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On the Road to Better Cross-border Payments: How is Australia Travelling?

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Photo: alfeixe – Getty Images

Abstract

Cross-border payments are generally more expensive, more opaque and slower than domestic payments. However, there are initiatives underway in Australia and internationally to address these challenges. The G20 Roadmap for Enhancing Cross-border Payments outlines an ambitious set of quantitative targets for improving cross-border payments, underpinned by priority actions to drive progress. In Australia, progress towards the targets has been gradual but significant milestones have been achieved on several priority actions, including enhancing transparency for users, upgrading payments messaging and leveraging Australia's fast payment system to speed up inbound cross-border payments. Despite these important steps, there remains work to be done by the payments industry to drive further progress on the road to better cross-border payments.

Introduction

Having access to efficient, competitive and safe ways to send and receive money across borders is crucial for economic activity, trade and financial inclusion. Yet, globally, the user experience for cross-border payment services often falls well short of that for domestic payments. Cross-border payments are more complex than domestic payments because they involve the transfer of money between two or more jurisdictions, often with different currencies, operating hours, payment system structures and legal frameworks. Improving the user experience for cross-border payments requires international cooperation to streamline the way in which these different systems process transactions.

Recognising the need for coordinated international action, in 2020, the G20 countries – including Australia – endorsed a comprehensive roadmap to make cross-border payments cheaper, faster, more transparent and more accessible (FSB 2020). The G20 Roadmap for Enhancing Cross-border Payments (G20 Roadmap) is a multi-year program of milestones and responsibilities developed by the Financial Stability Board (FSB),

in collaboration with the Committee on Payments and Market Infrastructures (CPMI) and other international bodies. The centrepiece of the program is a set of quantitative global targets for cost, speed, transparency and access outcomes in cross-border payments (Table 1). To lay the foundations for achieving the targets by end 2027, the G20 Roadmap also sets out a number of priority actions aimed at improving regulatory frameworks and compliance, payments infrastructure and data exchange related to cross-border payments.

The FSB recently acknowledged that the G20 Roadmap targets are unlikely to be achieved by the end-2027 deadline, despite many of the global milestones having now been achieved (FSB 2025a).¹ In particular, indicators for the cost and speed of retail payments and remittances have improved only slightly over the past few years, and lower income regions generally continue to experience inferior outcomes. Still, there remains strong international commitment to progressing the G20 aims. Recent international discussions have emphasised the need for individual countries and regions to develop action plans for progressing implementation of the G20 Roadmap (FSB 2025b; FSB 2026).

Table 1: G20 Roadmap Targets for Enhancing Cross-border Payments

To be met by end 2027 (unless indicated otherwise)

Challenge	Payment service targets		
	Retail ^(a)	Remittance ^(b)	Wholesale ^(c)
Cost	Global average <1 per cent; no individual corridor exceeding 3 per cent. ^(d)	Global average <3 per cent; no individual corridor exceeding 5 per cent. ^{(d)(e)}	No target set.
Speed	75 per cent of all payment types available within one hour; remainder available within one business day.		
Access	All users to have at least one means of electronic payment.	>90 per cent of individuals to have at least one means of electronic payment.	All financial institutions to have at least one option for sending and receiving payments.
Transparency	All providers to display total transaction costs (including foreign exchange rate and all fees and charges), expected time to deliver funds, tracking of payment status and terms of service.		

(a) Retail payments are payments less than USD100,000, other than remittances.

(b) Remittances are low-value, high-volume payments sent to recipients in emerging markets and developing economies.

(c) Wholesale payments are payments with a value of USD100,000 or more.

(d) A corridor refers to a pair of countries or regions between which payments flow.

(e) This target is to be met by 2030.

Source: FSB; RBA.

Enhancing cross-border payments under the G20 Roadmap is an international commitment for Australia and a priority for the RBA’s payments policy work (RBA 2025a; RBA 2024a; Australian Government 2023; RBA 2019).² To this end, the RBA has been tracking Australia’s progress under the G20 Roadmap, as well as working with other Australian regulatory agencies and payments industry participants on several policy, infrastructure and data initiatives that can help deliver better outcomes for users of cross-border payments services.

This article provides an overview of this work. We first assess Australia’s progress towards meeting the G20 Roadmap targets. We then outline several key initiatives underway in Australia that are in line with G20 Roadmap priority actions: improving transparency and competition in the market for international money transfers, adopting internationally harmonised messaging requirements and leveraging Australia’s fast payments system – the New Payments Platform (NPP) – for inbound cross-border payments. We also discuss efforts to facilitate access to cost-effective remittances to South Pacific countries. Finally, we identify several other areas that the RBA will be focusing on to help deliver better outcomes in cross-border payments.

Australia’s progress towards the G20 Roadmap targets

We recently analysed a range of cross-border payments indicators to help assess Australia’s progress against the G20 targets for retail payments and remittances.³ This analysis suggests that Australia is meeting the access target and has made gradual progress towards the cost, speed and transparency targets, although more work is needed to achieve those targets by end 2027 (Figure 1).

