 per cent.

The major banks also have substantial exposures to the dairy industry in New Zealand. Persistently low milk prices have seen the performance of banks' dairy portfolios deteriorate at the same time as banks have significantly increased their provision of working capital loans to struggling borrowers that they assess as being viable in the medium term. The NPL ratio on dairy loans has risen modestly

Graph 3.6
Major Banks' Credit Exposures



since the start of the year, although favourable climatic conditions, lower operating costs (including interest costs) and some loan forbearance have limited the increase. Banks have reported a marked increase in 'watchlist' loans, which have historically been a leading indicator of loan performance; performance would likely deteriorate further if climatic conditions worsened or dairy prices remained low. In response to these developments, banks have steadily increased collective provisions for dairy exposures over the past year.

Liquidity and Funding

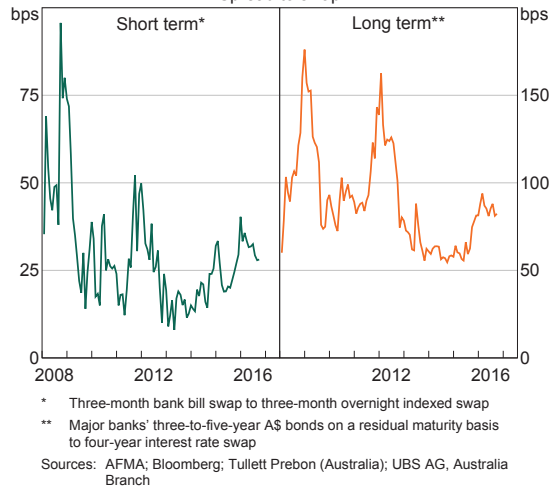
Banks' resilience to liquidity and funding shocks has improved since the financial crisis. Banks are now less exposed to wholesale funding markets, having significantly increased the share of deposit funding to around 60 per cent of total funding. Banks have also strengthened their resilience to short-term periods of liquidity stress by increasing their holdings of high-quality liquid assets. As a result, the aggregate Liquidity Coverage Ratio (LCR) of banks subject to the requirement was 120 per cent at June 2016, which allows for a sizeable buffer above the minimum requirement of 100 per cent.

From the start of 2018, banks will also be subject to the NSFR requirement. The NSFR is part of the Basel III liquidity framework and is intended to complement the LCR by limiting maturity mismatch and encouraging greater use of more stable sources of funding, such as long-term debt and retail deposits. APRA recently released revised rules for the NSFR, which are due to be finalised later this year. Although most banks already appear to broadly meet the minimum requirement based on these standards, they are likely to want to increase the share of more stable types of funding to ensure they maintain a suitable buffer above the regulatory minimum. This could see some banks issuing more long-term debt than they have in recent years, increasing their exposure to longer-term wholesale funding markets. Alternatively, some of the adjustment could come from increasing at-call and longer-dated retail deposit funding, but this route may be limited by the pool of available deposits and the fact that a shift in retail deposits from at-call to term will not increase their NSFR ratio much. The NSFR may also influence the composition of banks' assets, given that unsecured lending to businesses and households generally requires more stable funding than housing lending.

The focus on increasing more stable funding sources has already helped to increase competition for deposits that are treated favourably under the NSFR framework, and banks expect this to continue over the next year. Partly reflecting this, the major banks' average outstanding deposit rate has declined by less than the 50 basis point reduction in the cash rate since May. There have been limited changes to most term deposit rates over this time and advertised rates on some longer-dated deposits have increased since the August cash rate reduction, though deposits with this length of maturity account for only a small share of banks' total funding.

Spreads on Australian banks' wholesale funding have narrowed since March but remain higher than over recent years (Graph 3.7). Higher short-term

Graph 3.7
Banks' Debt Pricing
Spread to swap

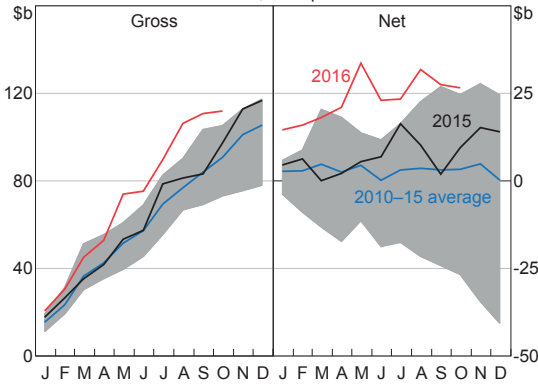


wholesale funding spreads partly reflect the effect of impending reforms to prime money market funds in the United States, which make them less attractive for investors and have led to an increase in spreads in both offshore and domestic markets.³ Spreads on long-term funding have also remained elevated compared with those in recent years, but have generally proven resilient to periods of market volatility over the past six months, particularly around the UK referendum. Spreads were also little changed after S&P and Moody's placed the major Australian banks' credit ratings on negative outlook, in part because they would remain highly rated relative to other international banks even in the event of a one-notch downgrade.

While spreads are higher, Australian banks have retained good access to wholesale funding markets and have issued a greater amount of bonds than in recent years. Banks have increased the amount of their outstanding bonds by \$27 billion since the start of the year and have rolled over a further \$85 billion of maturing bonds (Graph 3.8). By already raising

³ The new regulations require prime funds targeted at institutional investors to trade on a variable, rather than constant, net asset value basis. In addition, funds are permitted to impose liquidity fees and redemption gates, reducing the ability of investors to rapidly withdraw money during high-redemption periods.

Graph 3.8
Banks' Bond Issuance*
Cumulative, A\$ equivalent



* Shaded area is the range for 2010-15
Source: RBA

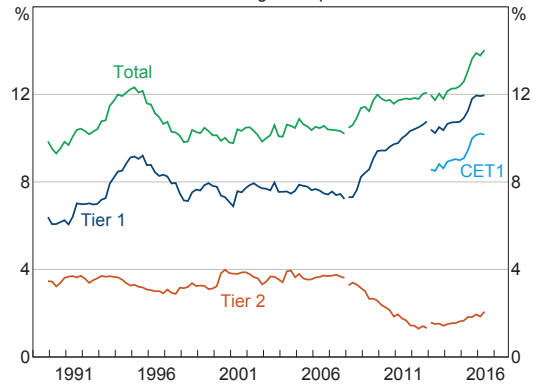
a large amount of funding, banks have limited the need to borrow over the remainder of the year. Liaison suggests that banks expect good access to offshore markets in the future.

In contrast, issuance of residential mortgage-backed securities (RMBS) has remained subdued and spreads remain elevated compared with recent years. However, banks have generally replaced this source of funding with unsecured issuance.

