1. The Global Financial Environment

Amid a tightening in global financial conditions and a challenging geopolitical environment, risks to global financial stability have increased. Central banks in most economies have raised policy rates rapidly in response to persistently high inflation, alongside material downgrades to the global economic outlook. While banks are generally well capitalised and loan arrears remain low, financial asset prices have declined substantially and volatility in financial markets has increased. Liquidity conditions have deteriorated in some financial markets, most notably in government bond markets. In September, the Bank of England (BoE) intervened in the UK Government bond market to restore orderly functioning and avert material risks to financial stability. Conditions in energy markets remain volatile, and authorities in some countries announced liquidity support for energy companies that were facing margin calls and liquidity shortfalls. Higher interest rates have contributed to housing price growth slowing or reversing in many economies after a large runup in prices over recent years.

Global financial conditions could tighten further given the high degree of uncertainty surrounding the outlook for inflation, growth and policy rates, alongside heightened geopolitical tensions and fragile liquidity conditions. A further sharp tightening in global financial conditions would increase financial stability risks, including the potential for a disorderly decline in asset prices and for high leverage and liquidity mismatches in some investment funds to amplify strains in global funding markets. The combination of higher interest rates and inflation will make it more challenging for households and businesses to service debts. although banking systems globally are generally expected to remain resilient. Some countries particularly in Europe, including the United Kingdom – are facing substantially higher energy costs due to disruptions in energy supply; this will impose a large negative real income shock on many households and businesses. Unemployment is expected to increase in many economies as tighter financial conditions weigh on economic growth, which is likely to contribute to an increase in loan arrears (albeit from low levels) and a decline in banks' asset quality. The downgrade to the outlook for growth and inflation in Europe has led to renewed concerns over sovereign credit risk and related banking sector vulnerabilities in some parts of the euro area.

The tightening in global financial conditions, appreciation of the US dollar and high energy prices have contributed to a pick-up in capital outflows from some emerging market economies. Energy-importing countries and those with large external financing requirements are particularly vulnerable. In China, policymakers have responded to deteriorating conditions in the property sector and the impact of rolling lockdowns by stepping up policy support. Despite these measures, the property sector remains under considerable stress. This threatens to expose longstanding vulnerabilities affecting local governments, the shadow banking sector and small banks. Globally, there are a number of longer term threats to financial stability that continue to attract the attention of policymakers and financial institutions. These include cyber risk, a worsening geopolitical environment, climaterelated financial vulnerabilities and the emerging risks associated with crypto-assets (see 'Box A: Financial Stability Risks from Cryptoassets').

Financial market volatility has increased alongside high inflation, rising interest rates and geopolitical tensions

Financial asset prices have fallen in most economies this year due to a combination of higher interest rates, increased risk premia and weaker earnings outlooks for some companies (Graph 1.1). In equity markets, sectors that are more sensitive to the outlook for consumer spending (such as consumer discretionary) and those that are more sensitive to higher interest rates (such as some technology firms) have seen large equity price declines. Initial public offerings and high-yield bond issuance have fallen sharply, likely reflecting firms' reluctance to issue in an environment of higher funding costs and low or uncertain investor demand. There have been limited signs of funding stress among borrowers to date, as profitability for many firms has rebounded strongly from the pandemic and many businesses have been able to draw on cash reserves and/or have accessed other sources of funding (discussed below). Conditions in short-term funding markets have also been broadly stable.

Liquidity conditions have deteriorated in some financial markets in recent months, including government bond markets. Bid-ask spreads have widened in a number of economies' bond markets alongside high volatility and central banks slowing or ceasing purchases of government bonds (Graph 1.2). Participants in US and euro area government bond markets have noted that it has become more difficult to execute larger trades without affecting prices. Measures of implied (i.e. expected) volatility in US Treasury bonds are elevated, reflecting the combination of the highly uncertain outlook for interest rates and liquidity strains. More severe dysfunction in government bond markets could interfere with government financing objectives, impede monetary policy transmission and amplify financial shocks.