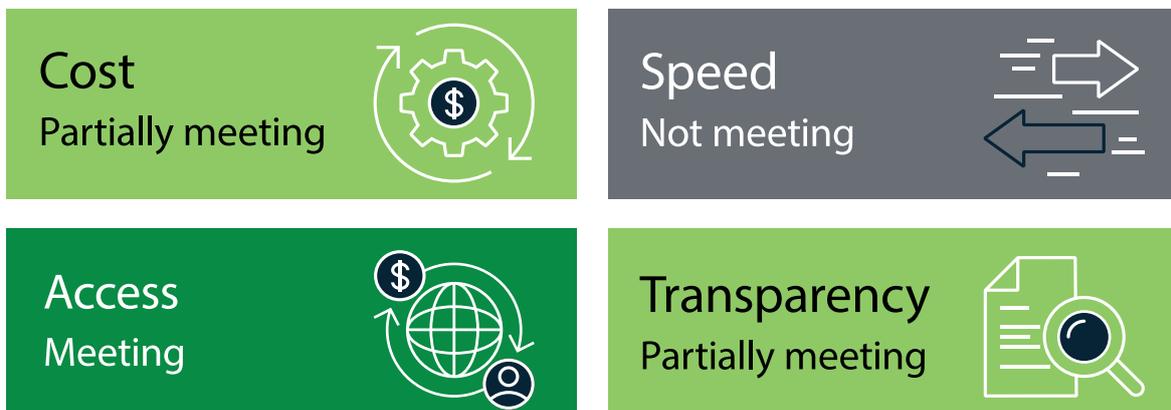
Cost

Our assessment is that Australia is partially meeting the G20 cost targets for retail payments. Costs for international money transfers (IMTs) from Australia to other advanced economies are above the G20 targets for both bank and non-bank providers. However, non-banks are meeting the targets for transfers to developing economies.

Website data from Australia’s four major banks indicate that the average cost of their IMTs has decreased substantially since 2020 but remains well above the G20 targets of 1 per cent for retail payments and 3 per cent for remittances (Graph 1).

Figure 1: Assessment of Australia’s Progress Towards the G20 Roadmap Targets

Retail payments and remittance targets, as at September 2025



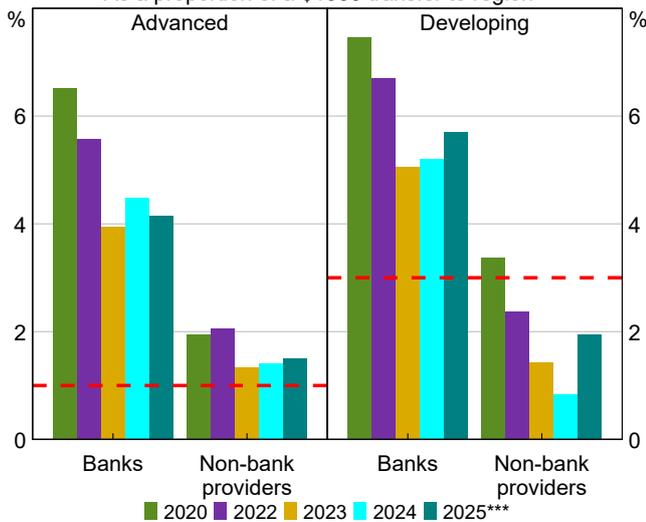
Source: RBA.

Transferring A\$1,000 to advanced countries via the major banks' IMT services cost around 4 per cent in September 2025, while remittances to developing countries were more expensive, at around 6 per cent.⁴ The major banks' IMT costs for many of the transfer destinations that we looked at are currently above the G20 ceilings for individual corridors – 3 per cent for advanced countries and 5 per cent for developing countries.

Graph 1

International Money Transfer Costs*

As a proportion of a \$1000 transfer to region**



* Simple average, not weighted by volume. Dashed lines are G20 targets. Sample includes 4 major banks, 5 non-bank providers.
 ** Advanced currencies are CAD, CHF, EUR, JPY, NZD, USD, HKD, SGD; Developing currencies are BDT, FJD, IDR, INR, LKR, PKG, PHP, PKR, SBD, THB, TOP, VUV, WST, XPF.
 *** Excludes first-time discounts offered by some non-bank providers.
 Sources: Online calculators; RBA.

Non-bank IMT providers generally offer cheaper services and are increasingly being used by Australians seeking to transfer money overseas (ACCC 2024a). The average cost of transferring money to a developing country via non-bank providers was around 2 per cent in September 2025, below the G20 target of 3 per cent for remittances. However, costs for transfers to advanced countries via non-bank IMT providers are a little above the target. Many non-bank IMT providers are 'closed loop' providers that operate in both the originating and destination countries and maintain central databases and processing capabilities. This helps them to avoid some of the current costs associated with intermediation via correspondent banks.⁵