Capital and Profitability

Australian banks have significantly increased their resilience to adverse shocks by strengthening their capital positions over the past couple of years (Graph 3.9). Most of this occurred in the second half of 2015 when the major banks raised a large amount of capital in response to APRA's announcement that it would increase the average risk weight for Australian mortgages measured under the internal ratings-based approach to credit risk from 1 July 2016. This increase in capital has strengthened their combined Common Equity Tier 1 (CET1) capital position relative to international banks such that they now sit in the top quartile of the distribution. It also builds on the changes to their liquidity and funding structures since the financial crisis that were discussed earlier. Together,

Graph 3.9
Banks' Capital Ratios*
Consolidated global operations

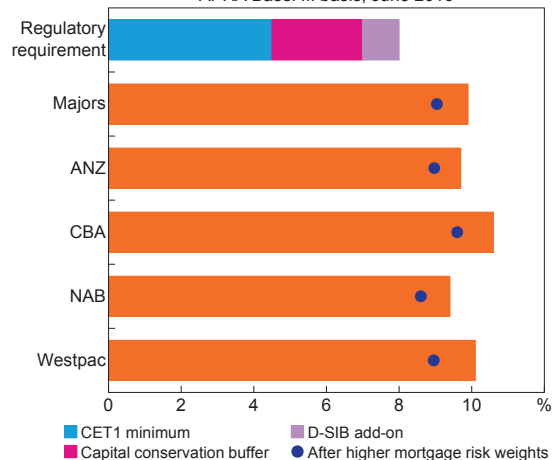


* Per cent of risk-weighted assets; break in March 2008 due to the introduction of Basel II; break in March 2013 due to the introduction of Basel III
Source: APRA

these changes improve the banking system's ability to maintain its core economic functions during periods of stress.

The major banks' CET1 capital ratio was around 10 per cent of risk-weighted assets as at June 2016 (Graph 3.10). All other things equal, higher risk weights for Australian mortgages are expected to reduce their capital ratios by between 0.7 and 1.1 percentage points in the second half of 2016.

Graph 3.10
Major Banks' CET1 Capital Ratios
APRA Basel III basis, June 2016



Sources: APRA; Banks' financial disclosures; RBA

Even after this adjustment, each of the major banks is expected to maintain a buffer of around 1 percentage point above the standard regulatory CET1 requirement of 8 per cent, which includes the 2.5 per cent capital conservation buffer and the 1 per cent add-on for domestic systemically important banks (D-SIBs).

The increase in capital ratios over the past year has also been reflected in higher leverage ratios, given that the average risk weight of their assets was largely unchanged. The leverage ratio is a non-risk based measure of a bank's Tier 1 capital relative to its total exposures, and is intended to be a backstop to the risk-based capital requirements. The leverage ratio framework is yet to be finalised internationally, although the Basel Committee's governing body agreed the minimum requirement should be 3 per cent and that the leverage ratio should be effective from January 2018. Each of the major banks' leverage ratios was around 5 per cent at June 2016, well above that minimum. At this level, the major Australian banks' leverage ratio sits around the median of international banks.

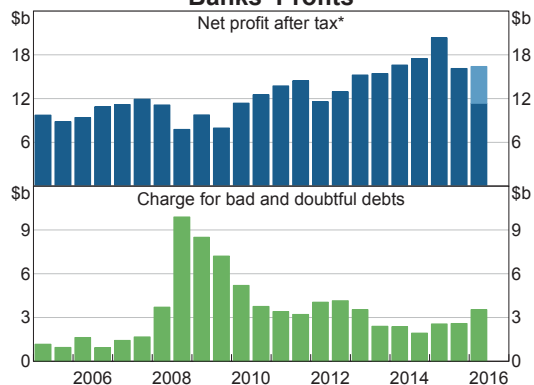
The total capital ratio of the whole banking system increased slightly over the first half of 2016, to around 14 per cent of risk-weighted assets. Australian banks issued a large amount of non-common equity capital (Additional Tier 1 (AT1) and Tier 2 (T2) instruments), although much of this was to replace existing AT1 instruments and was also offset by regulatory deductions; as a result the net increase was only around \$1 billion. Each of the major banks have issued AT1 instruments this year despite primary market spreads remaining elevated, and ANZ issued the first foreign currency-denominated AT1 instrument by a major bank since 2009. Banks continued to issue a large share of T2 instruments into offshore markets, maintaining a more diversified investor base.

APRA is expected to provide further details on a framework for Australian banks to achieve an 'unquestionably strong' position after changes to

the international capital framework are finalised around the end of the year. Although changes to the international framework are not intended to materially increase capital requirements, they could result in higher requirements in some areas. APRA has indicated that any required increases in capital for Australian banks should be well within the capacity of the banking system to absorb over the next few years. However, since capital generation from earnings has slowed, banks may need to reduce their dividend payout ratios if they want to increase capital ratios without issuing new capital. Any increase in capital could also exert downward pressure on banks' return on equity, as is further discussed in 'Box C: Recent Developments in Australian Banks' Capital Position and Return on Equity.'

Aggregate profit was little changed in the most recent half, after adjusting for a \$5 billion loss that NAB incurred on the sale of its UK subsidiary in February, and is at a similar level to that of two years ago (Graph 3.11). A sharp increase in the charge for bad and doubtful debts from low levels subtracted from profits as asset performance deteriorated across a number of portfolios. In particular, the major banks reported an increase in provisions for a small number of resource exposures and against some parts of their consumer portfolio and

Graph 3.11
Banks' Profits



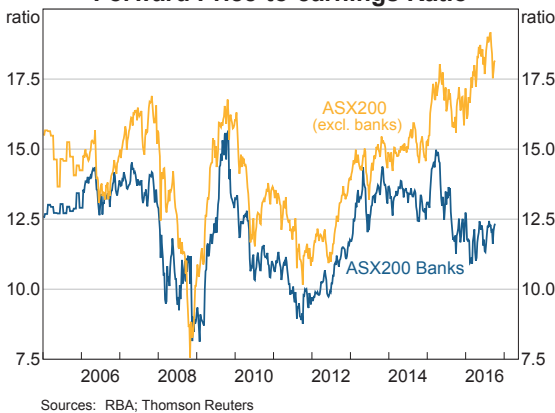
* Shaded area abstracts from losses associated with NAB's divestment of Clydesdale

Sources: APRA; Banks' financial disclosures; RBA

New Zealand dairy exposures. In addition, moderate asset growth and narrowing margins weighed on net interest income, with most of the major banks reporting that the benefits from mortgage repricing were offset by higher funding and liquidity costs in the most recent half. Non-interest income (such as from trading and fees) has also declined recently.

Looking ahead, analysts expect profit growth to remain subdued in coming years. This reflects forecasts of an ongoing decline in net interest margins and only moderate asset growth. Bad debt charges are forecast to continue increasing from the low levels achieved in recent years, which will weigh on profit growth. This is in contrast to the previous six years when banks benefited from a steady decline in bad debt charges. Despite recovering since early April, Australian banks' share prices have continued to underperform the market and are lower than at the end of last year. The underperformance of bank share prices appears to reflect ongoing concerns about risks to future profitability and the potential need for banks to lower dividend payout ratios to meet higher capital requirements. These concerns have resulted in a marked divergence between bank equity valuations and those of the rest of the market (Graph 3.12).