In late September, UK long-term government bond yields rose nearly 100 basis points over a two-day period, following the government's announcement of a large debt-financed fiscal stimulus package. The large increase in yields resulted in a significant increase in margin calls



Sources: Bloomberg; ICE Data is used with permission; RBA



associated with the interest rate hedging activity of defined benefit pension funds. This further increased the risk of asset fire sales, including of long-term government bonds, at a time when liquidity conditions were already under strain. The disorderly conditions in the bond market prompted the BoE to announce it would conduct government bond purchases over a period of a few weeks to restore orderly market functioning, and to limit financial instability. The BoE also announced it would delay plans to begin selling its holdings of UK Government debt.

More generally, aggregate outflows from investment funds into cash have increased but remained orderly. However, high leverage and liquidity mismatches in some investment funds have the potential to transmit and amplify stress, as occurred at the onset of the COVID-19 pandemic in March 2020. Major advanced jurisdictions – including the euro area, the United Kingdom and the United States – have continued work on reforms to address these vulnerabilities, but most proposals are yet to be finalised or implemented.

Energy markets, and commodity markets more broadly, have been very volatile this year as a result of disruptions to supply. Authorities in Europe and the United Kingdom announced liquidity support to energy companies in September, following a surge in gas prices, to ensure that large margin calls did not destabilise the financial system. This followed the suspension of trading in the nickel futures market on the London Metals Exchange (LME) in March 2022 under similar circumstances. As a result of these recent events and the liquidity strains experienced at some financial institutions and market infrastructures earlier in the pandemic, international bodies have reviewed margining practices in non-centrally and centrally cleared markets and are assessing whether central counterparty (CCP) margining practices can be improved to dampen

procyclicality.^[1] UK regulators have also been reviewing the governance, oversight and risk management practices of the LME and the associated CCP (LME Clear) to ensure they remain resilient. The results of the review are expected to be published in late 2022.

Pressure on some household balance sheets is growing in response to higher interest rates and inflation, and declining housing prices

Higher interest rates have begun transmitting through to new mortgage rates across advanced economies (Graph 1.3). In most advanced economies, mortgages are typically fixed for terms of five years or longer. This means that a relatively small share of existing borrowers in these economies are exposed to higher debtservicing costs, although this share will increase as fixed-term periods expire, and new borrowers will have their borrowing capacity reduced by higher rates. Borrowers in Australia, New Zealand and some European countries will be exposed to higher rates sooner because fixed-rate mortgages are less common or have shorter average terms in these economies (Graph 1.4). For example, around 55 per cent of mortgage debt in New Zealand is variable or has a fixed term of one year or less remaining, while more than 90 per cent of mortgage debt in Norway is on a variable rate. By contrast, in the United States around 90 per cent of mortgages are fixed for 30 years; as a result, refinancing activity tends to decline sharply when interest rates rise.

Higher inflation – to the extent that it is associated with declining real wages – will make it more difficult for some borrowers to service debts, particularly lower income households that are less able to adjust their consumption because they spend a higher proportion of their income on essentials. Regulators expect that most households in their jurisdictions will be able to meet the challenges of higher debtservicing costs and lower real incomes without falling into financial difficulty. This is partly because many households have borrowed less than their maximum capacity, providing a buffer against higher living and debt-servicing costs. Some households also accumulated substantial saving buffers during the pandemic, which could be drawn down to meet higher costs for a time.

However, in contrast to those borrowers with older loans, households that took out loans more recently face more challenges and pose greater risks, as they have benefited the least from rising housing prices and have had less time to accumulate savings buffers. In some countries – such as Canada, New Zealand and



Graph 1.4



Sweden – a larger share of recent borrowers took on loans at high debt-to-income levels as a result of the sharp rise in housing prices since 2020. Debt-serviceability challenges would become more widespread if unemployment were to increase sharply or real incomes were to fall by more than is currently expected. This would increase financial stability risks, particularly if (as is plausible) such a slowdown occurred in conjunction with a sharp fall in housing prices.