Speed

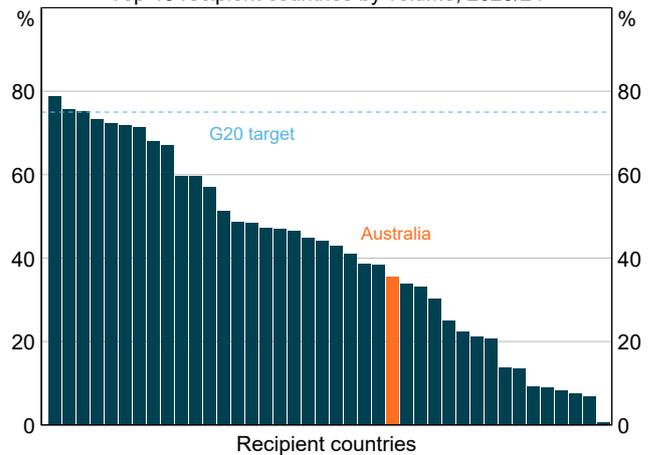
It is challenging to determine the average speed of cross-border payments due to data limitations. However, we assess that Australia is not yet meeting the G20 speed target.

The available data indicate that cross-border payments involving Australian financial institutions are, on average, slower than the G20 speed target for retail payments and remittances. Although data on inbound payments from Swift – the network used to process the majority of international transactions – suggest that very few countries met the speed target in 2023/24, we estimate that Australia's performance was a little below the median across countries (Swift 2024; Graph 2).⁶ Our distinct time zone is likely to be a key factor delaying cross-border payments to and from Australia.

Graph 2

Payments Completed Within One Hour

Top 40 recipient countries by volume, 2023/24



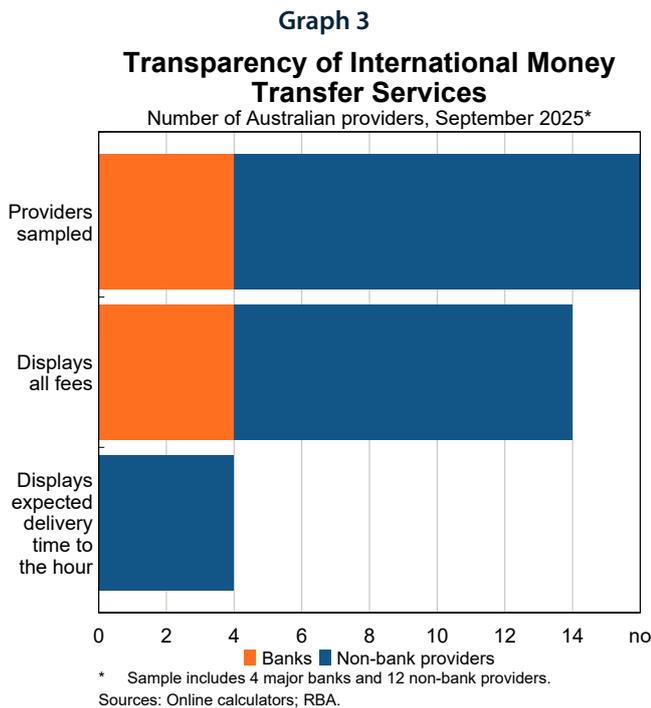
Source: Authors' calculations, Swift.

The speed of cross-border payments can vary considerably. Some transactions settle within minutes, while others can take several days to reach the end recipient. These longer timeframes typically reflect frictions in the processes of banks and domestic payment systems, such as limited operating hours, time-consuming compliance checks, and messaging errors and inconsistencies.⁷

Transparency

Providing comprehensive information to all end users of cross-border payments empowers them to make informed decisions, enhancing consumer protection and promoting efficient markets for payment services. The G20 transparency target is for service providers to present payers and payees with the total transaction cost (showing all sending and receiving fees and foreign exchange (FX) charges), the expected time to deliver funds, tracking of payment status, and terms of service.

We assess that Australian IMT providers are partially meeting the G20 transparency target. Our analysis of the online IMT offerings of a sample of Australian banks and non-bank IMT providers suggests that nearly all of them display all costs and terms of service to prospective customers (Graph 3). Some providers offer payment tracking services once a payment is initiated, but few display the expected time to deliver funds prior to payment initiation in line with the G20 transparency target.



Access

The G20 access target is for all end users to have at least one option for sending and receiving cross-border electronic payments. The FSB uses the share of adults with a transaction account as its proxy measure of access to cross-border payments services. Australia meets the G20 access target, reflecting the near-universal penetration of bank accounts that enable people to send and receive electronic cross-border payments.

Another measure of access is the number of IMT providers servicing individual destination countries. Australian payers have at least one option for sending payments to nearly every country in the world, but the number of providers offering IMT services varies depending on the destination country; for example, transfers between Australia and some South Pacific countries are serviced by only a small number of payment service providers (PSPs) (see below).

Key initiatives underway in Australia to enhance cross-border payments

Despite the gradual progress on cross-border payment outcomes to date, there are several key initiatives currently underway in Australia that are expected to deliver better outcomes for users of cross-border payments. These initiatives are cooperative in nature, involving a range of regulators or industry participants. While other measures being undertaken by individual providers are not covered here, they may also be contributing to better outcomes.