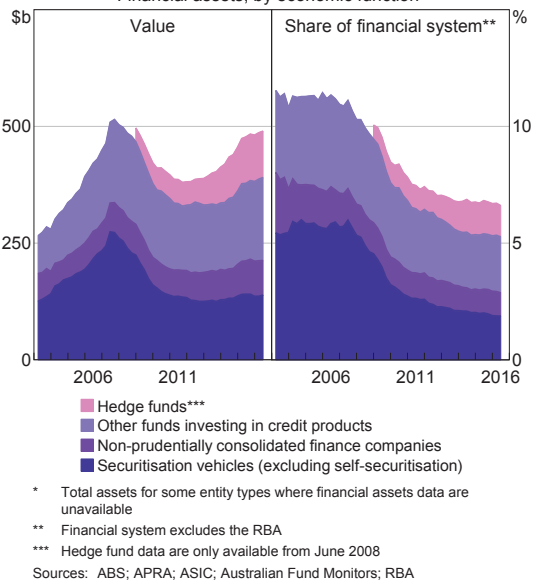
Graph 3.12
Forward Price-to-earnings Ratio



Shadow Banking

The tighter post-crisis prudential framework for banks creates a risk that credit activities will migrate to the less-regulated shadow banking sector. However, there is little evidence that this has occurred so far. The size of the shadow banking sector in Australia has remained at around 7 per cent of financial system assets over recent years, having declined from over 10 per cent in 2007, and is considerably smaller than in a number of large economies (Graph 3.13). Because of its small size and minimal credit and funding links to the regulated banking system, the shadow banking sector in Australia is currently judged to pose limited systemic risk.

Graph 3.13
Shadow Banking in Australia
Financial assets, by economic function*



Securitisation is one area of shadow banking in Australia warranting ongoing attention, given that prudentially regulated entities have tightened their lending standards and mortgage originators tend to have somewhat riskier loan pools than banks. For example, mortgage originators' RMBS are backed by higher shares of loans with

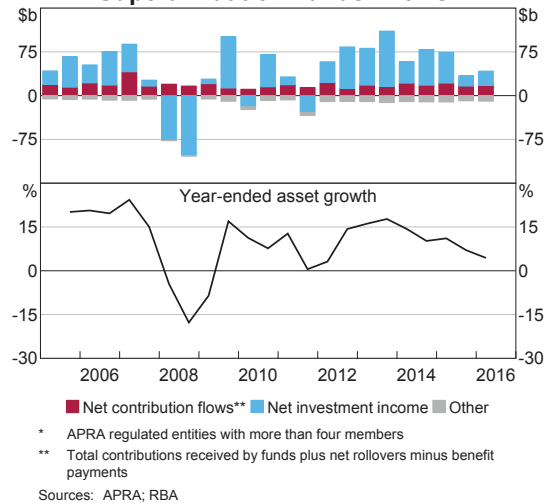
low documentation and high LVRs. However, outstanding RMBS issued by the shadow banking sector remains low, at around 1 per cent of Australian mortgages. Mortgage originators are in part constrained from adding much to overall credit growth because their access to warehouse funding from banks is limited and they lack capacity to process significantly larger loan volumes.

Superannuation

The superannuation sector is a large part of Australia's financial system. Total assets amount to over \$2 trillion, equivalent to around half the size of the Australian banking system and three-quarters of the assets in the managed fund sector (a higher share than in other advanced economies). The risks inherent in the superannuation sector are lower than for other financial sectors because debt funding is only a very small share of total superannuation liabilities. Self-managed super funds (SMSFs) – which represent nearly one-third of superannuation assets and are not regulated by APRA – are permitted limited use of gearing through non-recourse borrowing and are more exposed than other funds to the risk of a commercial or residential property correction. However, banks are required to take into account the different (and potentially higher) risks posed by lending to SMSFs.

Total superannuation assets grew at an annualised rate of nearly 5 per cent over the first half of 2016, somewhat below the average pace of recent years, as low bond yields and relatively subdued equity market returns weighed on investment income (Graph 3.14). While net contributions have remained fairly stable in recent years, it is likely that outflows will trend higher relative to contributions as the population ages and more members enter the drawdown phase. Superannuation funds will therefore need to consider the associated liquidity implications.

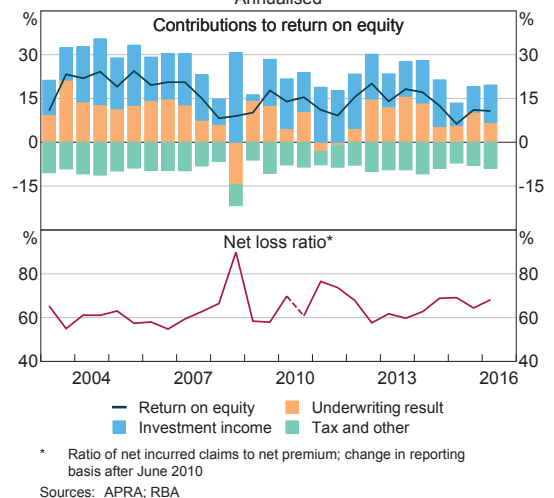
Graph 3.14
Superannuation Funds' Flows*



Insurance

The profitability of general insurers remains lower than a few years ago because of below-average underwriting results and investment returns (Graph 3.15). Insurers' underwriting results have been affected by declining commercial premium rates as a result of strong competitive pressures. In combination with an increase in reinsurance

Graph 3.15
General Insurers' Financial Ratios
Annualised

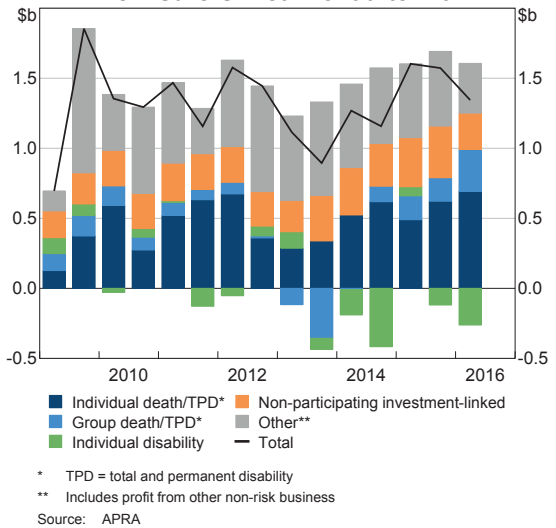


expenses (as insurers seek to lower their exposure to catastrophe risk), this has seen net premium revenues fall in both absolute terms and relative to claims, increasing insurers' net loss ratio. These factors have been exacerbated by persistent low returns on insurers' bond portfolios. The pressure on profits creates a risk that insurers might lower the credit quality of their investment portfolios or let underwriting standards slip (for example, by inappropriately pricing risks) in an attempt to raise returns. Nonetheless, the general insurance industry remains well capitalised with a capital position equivalent to 1.7 times APRA's prescribed amount.