After a period of very strong housing price growth, the pace of price increases has slowed in many advanced economies and prices have declined in recent months in Australia, Canada, New Zealand and Sweden (Graph 1.5). In the United States, price growth has slowed, and declining mortgage applications and other timely indicators of market conditions also suggest housing demand is easing. Private forecasters and policymakers in advanced economies generally expect prices to fall in the period ahead. Notably, the Reserve Bank of New Zealand expects housing prices to fall 15 per cent below their November 2021 peak by September 2023. Lower housing prices could amplify a slowdown in economic growth to the extent that indebted households respond to their decline in wealth by decreasing consumption and lower housing turnover reduces housing-related spending. In addition, a very large decline in housing prices would result in a larger share of borrowers falling into negative equity, increasing potential losses for lenders if borrowers default - this risk is most pronounced if unemployment rises sharply.

Rising interest rates, inflation and slowing growth will also put pressure on business balance sheets, while some firms are still recovering from the pandemic

Corporate borrowing costs have increased sharply this year, reflecting both higher risk-free

rates and higher risk premiums on corporate debt. Banks have also modestly tightened corporate lending standards. These developments pose risks for some indebted businesses, particularly those more exposed to higher input price inflation and weaker economic conditions. Businesses in the United Kingdom and Europe more broadly will face sharp cost increases due to high energy prices, although this will be mitigated to some extent by government support. Companies operating in sectors most adversely affected by the pandemic – such as airlines and some consumer discretionary industries - are yet to fully recover, and a larger share of these businesses have a low interest coverage ratio (the ratio of a company's earnings to its interest expenses) (Graph 1.6). Real estate companies, such as investment companies and developers, also have a high share of firms with a low interest coverage ratio.

Lower rated issuers in the euro area have experienced a particularly sharp rise in corporate bond spreads and weak demand for new bonds, reflecting increased perceived default risk from higher costs and weaker economic conditions (Graph 1.7). More broadly, a higher share of debt issued by lower rated companies is floating-rate (such as leveraged loans). However, many other businesses locked in low fixed interest rates at extended maturities during the pandemic and so are not yet fully exposed to higher interest



rates. While some businesses may experience difficulty in refinancing their maturing loans, aggregate refinancing risks in advanced economies are expected to be low in the near term as cash reserves are above historical averages and corporate bond maturities are spread relatively evenly until around 2026.

The outlook for commercial real estate (CRE) is mixed. The shift towards e-commerce has supported demand for industrial properties such as distribution centres, while remote working has reduced demand for lower quality office and





Zealand, the United Kingdom, the United States and 18 developed European countries. Interest coverage ratio is calculated as earnings before interest, tax, depreciation and amortisation divided by interest expense. Data are for the six-months-ended 30 June 2022.

Sources: RBA; S&P Capital IQ





^{**} Real estate companies include real estate operating and development companies, real estate services and REITs. Sources: RBA: S&P Capital IQ

retail commercial spaces. CRE valuations are at risk of decreasing in the period ahead due to higher interest rates, tighter credit supply and macroeconomic uncertainty. CRE delinquency rates in the United States remain lower than historical averages, but are likely to pick up as economic growth slows. A large rise in CRE delinquency rates alongside lower valuations would pose financial stability risks in some economies, particularly in Norway and Sweden where banks have relatively large CRE exposures.

Banks in advanced economies have been profitable and are well capitalised ...

Large banks in advanced economies are well capitalised and have high liquid asset holdings. Banks' return on equity was above prepandemic levels on average in many advanced economies in the first half of 2022 (Graph 1.8). The rise in interest rates supported bank profitability, as loan rates increased by more than deposit rates.^[2] Lending growth also increased in many economies, though revenue from investment banking activity fell markedly.

Capital ratios have fallen slightly across most large banks due to increases in risk-weighted assets and capital distributions to shareholders (e.g. dividends and share buybacks), but remain well above regulatory requirements. Over the past six months, regulators in several countries have announced increases to counter-cyclical capital buffers (CCyBs) scheduled to take place over the next year, reversing reductions at the start of the pandemic. The CCyB is designed to provide resilience against vulnerabilities that can accumulate during periods of faster credit growth; regulators are able to lower CCyB buffers in the future if they judge it is appropriate to support bank lending during an economic downturn.