Increasing transparency and competition in the market for international money transfers

In 2019, the Australian Competition and Consumer Commission (ACCC) introduced Best Practice Guidance for IMT providers (ACCC 2019). It recommended that providers display the amount to be received in foreign currency in their online calculators, so that potential customers can more easily understand and compare IMT offerings. These recommendations were adopted by all of Australia's major IMT providers, although some variation in how fees were presented remained when the ACCC reviewed market practices in 2024 (ACCC 2024a).

In 2024, the ACCC updated the Guidance to recommend that online calculators display the total FX amount to be received *net of all fees* (ACCC 2024a; ACCC 2024b).⁸ This recommendation aims to standardise the way that providers display quotes, enabling consumers to compare providers' prices more easily and shop around for the best deal. The updated Guidance also recommends that providers display in a prominent position the estimated time that a transfer will take to reach its destination and provide customers with the ability to track the status of their payment, in line with the G20 transparency target.

IMT providers are expected to increasingly adhere to the updated Guidance as they uplift their online tools and systems. Together, the changes should encourage improved price and non-price transparency among providers, and in turn foster greater competition in the IMT market.

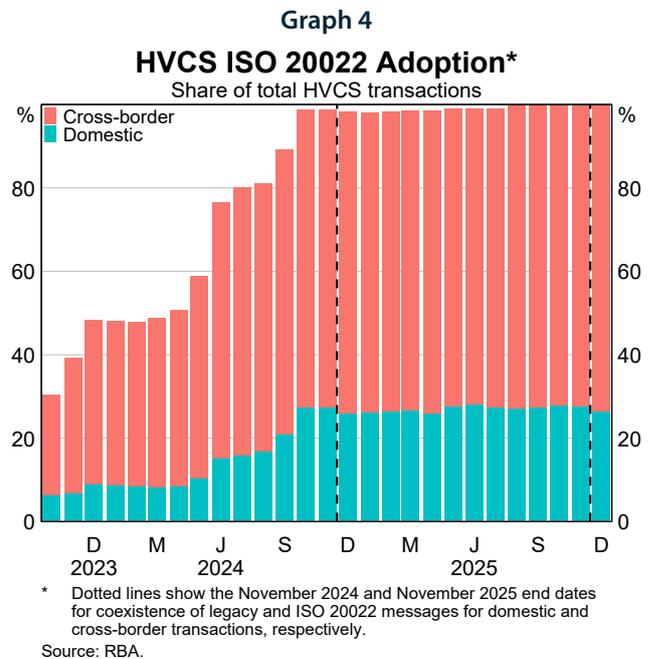
Adopting internationally harmonised payments messaging

A major initiative in the international effort to enhance cross-border payments is the transition from legacy message formats to the richer and more structured International Organization for Standardization (ISO) 20022 messaging standard. Electronic payments rely on the exchange of messages to instruct the flow of funds between financial institutions. The structure and content of these messages are important because they determine what payment information is received by financial institutions and their customers.

In 2023, the CPMI published a harmonised set of ISO 20022 data requirements for end-to-end use in cross-border payments around the world.⁹ Consistent global use of ISO 20022 messaging for cross-border payments is expected to result in better regulatory compliance (including with financial crime and sanctions screening requirements), reduce the need for manual repair of messages and enable more automated reconciliation by banks and their customers. These benefits should, in turn, lower costs and speed up payments for end users.¹⁰

The RBA has set an expectation that the High Value Clearing System (HVCS) and the NPP adopt the CPMI's harmonised data requirements by end 2027, which is the CPMI's global target date (Bullock 2023; RBA 2024a).¹¹ These two domestic payment systems are the main ones used to process the final Australian dollar leg of inbound cross-border payments. The RBA is tracking the industry's progress towards this goal through regular surveys and ongoing engagements, and reporting this information to the RBA Payments System Board.

The HVCS completed the transition to the 2019/20 version of the ISO 20022 messaging for domestic transactions in 2024 and individual banks successfully migrated their outbound cross-border transactions by November 2025 (Graph 4). This was in line with the end of the Swift correspondent banking network's global co-existence period for legacy and ISO 20022 payment instruction messages, which was a major milestone in the international transition to the ISO 20022 standard.¹² However, there is still work to be done to achieve full alignment with the CPMI's harmonised messaging requirements. The system's administrator, the Australian Payments Network (AusPayNet), has indicated that it expects the HVCS to have fully aligned with the harmonised messaging requirements by the end-2027 timeframe (AusPayNet 2023).