Lenders mortgage insurers (LMIs) are specialist general insurers that offer protection to banks and other lenders against losses on defaulted mortgages. Profitability in the LMI industry has been relatively stable over the past couple of years, benefiting from rising housing prices and improving labour market conditions. However, LMIs are facing headwinds from a decline in high-LVR lending as banks tighten their mortgage lending practices and from an increase in claims due to higher delinquencies in Western Australia and Queensland. In addition, some LMIs remain vulnerable to large declines in premium revenue if other banks were to follow Westpac's move in 2015 and self-insure their mortgages.

The life insurance industry remains well capitalised, with capital equivalent to 1.8 times APRA's prescribed amount. However, the industry continues to be affected by losses on individual disability income insurance (commonly known as 'income protection insurance') partly as a result of the mispricing of risk (Graph 3.16). APRA's recent stress tests highlighted insurers' exposure to disability income insurance risks, but life insurers showed that they could restore their capital ratios to around current levels after taking reasonable mitigating actions (such as external capital

Graph 3.16
Life Insurers' Net Profit after Tax



support).⁴ Life insurers are also working to address structural weaknesses related to this product.

Financial Market Infrastructures

Financial market infrastructures (FMIs) – including payment systems, central counterparties (CCPs) and securities settlement systems – facilitate the completion of most financial transactions in the economy. FMIs need strong regulation and supervision because they concentrate both services and risk as a result of their activities. The FMIs that support Australia's financial markets have continued to perform well and have demonstrated their resilience to periods of stress that have occurred throughout the year.

CCPs that are systemically important in Australia continue to enhance their management of financial risk, consistent with work globally to increase resilience. This is increasingly important because a greater volume of over-the-counter derivatives are being cleared through CCPs (as a result of regulations mandating this for many

⁴ See Summerhayes G (2016), *Preparing for the unexpected – Insights from APRA's 2015 Life Insurance stress test*, Speech delivered to insurers who participated in APRA's 2015 Life Insurance Stress Test, Sydney, 19 August.

trades). For instance, the ASX Group CCPs have introduced new stress test scenarios to enhance their management of credit and liquidity exposures in extreme but plausible circumstances. These CCPs are also considering new 'add-ons' in calculating margin requirements from participants, to better address liquidity and concentration risks that could crystallise if a participant were to default.

One key way that CCPs manage the financial risk of defaults is by requiring market participants to provide 'margin' (collateral) to cover potential losses from past or future price changes. The significant price volatility and higher trading volumes that immediately followed the UK referendum triggered a higher-than-usual number of margin calls by CCPs for additional collateral, and this process was handled smoothly. All margin calls on the day of the referendum were met on time, including intraday calls. Intraday calls were particularly important for the ASX Group CCPs, since this allowed them to cover potential volatility during the European and US trading days (when Australian markets were closed). High-value payment and settlement systems in Australia also experienced high processing volumes during this period, but all the relevant systems accommodated these volumes and settlement was completed without incident.

Payments systems have also continued to function effectively. The Reserve Bank Information and Transfer System (RITS) settles Australian dollar payment obligations between banks and other approved institutions on a real-time gross settlement (RTGS) basis. The use of RTGS for large-value transactions mitigates settlement risk in the Australian payments system by reducing the build-up of large obligations between system participants. In the six months to end September, RITS settled around 6 million payments worth \$22 trillion with no major operational issues. The

frequency and duration of operational incidents affecting RITS transaction processing reported by members were at historically low levels during this period.

As a systemically important piece of market infrastructure, the Bank maintains a robust framework for the resilience of RITS. This includes duplication of critical infrastructure at two geographically separate sites. To ensure that RITS remains a highly secure system, projects are underway to review the system's resilience. Two significant milestones have recently been achieved in this work, with the completion of reviews of cyber security controls and the ability of RITS to detect, investigate and recover from a wide range of potential operational incidents. While finding that the overall resiliency of RITS is generally very strong, these reviews have also identified some areas where further enhancements will be made.

Cyber resilience has been a focus for the widely used financial messaging network operated by SWIFT, following a number of attacks targeting the network this year. The most prominent was on the central bank of Bangladesh, in which more than US\$80 million was stolen. Investigations to date suggest that the attacks were possible because of vulnerabilities in that bank's IT environment, rather than SWIFT's core messaging infrastructure. Nevertheless, SWIFT has announced a 'customer security program' in response, recognising the impact of successful attacks on the confidence of its network. This program aims, among other things, to improve information sharing on threats and best practice security procedures, and to enhance security guidelines and provide assurance frameworks for users of the SWIFT network. Ongoing efforts to increase the cyber resilience of other FMs are discussed in the 'Developments in the Financial System Architecture' chapter. ✦

Box C

Recent Developments in Australian Banks' Capital Position and Return on Equity

A bank's capital represents its ability to absorb unexpected losses; all else equal, the higher its capital, the lower the risk that a bank might become insolvent. Ensuring that banks maintain adequate capital is therefore central to reducing risks to financial stability and macroeconomic performance, given the large negative effects that bank failures, or even just fears of bank failure, can have on the real economy. However, high capital levels do not ensure a stable and resilient banking system on their own. Regulators also need to take into account a range of factors affecting banks' risk profiles and, in turn, the likelihood that banks will experience unexpected losses.

The global financial crisis revealed that banks in many countries were not holding enough capital for the risks they were taking. In response, the Basel Committee on Banking Supervision (BCBS) introduced internationally agreed requirements for higher and better-quality capital for banks globally under the Basel III framework. It included a new minimum requirement for Common Equity Tier 1 (CET1) capital – the highest quality form of capital – as well as regulatory capital buffers and a non-risk-weighted leverage ratio. More recently, the BCBS has been finalising these post-crisis regulatory reforms by reviewing the calculation of risk-weighted assets. The ongoing implementation of these measures has contributed to a material rise in bank capital globally and a reduction in return on equity (ROE), an important measure of profitability. This box outlines the recent history of capital ratio trends for Australian banks and current challenges associated with a decline in ROE.

The Recent Capital Reform Agenda in Australia

The Australian Prudential Regulation Authority (APRA) has been considering recommendations from the 2014 Financial System Inquiry, which have been endorsed by the Australian Government, in determining its approach to bank capital. One of these recommendations was that domestic capital standards be set so that Australian banks are 'unquestionably strong', so that banks remain resilient and continue to extend credit following an adverse shock, and that investors maintain their confidence in the Australian banking sector. Another recommendation was that the average mortgage risk weight under the internal ratings-based (IRB) approach to credit risk be increased to narrow the gap between the mortgage risk weights of banks using their own risk-weight models and those using standardised mortgage risk weights. This recommendation was intended to address concerns about competition in the mortgage market.