As pandemic-related risks have eased over the course of the year, advanced economy banks (with the exception of those in the euro area) have reduced loan loss provisions. Nonperforming loan (NPL) ratios remain at low levels for most major banks (Graph 1.9). However, asset quality is likely to weaken in the period ahead as higher interest rates, rising inflation, and slower economic growth and higher unemployment make it more difficult for some households and businesses to service debt. Higher interest rates are also likely to contribute to slower loan growth. While these factors are likely to weigh on bank profits and capital ratios, recent bank stress tests indicate that large banks in advanced economies should be resilient to a sharp economic downturn.





Graph 1.8 Large Banks' Return on Equity

... but vulnerabilities are higher in Europe

In September, the European Systemic Risk Board (ESRB) issued a warning on elevated financial stability risks in the European Union associated with the deteriorating macroeconomic outlook and tightening in financial conditions. European banks are more exposed to the macroeconomic consequences of Russia's invasion of Ukraine, including sharply higher energy prices. The ESRB noted that the worsening outlook would increase credit risks among some European banks, exacerbated by longstanding vulnerabilities - such as higher NPLs and weaker profitability stemming from underlying structural issues and high costs. Bank equity prices have declined by more in the euro area (and in Europe more broadly) than in most other advanced economies this year, consistent with a weaker outlook for profitability there. Credit default swap spreads have increased for most European banks, in particular for Credit Suisse, indicating increased demand from investors for protection against default.

Banks in some euro area periphery countries are also exposed to a deterioration in financing conditions for sovereign borrowers given their relatively large holdings of domestic and regional sovereign debt. In addition, governments in these countries are exposed to fragilities in banks' balance sheets, including because of perceptions that governments will bail out banks in trouble. Government measures to offset higher energy costs will add to government debt levels in the euro area, which could exacerbate strains in periphery debt markets. Spreads on Italian Government securities in particular have widened significantly over the past few months, reflecting high sovereign debt levels and political and economic uncertainty (Graph 1.10).

The 'sovereign-bank nexus' has been a longstanding vulnerability in the euro area,

though one that policymakers have sought to mitigate over the past decade. For example:

- The European banking union has been made more complete, partly due to the creation of the Single Supervisory Mechanism and Single Resolution Mechanism (though a European-wide deposit insurance scheme has yet to be developed).
- The NextGenerationEU package provides some countries access to relatively cheap funding and indicates a greater willingness for risk sharing among countries in the European Union.
- The European Central Bank (ECB) has taken steps recently to dampen the risk of a sharp widening in peripheral bond spreads. This has included the introduction of a Transmission Protection Instrument, which allows it to buy sovereign debt in countries experiencing a deterioration in financing conditions not warranted by countryspecific fundamentals, and the reinvestment into peripheral country debt of the proceeds from maturing bonds from earlier bond purchase programs.



Stress in crypto-asset markets has not affected the broader financial system

A notable recent development has been the exceptionally large falls in the prices of cryptoassets. The total market capitalisation of all crypto-assets is currently 65 per cent lower in US dollar terms than its peak in November 2021. This revaluation has occurred alongside the sharp increase in global interest rates. Several major crypto projects have failed in recent months, starting with the collapse of the algorithmic stablecoin TerraUSD in May. TerraUSD's collapse resulted in material losses for a leveraged crypto investment fund, Three Arrows Capital, which had borrowed from a number of other crypto businesses to fund its holdings. Partly as a result, several large crypto lending platforms, including Celsius and Voyager, were unable to meet withdrawal requests from investors and some have since declared bankruptcy. The largest asset-backed stablecoin, Tether, also experienced large outflows and temporarily lost its peg to the US dollar.

These events exposed the substantial use of leverage and opaque interconnections within the crypto ecosystem, in turn highlighting the significant risks to crypto-asset investors. Spillovers into traditional financial markets have been limited, as links between crypto-assets and the broader financial system remain relatively small. However, crypto-assets could pose financial stability risks in the future if the crypto ecosystem grows and becomes more strongly interconnected with the traditional financial system (see 'Box A: Financial Stability Risks from Crypto-assets').