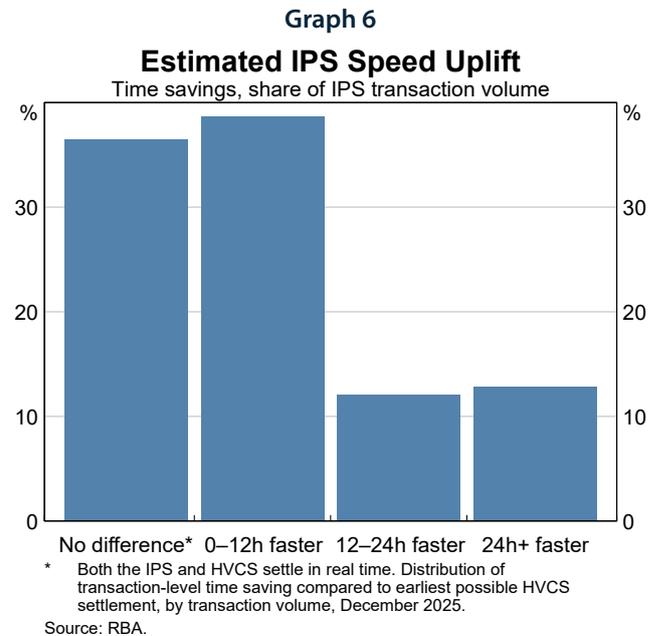
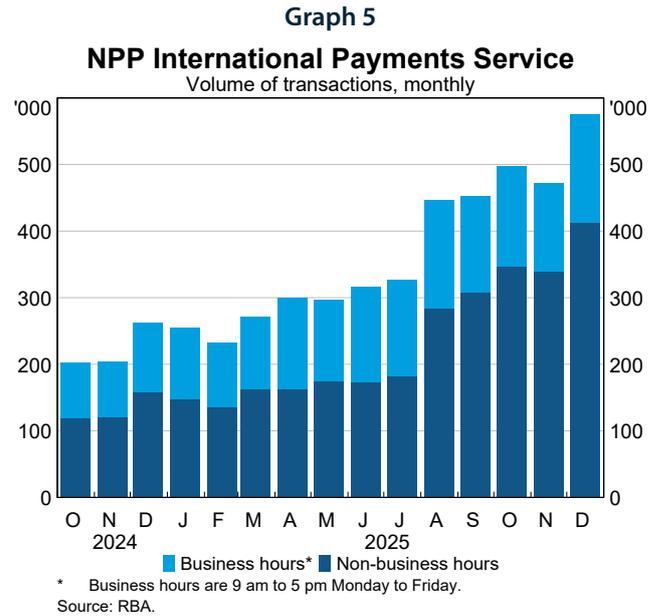
Australian Payments Plus (AP+), the operator of the NPP, has also announced its intention to support the CPMI's harmonised messaging requirements (AP+ 2023). The NPP has used the ISO 20022 messaging standard since it began operations in 2018. An upgrade to a newer version of the ISO 20022 messaging standard is scheduled for completion by March 2027, which would bring the NPP close to achieving full harmonisation with the CPMI's ISO 20022 messaging requirements (AP+ 2025).

These efforts by the Australian payments industry to transition to the CPMI's internationally harmonised ISO 20022 data requirements have put Australia at the forefront of global progress on this initiative. However, the full benefits of the ISO 20022 transition will not be realised until all data fields have been transitioned globally, and banks have had time to make best use of the richer and more structured data included in ISO 20022 messages. Some Australian banks have reported improved straight-through-processing rates, with more payments processed without manual intervention, following their transition to ISO 20022 messaging.

Leveraging fast payment systems for cross-border payments

The migration of inbound cross-border payments to the NPP's International Payments Service (IPS) is also helping Australia to enhance cross-border payments. The IPS allows participants to process the final Australian dollar leg of inbound cross-border payments on a near real-time 24/7 basis. It also enables more complete payer information to be sent with the payment for compliance screening purposes.

The volume and average value of IPS payments has grown substantially since the service was launched in 2024, with a number of non-banks driving most of the adoption to date. Importantly, many of these payments are being sent outside of standard business hours (Graph 5). This process is speeding up some payments coming into Australia, benefiting financial institutions and their customers. Of the payments sent over the IPS in December 2025, more than half were received more quickly than they would have been had they been processed via the HVCS (which only operates during standard business hours), with almost 13 per cent estimated to be at least 24 hours faster (Graph 6).



There is scope for more inbound cross-border payments to migrate to the IPS, with the relevant HVCS volumes currently estimated to be about three times those of the IPS. There is also potential for Australians sending payments overseas to benefit from the use of IPS-equivalent services in other jurisdictions to speed up the final leg of those transactions.¹³

Another way to leverage domestic fast payments systems to enable more seamless cross-border payments is to interlink fast payment systems across borders. Interlinking involves establishing connections between payment systems in multiple jurisdictions to allow PSPs to interact directly through the linked

infrastructures (CPMI 2020). This can reduce the need for PSPs to process payments via correspondent banks or to participate in multiple payment systems.

The RBA has collaborated with Australian industry participants on an exploratory analytical study of the benefits, design considerations and challenges involved in an interlinking arrangement (RBA 2024b) and is monitoring the advancement of interlinking initiatives internationally. Some countries in the Asia-Pacific region have established bilateral connections between their fast payment systems in recent years. In 2025, several ASEAN countries and India established a multilateral scheme, Nexus Global Payments, to standardise the way that fast payment systems connect to each other.¹⁴ The scheme is working towards processing cross-border payments by 2027. Some other jurisdictions (such as the euro area) have expressed interest in joining Nexus Global Payments if the system is successful. The RBA is also planning to continue to engage with Australian industry participants during 2027 on the policy and business case for interlinking the NPP to other fast payment systems.