APRA implemented higher risk weights on Australian mortgages measured under the IRB approach on 1 July 2016.¹ Given that housing loans account for around two-thirds of total loans at the major banks, the increase in risk weights is expected to have a large effect on their CET1 ratios, reducing them by an estimated 0.7 to 1.1 percentage points, all else equal. This measure also has implications for the relative amount of equity funding these banks use for different types of lending. For example, the change in mortgage risk weights is estimated to increase the ratio of equity funding used for housing lending compared with business lending from just over one-quarter to a little under half.

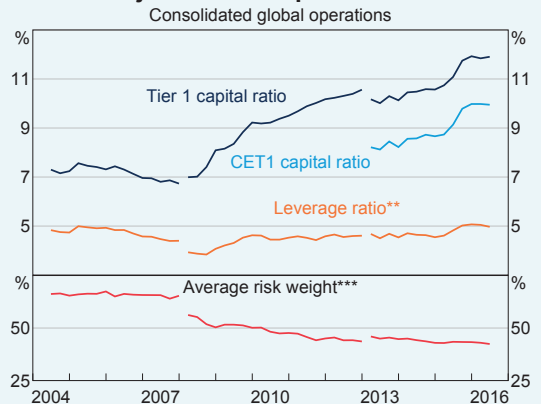
¹ See RBA (2015), 'Box C: The Regulatory Capital Framework for Residential Mortgages', *Financial Stability Review*, October, pp 52–55.

Reforms to the international capital framework that are due to be finalised this year will also influence domestic standards. The BCBS has proposed a number of measures aimed at reducing excessive complexity and variability in IRB risk weights across banks, motivated by evidence that some banks were calculating markedly different risk weights for exposures with similar characteristics. These measures include restrictions on modelling risk weights for some exposures that the BCBS considers cannot be accurately modelled, as well as potentially adopting capital floors for the IRB approach relative to the standardised approach. In addition, the risk weights used under the standardised approach are being reviewed. While these changes are not intended to raise aggregate capital requirements significantly, APRA has indicated that it would be prudent for Australian banks to continue to plan for the likelihood of strengthened capital requirements in some areas.²

Banks' Response

In response to these developments, the major banks have significantly increased their capital ratios. The major banks' Tier 1 capital ratio was about 12 per cent at June 2016, around one and a half times the level during the global financial crisis, and their CET1 ratio has increased by almost 2 percentage points since this metric was introduced in 2013 (Graph C1). At 10 per cent of risk-weighted assets, the major banks' CET1 ratio is well above the standard regulatory requirement, and a buffer is expected to be maintained even after taking into account the effect of higher mortgage risk weights in the second half of the year.

Graph C1
Major Banks' Capital Ratios*



* Break in March 2008 due to the introduction of Basel II; break in March 2013 due to the introduction of Basel III
 ** Estimated prior to September 2015 as Tier 1 capital as a per cent of assets
 *** Risk-weighted assets as a per cent of assets
 Sources: APRA; RBA

The way that capital ratios have risen differs between the period since 2015 and the eight years prior. Over the earlier period, much of the increase was due to a reduction in average risk weights as the composition of banks' portfolios shifted towards mortgage lending (which tends to attract a lower risk weight than lending to businesses).³ As a result, the leverage ratio was unchanged between 2010 and 2015, when risk-weighted capital ratios strengthened by around 2½ percentage points. In contrast, the more recent increase in the major banks' capital ratio has largely been due to an increase in capital; the major banks have raised around \$20 billion of new equity and an additional \$7 billion from retained earnings since the start of 2015. This has clearly increased the leverage ratio. The recent strengthening of capital positions has improved the major banks' standing relative to international banks, even as the positions of international banks have also trended higher.

² See APRA (2016), 'International Capital Comparison Update', *APRA Insight Issue Two*.

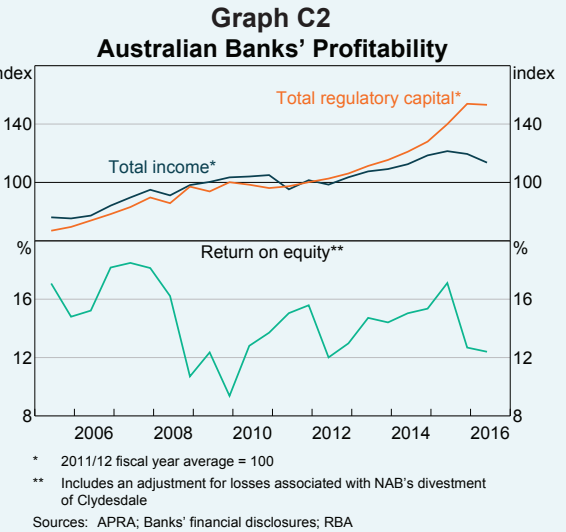
³ In addition, the major banks transitioned to IRB risk weights over this period, which lowered their risk-weighted assets relative to the Basel I standards. For more information, see Byres W (2014), 'Seeking Strength in Adversity: Lessons from APRA's 2014 Stress Test on Australia's Largest Banks', AB+F Randstad Leaders Lecture Series, 7 November.

Assessing the capital strength of banks across jurisdictions is difficult because national regulatory authorities apply the Basel III international framework in different ways. However, APRA released a study in early 2015 that provided capital ratios of the major banks that could be compared with those of a large number of international banks as at June 2014. The study highlighted APRA's conservative application of the international capital framework, with the major banks' aggregate CET1 ratio around 300 basis points higher when reported on an internationally comparable basis. An update of the study showed that, as at December 2015, the major banks' combined CET1 capital ratio had moved into the top quartile of international banks, predominantly as a result of the capital raised in the second half of 2015. The major banks' combined leverage ratio also improved to be around the median. If the major banks want to maintain their relative position they will likely need to continue increasing their capital ratios given the upward trend in capital ratios globally.

Return on Equity and Adjusting to Lower Leverage

ROE is an important measure for assessing the profitability of a bank and its various divisions. Higher capital levels directly reduce ROE because the share of equity funding is greater for a given return on assets. The decline in leverage of Australian banks has therefore contributed to a fall in ROE of late, which has been compounded by lower profits due to a decline in income and an increase in bad debt charges (Graph C2).

Higher capital levels are expected to have a persistent effect on ROE. Indeed, analysts' expectations are for Australian banks' ROE to remain on average around 12½ per cent over the next couple of years. While this is high by international standards and appears to be above banks' cost



of equity, it is lower than the returns to which Australian banks and their investors have become accustomed.

In theory, investors might be expected to accept the lower ROE that results from higher capital levels. This is because the reduction in leverage reduces volatility and risk in returns. If investors do accept lower returns, banks could adjust their target ROE lower. However, investors' expectations may not adjust immediately and banks may feel pressured to maintain historical levels of ROE.