A number of emerging markets are vulnerable to tighter global financial conditions

Higher commodity prices and interest rates have led to financial stress in a number of commodity-importing emerging market economies (EMEs), such as Turkey, and in some countries with a high share of external financing, such as Pakistan and Sri Lanka. Currency depreciation against the US dollar has raised the cost of servicing and refinancing US dollardenominated debt, which comprises around 40 per cent of sovereign debt in Turkey and in some Latin American countries, such as Argentina and Colombia. The Turkish central bank has implemented a number of measures to contain a further depreciation of the lira; despite Turkey experiencing inflation of more than 80 per cent, its central bank recently lowered its policy rate to 12 per cent. Another key vulnerability for EMEs relates to the reduction in the average maturity of sovereign debt issued this year, which has increased rollover risk.

Financial conditions have also tightened for Asian EMEs, although a reduced reliance on external financing and larger holdings of foreign exchange reserves relative to previous tightening cycles have served as buffers against disorderly capital outflows. EMEs in Asia have experienced moderate portfolio outflows since March and currencies have depreciated by around 10 per cent on average against the US dollar (Graph 1.11). Portfolio outflows from Asia have been larger as a share of GDP than from Latin America, partly reflecting closer links with China (see below) and that some of these EMEs are net energy importers. Some central banks have intervened in the foreign exchange market and the Reserve Bank of India has implemented several measures to limit capital outflows and support the rupee, including liberalising rules for foreign investment in local debt markets. Most EME central banks are expected to tighten policy further in the months ahead alongside accelerated policy tightening in advanced economies and rising inflation.

Higher borrowing costs and currency depreciation have added to concerns over debt serviceability and weaker asset quality in EMEs, particularly in Asia. Household and corporate

debt are already high in Asian EMEs relative to other emerging economies (Graph 1.12). Around 10-15 per cent of bank loans are still under moratoria in Indonesia and Thailand, masking true asset quality, with some programs extended to 2023. However, capital levels in Asia are expected to be high enough to allow banks to absorb higher credit losses under most plausible scenarios: the average Common Equity Tier 1 capital ratio is 4 percentage points higher in emerging Asian economies than in other EMEs. Vulnerabilities remain elevated for India, where bank capital levels and asset quality are weaker than the regional average.





Stress in China's property sector is becoming more acute, further exacerbating vulnerabilities in its financial system

Policy challenges are growing in China and the outlook for the economy and financial system is particularly uncertain. Financial conditions for China's property developers have deteriorated further over the past six months, with higher bond yields, lower equity prices and very low pre-sales of properties (Graph 1.13). Property developers have been under increasing stress since the second half of 2021, largely reflecting their high debt levels and declining revenues. Around half of medium-to-large private developers have defaulted on offshore bonds or requested bond extensions, and stress has started to spread to some state-owned developers. There is considerable uncertainty about whether the policies announced to date will be sufficient to restore confidence in the housing market and developers are therefore likely to continue to encounter difficulties in refinancing the significant amount of debt maturing this year (US\$25 billion in bond financing).

In response to stress in the property sector and the broader economic slowdown, Chinese



Graph 1.13

Listed property developers with total assets greater than CNY60 billion Includes those developers experiencing bond yields greater than 50 per cent, having requested a bond extension or defaulted on a trust product

Product: **** Equity prices of largest developers excluding those that have defaulted on bonds; 4 January 2021 = 100.

Sources: Bloomberg; Fitch; RBA; Wind

authorities have introduced several targeted measures to stimulate demand, including by further lowering key policy rates. Authorities have also promoted developer consolidation and encouraged greater provision of financing to developers, including by guaranteeing onshore bond issuance for some less-indebted developers and asking asset management companies (AMCs) to accelerate their acquisition and disposal of developers' bad debts. Some developers have received loans from stateowned enterprises and AMCs to support the delivery of stalled construction projects and to shore up buyer confidence; a plausible scenario is that local governments support the completion of some of these projects. Despite these measures, the property sector remains under considerable stress

Property sector stress also threatens to expose vulnerabilities in local government balance sheets. Local governments face a potential funding gap as their expenditure on support programs increases at the same time revenues from land sales are falling. This could conflict with authorities' attempts to reduce leverage among local government financing vehicles (LGFVs), which have debt around half the size of China's GDP. LGFVs are also exposed to property prices via their purchase of land from local governments, which is often used as collateral when borrowing. A sharp fall in land prices will likely lead to losses for LGFV creditors in the event of a default.