Improving the regulatory landscape, compliance and financial crime mitigation

There are several other initiatives underway in Australia to improve regulatory frameworks for cross-border payments and compliance with them, including:

- AUSTRAC is extending Australia’s anti-money laundering and counter-terrorism financing (AML/CTF) regime to address gaps in detecting financial crime associated with cross-border payments. Under the new rules, AML/CTF reporting obligations will extend to virtual asset transfers (e.g. to move cryptocurrency from one wallet to another) and card-based push payments (e.g. to load funds onto a digital wallet that can then be transferred across borders) from April 2026.
- The Australian Government is developing legislation to modernise the licensing regime for PSPs. This new regime should also help to increase regulatory certainty and address some of the challenges non-bank PSPs face in seeking to operate in Australia, supporting competition and innovation in the Australian cross-border payments market. The Government consulted on Tranche 1a of its

proposed legislative reforms in late 2025 and will consult on the remainder of the draft legislation in early 2026 (Australian Treasury 2025).

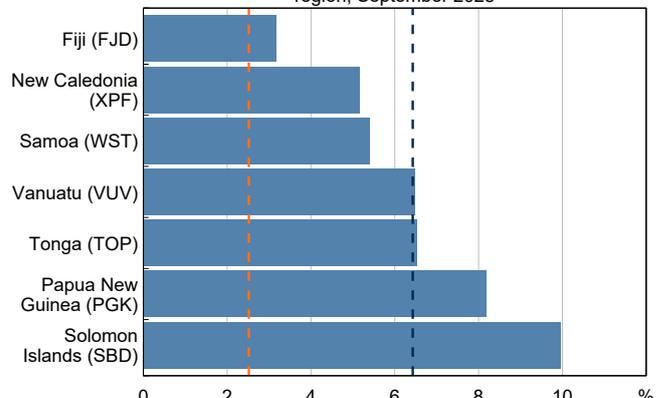
- The RBA is participating in Project Mandala, which aims to address the challenges associated with complex and disparate cross-border regulatory compliance processes that slow transactions down and increase their cost. This project is being led by the BIS Innovation Hub in Singapore and also involves the central banks of Singapore, Malaysia and South Korea. It explores the use of digital technologies to enhance the transparency of jurisdiction-specific regulatory requirements (such as sanctions or capital controls) for cross-border transactions and automate compliance processes.¹⁵ The RBA participated in Phase 1 of Project Mandala and is also part of Phase 2, which commenced in late 2025.

Cross-border payments to and from the Pacific

Enabling access to cost-effective remittances for countries in the South Pacific region is a high priority for Australia, as many families in the region rely on remittances as a key source of income. But remittances to these countries tend to be relatively expensive, with a \$1,000 transfer to countries in the region costing, on average, 6.4 per cent of the transfer amount compared with 2.5 per cent for transfers to other countries (Graph 7).

Graph 7

Australian International Money Transfer Costs*
As a proportion of a \$1000 transfer to the South Pacific region, September 2025



The higher cost of remittances to the region is associated with weaker competition in the provision of IMT services. For instance, IMTs from Australia to the South Pacific countries with the highest costs tend to be serviced by only a relatively small number of PSPs.¹⁶

More broadly, South Pacific countries currently face considerable challenges maintaining access to correspondent banking relationships. A key concern for correspondent banks is the costs involved in providing these services, including complying with regulatory requirements to detect and prevent financial crime. At the same time, the volume of transactions in most corridors is relatively small, making it difficult to achieve economies of scale. One initiative underway to address these challenges is the World Bank and Pacific Island Forum's Strengthening Correspondent Banking Relationships in the Pacific project. This project aims to provide emergency correspondent bank support while exploring the feasibility of a Pacific Payments Mechanism, which would aggregate payment flows with the aim of achieving sufficient volumes to make servicing Pacific corridors commercially viable for correspondent banks.¹⁷ Australian authorities have also been supporting countries in the region with a range of regulatory and banking initiatives, including working together with Australian banks to ensure the ongoing provision of banking services in some South Pacific countries.

Conclusion: The road ahead

Like most other countries, Australia is yet to fully meet the G20 cost, speed and transparency targets for cross-border payments. Although progress towards these targets has been slow, Australian regulatory agencies and payments industry participants remain committed to the goal of enhancing cross-border payment outcomes. In recent years, the Australian payments industry, Australian Government and regulators have made substantial progress on key initiatives under the G20 Roadmap including enhancing transparency for users, upgrading payments messaging and leveraging Australia's fast payment system to speed up inbound cross-border payments. However, for meaningful benefits to be achieved for Australian end users, it is essential that work continues to foster transparency and competition in the IMT market, fully adopt globally harmonised payments messaging

requirements, leverage the NPP for cross-border transactions and improve the regulatory landscape in Australia.