One way that the major banks have so far responded to the reduction in ROE has been by repricing their loan books. Most lenders increased their standard variable housing rates by 15–20 basis points in the second half of 2015 after the announcement of higher risk weights on Australian mortgages, although some of this has since been offset by increased discounting for new loans. Another response has been for some banks to reduce their focus on divisions that have had lower returns than more traditional activities in the Australian market. This has resulted in some pullback from international portfolios: NAB

divested its UK Clydesdale subsidiary earlier in the year and ANZ announced that it would narrow its focus in the Asian region by reducing low-return or higher-risk assets. Banks have also sought to divest underperforming parts of their wealth management portfolios recently.⁴

These responses will support ROE but they may not be enough to offset the impact of lower leverage. It would be a concern if banks were to attempt to restore their ROE to historical levels by taking on additional risk or by weakening the quality of their risk culture or governance. It will be important to continue monitoring how higher capital levels and lower ROE affect banks' incentives and behaviour in the period ahead. ✖

⁴ For more information on the major banks' wealth management activities, see Golat T (2016), 'Banks' Wealth Management Activities in Australia', *RBA Bulletin*, September, pp 53–59.

4. Developments in the Financial System Architecture

The G20 and international regulatory bodies have continued to focus on implementing the agreed post-crisis reforms with an increased emphasis on assessing their effects. In particular, work continues on addressing ‘too big to fail’, especially in a cross-border context, as well as enhancing the regulatory framework for financial market infrastructures (FMIs). The Financial Stability Board (FSB) presented its second annual report to G20 Leaders on the implementation and effects of financial regulation reforms, which found that the effects of the reforms implemented to date have been generally positive. Evolving new issues, such as the risks posed by the asset management industry and the implications of financial technology (‘fintech’) for financial stability, also remain on the reform agenda.

Domestically, authorities have progressed work on internationally agreed reforms, including in the area of financial benchmarks. They have also issued policy statements to support competition in the clearing of cash equities. In addition, the Reserve Bank released the conclusions of its Review of Card Payments Regulation, with reforms announced that relate to surcharging, interchange fees and competition.

International Regulatory Developments and Australian Response

Addressing ‘too big to fail’

A key reform area since the financial crisis has been ‘ending too big to fail’ – that is, addressing

the risks posed by systemically important financial institutions (SIFIs). This work has several elements, including improving the resilience of SIFIs and enhancing resolution regimes.

Over the most recent period, international regulatory bodies have shifted their focus toward the implementation of key ‘too big to fail’ policies, including the FSB standard on the total loss-absorbing capacity (TLAC) of global systemically important banks (G-SIBs). The TLAC requirement is intended to ensure that G-SIBs have sufficient capacity to absorb losses in resolution, and enable resolution authorities to implement a strategy that minimises the impact on financial stability and ensures the continuity of critical economic functions. TLAC-eligible liabilities can include both capital instruments (such as Common Equity Tier 1) and long-term unsecured debt (both subordinated and senior debt) provided it meets eligibility criteria. A majority of G-SIB home regulators are also putting in place a range of domestic TLAC frameworks.

In October, the Basel Committee on Banking Supervision (BCBS) released its final standard on the regulatory capital treatment of banks’ investments in TLAC instruments. The standard applies to both G-SIBs and other banks and aims to reduce the risk of contagion within the financial system should a G-SIB enter resolution. A key feature of the standard is that, starting from 2019, banks are required to deduct, subject to a threshold, holdings of TLAC instruments that are not already included in regulatory capital from their own Tier 2 capital.

Australian banks are not directly captured by the FSB TLAC standard because they are not G-SIBs. However, following a government-endorsed recommendation by the Financial System Inquiry, the Australian Prudential Regulation Authority (APRA) continues to explore options for a loss-absorbing and recapitalisation capacity framework in Australia, in consultation with the Bank and other Council of Financial Regulators (CFR) agencies. With TLAC approaches still emerging internationally, APRA has noted that it will be 'hastening slowly' on this issue given the importance of getting the policy settings right.

The FSB is continuing its work on enhancing resolution frameworks and in August issued two guidance documents.

- One, on temporary funding in resolution, seeks to encourage reliance on private sources of this funding, for instance through a pool of industry funds, and to minimise moral hazard risks if public sector funding is temporarily required.
- The other, to support financial institutions' resolution planning, is designed to ensure that critical functions and services can continue.

The orderly resolution of large banks with cross-border operations is of ongoing concern to the FSB and G20. As discussed in the previous *Review*, in November 2015 the FSB published a set of principles that jurisdictions should consider including in their legal frameworks in order to give cross-border effect to resolution actions. This work aims to remove obstacles in implementing orderly group-wide resolution plans by allowing resolution measures taken by one jurisdiction to be promptly recognised by other jurisdictions. The FSB is to conduct a stocktake of jurisdictions' plans to implement these principles by end 2016.

Cross-border recognition of resolution actions continues to be progressed via the International Swaps and Derivatives Association (ISDA) resolution stay protocols (the ISDA 2015 Universal Protocol for G-SIBs and jurisdictional protocols for G-SIB

counterparties). Adherents to the protocols agree to 'opt in' to laws that govern temporary stays in protocol-eligible foreign jurisdictions, thus mitigating the risk of disruptive early terminations of financial contracts. Following the passage in May of legislation on financial system resilience and collateral protection, Australia can apply to ISDA to have its temporary stay regime recognised under the protocols. However, further regulatory change may be required before an Australian jurisdictional protocol can be put in place.

While the post-crisis 'too big to fail' reforms have focused on enhancing bank resilience and resolution regimes, efforts also continue to address risks posed by non-bank financial institutions.

- In June, the FSB released final guidance on resolution planning for systemically important insurers. It highlights factors that should be taken into account when considering the appropriate resolution framework, as well as the elements needed to ensure the resolution strategy can be credibly implemented.
- The International Association of Insurance Supervisors (IAIS) released midyear:
 - its revised assessment methodology for global systemically important insurers (G-SIIs). Among other things, the revised methodology modifies certain indicators of systemic importance
 - final guidance on insurance product features that could pose systemic risk. The guidance focuses on determining whether product features expose insurers to substantial macroeconomic risk (for instance if their exposures are highly correlated with the market) and/or liquidity risk. This guidance has been incorporated into the assessment methodology for identifying G-SIIs that was noted above, and will also lead to changes to the design of higher loss absorption requirements for G-SIIs

- a second consultation paper on the Insurance Capital Standard for internationally active insurance groups. The paper seeks to improve the comparability of capital ratios by narrowing the approaches these insurers can use in calculating elements of the capital standard, for instance by increasing the comparability of valuation methods used. A final standard is due in mid 2017.
- In August, the FSB released a discussion paper seeking feedback on essential aspects of central counterparty (CCP) resolution planning, which will be used to develop standards or guidance on CCP resolution strategies and resolution tools. This work is part of broader international efforts to promote CCP resilience, recovery and resolvability, mainly involving the FSB, the Committee on Payments and Market Infrastructures (CPMI) and the International Organization of Securities Commissions (IOSCO).