Some LGFVs and property developers have defaulted on 'shadow banking' products, including trust loans and wealth management products. A loss of confidence in these products could spill over to the banking system because of the role banks play in their issuance and distribution, and shadow banks are an important source of funding for banks' off-balance sheet assets. The Chinese National Audit Office conducted a surprise review of Chinese trust companies' exposure to property in August

2022, highlighting the authorities' concern for contagion. The shadow financing sector remains a source of financial fragility in China as it is opaque, undercapitalised and has interlinkages with the wider financial system. This is despite a campaign by authorities to de-risk the sector and a 6 percentage point contraction in its size relative to GDP over 2021 (Graph 1.14).

Stress in the property sector could spread to AMCs (often referred to as 'bad banks'), which are highly exposed to the property sector. Indeed, expectations of large AMC losses caused declines in the prices of their perpetual bonds of around 13 per cent. Some AMCs may require government recapitalisation, which follows a recapitalisation of Huarong (a large national AMC) in 2021.

Large Chinese banks have high levels of capital and liquidity; however, repeated pandemicrelated lockdowns and property sector stress have exacerbated asset quality risks for the banking system, particularly among smaller banks and especially those in poorer provinces. Smaller banks have much higher NPL ratios, have weaker provision coverage and capital positions, rely more on costly and volatile interbank markets for funding, are more closely aligned to shadow banks, and are more exposed to SMEs and the property sector. Moreover, NPL



ratios are widely believed to be under-reported, with the National Audit Office highlighting the prevalence of this practice among smaller banks in a June 2022 report. Authorities have increased local government bond quotas partly to help recapitalise smaller banks.

Overall, authorities face having to address financial vulnerabilities across many sectors at a time of weaker economic growth and a more challenging external environment. Allowing entities to fail will help achieve the longstanding priority of breaking perceptions of implicit guarantees, but at the risk of causing significant stress in the short term. As direct links between China's financial system and the rest of the world remain fairly limited, the emergence of widespread financial stress in China is likely to affect the global financial system mostly via its effect on Chinese economic activity and, to a lesser extent, an increase in risk aversion in global financial markets.

Regulators are continuing their efforts to address the financial effects of climate change

Central banks including the ECB and the BoE published results of their climate scenario

analyses earlier this year, which suggest that banks (and insurers in the BoE exercise) would generally be able to withstand financial losses from climate change. However, regulators highlighted that current analyses are likely to underestimate the impact from climate change due to gaps and limitations in available data. The ECB and the BoE reiterated that banks (and insurers) need to increase their efforts to incorporate climate risks into their strategies and risk management practices in order to meet supervisory expectations.

Throughout the year, a number of national regulators and international bodies have proposed or implemented climate-related reporting standards, as well as principles for managing climate-related risks.^[3] Regulators in Canada, the euro area and the United Kingdom have discussed the possibility of amending capital requirements to enhance the resilience of their financial systems against climate-related shocks, and some central banks, particularly in Europe, have also discussed the inclusion of climate-related factors in their monetary policy and foreign exchange reserve operations.

Endnotes

- See Bank for International Settlements and International Organization of Securities Commissions (2022), 'Review of Margining Practices', September.
- [2] Banks' net interest margins have been compressed for several years in some economies (particularly in the euro area and Japan) as lending rates have declined while deposit rates (particularly for the retail sector) have generally remained at or above zero.
- [3] For example, Canada's Office of the Superintendent of Financial Institutions (OSFI) and the US Federal Deposit Insurance Corporation published draft

climate risk management guidelines for banks, while the Basel Committee on Banking Supervision finalised principles for the effective management and supervision of climate-related financial risks. The European Banking Authority, the International Sustainability Standards Board, and the US Securities and Exchange Commission have proposed or implemented rules and standards to enhance climate-related disclosures. OSFI also introduced mandatory disclosures aligned with the Financial Stability Board Task Force on Climate-Related Financial Disclosures.