Much of the work done to date to enhance cross-border payments in Australia has focused on retail payments and remittances. Recognising this, the RBA will be examining options for enhancing wholesale cross-border payments in 2026 (RBA 2025b). Enhancing wholesale cross-border payments, which are critical to international trade and financial flows, should help reduce settlement and liquidity risks, lower transaction costs for businesses and support the smoother functioning of financial markets. The work will consider how the Reserve Bank Information and Transfer System (RITS, Australia's interbank settlement system) may be upgraded for this purpose, such as by extending its operating hours (Bullock 2025). The RBA will also undertake further research on digital money innovations (such as tokenised deposits, stablecoins and central bank digital currencies) that have the potential to impact the functioning of the retail and wholesale cross-border payments markets.¹⁸

Endnotes

- * The authors are from Payments Policy Department. They would like to thank Grant Turner, Chris Thompson, Cara Holland, Chirag Rao, Sarah Dowling and colleagues from the Australian Treasury and Australian Competition and Consumer Commission for their comments and contribution to the analysis.
- 1 The milestones achieved include the development of the FSB's recommendations that aim to improve consistency in the regulation and supervision of bank and non-bank payment service providers offering cross-border payments, the CPMI's harmonised set of payments messaging requirements for cross-border payments and the Financial Action Task Force's revision of standards for data that must accompany cross-border payments.
 - 2 Improving cross-border payment outcomes has been a priority for the Payments System Board since 2019.
 - 3 We focus our analysis on the G20 targets for retail payments and remittances, as these payments are relatively inefficient segments of the cross-border payments market and ones for which data are more readily available.
 - 4 We focus on the cost of retail IMTs of A\$1,000 as this indicator is readily available from providers' online payment calculators. Costs for other market segments, such as wholesale or business-to-business payments, may differ.
 - 5 In a correspondent banking arrangement, a bank in a foreign jurisdiction executes and processes payments on behalf of another bank that it holds foreign currency deposits for. Often the payment will need to flow through one or more correspondent banks to get to the intended destination, adding to the cost and time taken for a transaction.
 - 6 We judge that there may have been some improvement in speed outcomes for inbound payments to Australia since 2023/24, but that Australia remains well below the G20 speed target of 75 per cent of payments completed within one hour. This assessment does not consider inbound transactions processed using the NPP's IPS or by non-bank IMT providers via their proprietary global arrangements, for which end-to-end speed data are not currently available.
 - 7 To address some of these issues, as well as improve transparency, in September 2025 Swift announced plans to develop a rules-based scheme for retail cross-border payments made via its network (Swift 2025). Several Australian major banks have announced that they are participating in the development of the new Swift scheme rules. Australian banks are also working to enhance their processing of the domestic legs of cross-border transactions, including by developing 24/7 capability for transactions for which they are both the Australian dollar correspondent bank and the final beneficiary bank.
 - 8 This recommendation was underpinned by a study showing that consumers primarily rely on the 'amount received' to judge value (ACCC 2024a; ACCC 2024b).
 - 9 The CPMI working group that developed these requirements was co-chaired by the RBA.
 - 10 These features of the harmonised ISO 20022 messaging requirements are also applicable to domestic transactions but are likely to be particularly beneficial for cross-border payments due to the substantial variation in existing messaging practices across jurisdictions.
 - 11 The transition to the harmonised requirements is also part of the Council of Financial Regulators' Better Regulation Roadmap, which sets out a series of coordinated activities to improve efficiency through regulatory reform for the financial sector. For activities that the RBA is undertaking, see CFR (2025).
 - 12 For further details on the Swift co-existence period and the HVCS migration to ISO 20022, see Major and Mangano (2020).
 - 13 Australian banks are increasingly using similar services in other countries to process the final domestic leg of cross-border transactions, reducing delays for end users. Similar fast payment services for inbound transactions are in place in some other jurisdictions, including the United Kingdom and Spain.
 - 14 Nexus Global Payments was established by the central banks of India, Malaysia, the Philippines, Thailand and Singapore. In February 2026 it was announced that Indonesia had also joined the Nexus network. For further details, see Nexus Global Payments (2026).
 - 15 For further details on Project Mandala, see BIS (2025).
 - 16 One initiative developed to address this issue is the SendMoneyPacific website, which allows people to compare providers' prices and the speed of services to send money to 11 countries in the region (SendMoneyPacific 2025).
 - 17 For further details on the Pacific project, including a list of participating jurisdictions, see World Bank (2025).
 - 18 The Government is also implementing regulation for digital asset platforms and tokenised custody platforms through the proposed Corporations Amendment (Digital Assets Framework) Bill 2025.

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Recent Changes in Credit Markets and Their Implications for Monetary Policy

Sarah Jennison, Josh Spiller and Peter Wallis*



Photo: Andrew Merry – Getty Images

Abstract

Changes in credit markets since the pandemic have had an important influence on monetary policy transmission. Lower bank funding costs relative to the cash rate, narrower lending rate spreads, and increased business credit supply have made financial conditions less restrictive than they otherwise would have been for a given level of the cash rate, supporting stronger credit growth. While some drivers of these developments are cyclical, others appear to reflect more persistent structural changes. These developments may have contributed to an increase in the neutral interest rate since the pandemic, although global developments also appear to be playing an important role.