In related work, the CPMI and IOSCO published in August an assessment of the implementation of the financial risk management and recovery aspects of the *Principles for Financial Market Infrastructures* (PFMI) at a sample of 10 derivatives CCPs. The scope of this review included ASX Clear (Futures) and both of the overseas CCPs licensed to clear over-the-counter (OTC) derivatives in Australia. While CCPs have made good progress in implementing the PFMI, the report identifies several areas in which some CCPs' implementation measures are not fully consistent with the PFMI. CPMI and IOSCO have committed to conducting a follow-up review in early 2017 of CCPs' progress in addressing the most important of these areas. The results of the CPMI-IOSCO assessment were also an input to additional guidance released concurrently on the governance of CCPs' risk management processes, and stress testing and margin methodologies.

Domestically, CFR agencies continue to collaborate on strengthening Australia's resolution and crisis management arrangements. APRA is currently reviewing and benchmarking recovery plans submitted by large authorised deposit-taking institutions (ADIs), and developing its resolution planning framework, to ensure it is able to use its resolution powers when needed. Work continues on preparing legislative reforms to strengthen APRA's crisis management powers, as well as to introduce a resolution regime for FMLs.

- As described in the previous *Review*, the reforms to APRA's crisis management powers will broaden its ability to respond to the distress or failure of a financial group or foreign bank branch and give binding directions. The changes will also enable APRA to appoint, and provide more robust immunities to, a statutory or judicial manager.
- The resolution regime for FMLs is expected to be appropriately aligned with the FSB's *Key Attributes of Effective Resolution Regimes for Financial Institutions*. It will cover all domestically incorporated FMLs and will also empower the Australian authorities to support overseas authorities resolving FMLs licensed to operate in Australia.

Shadow banking

Since the crisis, the FSB and other international and national bodies have worked to address the risks posed by shadow banking, i.e. entities and activities involved in credit intermediation outside of the regular banking system, such as money market funds (MMFs), finance companies and securities lending. With the bulk of policy development now finalised, regulators' focus has largely turned to implementation and monitoring.

In May the FSB published a peer review on the implementation of its policy framework for shadow banks other than MMFs. The framework includes recommendations that jurisdictions enhance the oversight and regulation of their shadow banking

sectors by establishing systematic processes for assessing shadow banking risks, imposing or enhancing regulations where necessary, increasing data collection and ensuring an adequate public disclosure regime. The peer review found that, while jurisdictions have made some progress, implementation is at a relatively early stage and recommended that jurisdictions work towards full implementation of the framework.

Australia is already largely compliant with the framework. As discussed in 'The Australian Financial System' chapter, the shadow banking sector accounts for a relatively small share of financial system assets in Australia. Nonetheless, the authorities monitor developments in this sector on an ongoing basis, including in an annual update on Australia's shadow banking sector provided by the Bank to the CFR.

Building resilient financial institutions

Most of the international post-crisis policy development aimed at building resilient financial institutions has been completed, with the focus now largely on implementation.

- In its report to G20 Leaders in August, the BCBS indicated that key components of the Basel III reforms, including the risk-based capital standard and the Liquidity Coverage Ratio (LCR), have been incorporated into the regulatory framework of all member jurisdictions.
- In its September monitoring report, the BCBS found that all large internationally active banks met the fully phased in Basel III common equity capital requirements as at end 2015 (which is ahead of the fully phased in schedule of 2019). The BCBS also found that around 90 per cent of banks for which data were available met the full LCR requirement and around 80 per cent already met the Net Stable Funding Ratio requirement (which is only due to be implemented from January 2018).

In addition to implementation monitoring, the BCBS is also continuing to work on finalising the

outstanding Basel III reforms by end 2016. These include the leverage ratio, revised standardised approaches for credit and operational risk, and additional restrictions on banks' internal modelling of credit risk to address excessive variability in risk-weighted assets. The BCBS aims to finalise this work without significantly increasing overall capital requirements across the banking sector.

Separately, the BCBS recently published several papers to enhance supervisory standards for banks.

- In April, the BCBS released a consultation paper on the definitions of non-performing exposures and forbearance. The paper proposes definitions that complement the existing accounting and regulatory frameworks, with the aim of establishing a consistent international standard for categorising problem loans.
- Also in April, the BCBS updated its framework for managing interest rate risk in the banking book, to reflect improved market and supervisory practices. The updated framework contains more extensive guidance on the expectations of a bank's processes for managing this risk, as well as enhanced disclosure requirements.
- In July, the BCBS finalised its framework for the regulatory capital treatment of 'simple, transparent and comparable' (STC) securitisations. Compliance with the STC criteria, published in 2015 by the BCBS and IOSCO, provides additional confidence in the performance of these securitisations and therefore warrants reduced capital requirements under the updated framework.

As discussed in 'The Australian Financial System' chapter, an APRA requirement came into force on 1 July under which ADIs using the internal ratings-based approach to credit risk are required to raise the risk weights on Australian residential mortgages to an average of at least 25 per cent. This is an interim measure, with APRA awaiting the finalisation of the BCBS reforms before settling on a final requirement domestically.

As jurisdictions implement the post-crisis reforms, there is increasing focus on assessing their impact. To that end, in August the FSB published its second annual report to G20 Leaders on the implementation and effects of post-crisis reforms. While it is too early to assess the impact of many reforms, the FSB suggests that those implemented to date have increased banks' resilience, without significantly reducing the supply of credit to the economy. It also notes that banks' returns have fallen relative to pre-crisis levels, driven by a number of factors including weak economic growth, lower interest rates, high non-performing loans, large misconduct fines and regulatory reforms. In addition, the report explores the potential impact of reforms on specific areas, including market liquidity. The FSB found, as in its first annual report, little evidence of a broad deterioration in market liquidity in normal times. Nonetheless, it noted a decline in depth in some secondary fixed income markets, which could reduce the resilience of liquidity in stressed market conditions. A possible cause of this highlighted in the report is reduced market making by dealers due to the increased costs associated with regulatory reforms. However, the reforms have also enhanced market resilience as they have reduced the likelihood that a deterioration in market liquidity could result in wider financial stability issues. The FSB is continuing to monitor market liquidity and intends to report further findings on market depth and funding liquidity to the G20 early next year.

Risks and reforms beyond the post-crisis agenda

In addition to the key post-crisis reforms, work has continued in several other areas.

- In June, the FSB released proposals designed to address the risks arising from asset management activities. The majority of the proposals target liquidity mismatch, which is the potential for open-ended funds to invest in less liquid assets while offering relatively

rapid redemptions. The proposals also address leverage within investment funds, securities lending activities and operational risk. The proposals have a degree of flexibility, which is appropriate given that the risks associated with these activities vary across jurisdictions. The FSB intends to finalise the proposals by end 2016, with IOSCO expected to operationalise the proposals on liquidity mismatch by end 2017.

- In August, the Bank for International Settlements (BIS), the FSB and the International Monetary Fund released a report to G20 Leaders on international experiences with macroprudential policies. The report is largely a stocktake of the experiences that jurisdictions have had with macroprudential policies to date. It acknowledges that there is no 'one-size-fits-all' framework in the design and implementation of macroprudential policy, and highlights the tentative nature of lessons drawn from recent country experiences.
- In September, the FSB released a progress report on its work plan to reduce misconduct risk in financial institutions, which focused on the three primary areas of ongoing work:
 - *The role of incentives in reducing misconduct.* The FSB plans to publish supplementary guidance to its *Principles for Sound Compensation Practices*, covering the connections between misconduct and compensation. In addition, the FSB recently established a working group, of which APRA is a member, to explore how governance frameworks can reduce misconduct risk and consider whether further guidance in this area is necessary.
 - *Improving global standards of conduct in financial markets.* In May the BIS released the first phase of the Global Code of Conduct for the foreign exchange market, which covers areas such as ethics, information sharing, trade confirmation and settlement, account reconciliation processes and

certain aspects of execution. The final code – which will cover a broader range of aspects of execution as well as governance, risk management and compliance – is scheduled to be released in May 2017. The BIS is working closely with market participants to develop market-based mechanisms to embed the Global Code within firms' cultures and practices. The Bank has been heavily involved in this work, chairing the BIS working group that is developing the Global Code.

- *Reforming financial benchmarks.* In July the FSB issued its second progress report on the implementation of reforms affecting the major interest rate benchmarks. The report found that the administrators of interbank rates, such as the London Interbank Offered Rate, have made progress in using transaction data to underpin benchmarks and have also been working to adopt nearly risk-free benchmark rates where possible. However, work is still required to fully implement the reforms.

Domestically, the CFR has recently completed two consultations related to financial benchmarks: one on the evolution of the methodology for the bank bill swap rate (BBSW) benchmark, and the other on options to reform the regulation of financial benchmarks. Following these consultations, a new methodology for the BBSW has been designed to support the production of a trusted, reliable and robust benchmark and, as announced by the Australian Financial Markets Association in July, transitional steps towards the implementation of that methodology are currently underway. Also, the government announced in October its support of the CFR's recommendations for a reform package for financial benchmarks, which will regulate the administration of, and the making of submissions to, a

significant financial benchmark as well as creating a specific offence of benchmark manipulation.

- The FSB has been exploring the possible financial stability risks that may arise from operational failures at financial institutions. The potential for a cyber attack to cause the failure of a financial institution has received increasing international regulatory attention. In June CPMI-IOSCO finalised guidance on cyber resilience for FMIs, and in August the IAIS published an issues note presenting the potential risk posed by cyber attacks to insurers and possible supervisory approaches for addressing the risk. Domestically, APRA in October released the results of its Cyber Security Survey, which covered selected banks, superannuation funds, insurers as well as four significant service providers. The survey results indicated that entities experienced a range of cyber security incidents. APRA noted that, as cyber incidents can be expected to increase in sophistication, frequency and potential impact, regulated entities need to continue to enhance their cyber resilience.
- International bodies are studying the financial stability implications of 'fintech', such as 'blockchain' and distributed ledger technology. The FSB has developed a framework for categorising and assessing the impact of new innovations, which is intended to help ensure that systemic risks that arise from technological change are appropriately managed, without deterring innovation. The FSB is in the process of applying this framework to specific innovations and intends to publish its findings by early 2017.

Domestically, a CFR working group that includes the Australian Transaction Reports and Analysis Centre continues to consider the implications of distributed ledger technology for the financial system and regulation. In addition, in June the Australian Securities and Investments Commission released a consultation paper

outlining proposals to encourage 'fintech' innovation, including the establishment of an industry-wide exemption or 'sandbox' that would allow new businesses to test certain financial services for six months without the requirement to first have an Australian Financial Services Licence.

Other Domestic Developments

OTC derivatives markets reforms

As noted in previous *Reviews*, authorities have worked on implementing internationally agreed OTC derivatives-related reforms in Australia, such as the central clearing of standardised OTC derivatives. Implementation is largely complete, with the main areas of ongoing work relating to margining and risk management requirements for non-centrally cleared derivatives. Margin is collateral designed to reduce the potential for contagion from the default of a market participant. Legislation was passed in May that enables Australian entities to exchange margin in line with APRA's prospective final Prudential Standard imposing BCBS-IOSCO margining and risk management requirements in Australia. APRA previously set an implementation date of 1 September 2016 for the Standard; however, this date was deferred by APRA in August, given delays in implementation of the internationally agreed framework in other major derivatives markets. APRA continues to monitor progress in other jurisdictions ahead of releasing its finalised standard, and it will advise its implementation date in due course.

Clearing and settlement facilities

Following the government's earlier endorsement of recommendations by the CFR and the Australian Competition and Consumer Commission relating to competition in clearing Australian cash equities, these agencies released in October:

- a set of Minimum Conditions that support competition in the clearing of cash equities,

while also ensuring the safety and efficiency of the market

- Regulatory Expectations for the conduct of the Australian Securities Exchange (ASX) in operating its cash equity clearing and settlement services until such time as a competitor emerged.

Consistent with the Regulatory Expectations, the ASX has issued an updated Code of Practice for the clearing and settlement of cash equities.

Review of card payments regulation

In May, the Bank published the conclusions to its Review of Card Payments Regulation. This was a comprehensive examination of the regulatory framework for card payments, guided by the mandate of the Bank's Payments System Board (PSB) to promote competition and efficiency in the payments system. The key decisions taken by the PSB related to surcharging, interchange fees and competitive neutrality.

- Under the reforms, merchants will continue to be able to surcharge for more expensive payment methods. However, consistent with the government's recent amendments to the *Competition and Consumer Act 2010*, the new standard will ensure that merchants cannot surcharge in excess of their costs of accepting the (designated) card system being used. The Bank's new surcharging standards commenced operation on 1 September for card transactions at 'large' merchants (meeting certain turnover and size criteria); for other merchants the implementation date will be 1 September 2017.
- The PSB also determined that new interchange standards will keep the weighted-average interchange fee benchmark for credit cards at 0.50 per cent, but lower the benchmark for debit cards from 12 cents to 8 cents per transaction. The benchmarks will be supplemented by ceilings on individual interchange rates that will reduce costs for smaller merchants. The new standards

also require more frequent observation of compliance with the benchmark, which will reduce the tendency of interchange rates to drift upwards between compliance dates. The new interchange standards will be effective from 1 July 2017.

- To address issues of competitive neutrality, interchange-like payments to issuers in the American Express companion card system will be regulated equivalently to the MasterCard and Visa credit card systems. More broadly, to prevent circumvention of the interchange standards, there will be limits on any scheme payments to issuers that are not captured within the benchmarks. ↗