Introduction

Monetary policy transmission describes the process of how changes in the cash rate target flow through to broader financial conditions, economic activity and, ultimately, inflation and employment. The first stage of this transmission concerns how changes in the cash rate target influence other interest rates in the economy, as well as the willingness and ability of lenders to supply credit. First stage transmission varies over time, influenced by both temporary cyclical factors and more persistent structural changes. Understanding these changes is essential to determining the effects of monetary policy on inflation and employment.

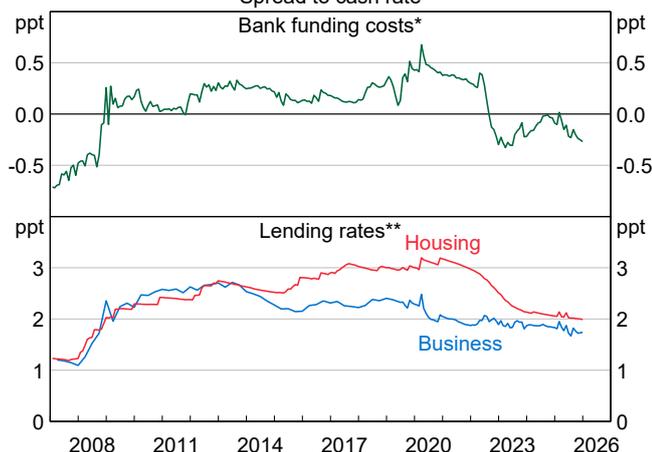
This article discusses the drivers and implications of three notable developments in credit markets in the post-pandemic period that have influenced the first stage of transmission¹ (Graph 1):

- a decline in bank funding costs relative to the cash rate
- a decline in variable mortgage rates relative to the cash rate
- an increase in the supply of business credit from both bank and non-bank lenders.

Graph 1

Funding Costs and Lending Rates

Spread to cash rate



* RBA estimates of major banks' hedged debt and deposit costs.

** Outstanding variable. Break-adjusted for introduction of Economic and Financial Statistics in 2019.

Sources: ABS; AFMA; APRA; ASX; Bloomberg; LSEG; major bank liaison; major banks' websites; Perpetual; RBA; Securitisation System; Tullett Prebon; US Federal Reserve.

These developments are interrelated and partly reflect common cyclical drivers that have supported credit supply. For example, the recent resilience of the labour market has led to relatively low loan losses for lenders, contributing to lower risk premia in funding markets and supporting lenders' capital positions. Lenders also appear to have re-evaluated the risks associated with lending to some borrowers. Alongside these cyclical factors, structural trends are also supporting credit supply – for example, by encouraging stronger competition or the entry of new non-bank lenders.

Improved credit supply has been reflected mainly in cheaper pricing in the mortgage market and in non-price indicators of credit availability in the business lending market. This is consistent with literature suggesting that credit rationing can be more prevalent in markets with a higher degree of information asymmetry, such as business lending (Stiglitz and Weiss 1981; Petersen and Rajan 1994).

This article discusses each of the three developments in turn, before discussing their implications for monetary policy. Collectively, the developments have acted to make financial conditions easier (or less restrictive) than they otherwise would be for a given level of the cash rate. They may also have contributed to an increase in the neutral interest rate, meaning that over the medium run – all else equal – the cash rate needs to be higher to achieve the same effect on the economy.

The decline in bank funding costs relative to the cash rate

Banks' funding costs are important for monetary policy transmission because they are a key determinant of bank lending rates. While funding costs are strongly influenced by the cash rate, they are also influenced by other factors such as short-term market rates and the composition of banks' funding. Bank funding costs can therefore change as a spread to the cash rate over time.

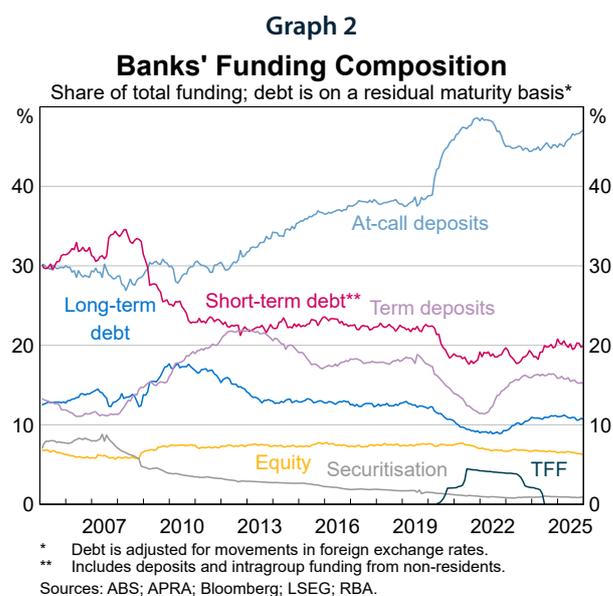
Why have bank funding cost spreads narrowed?

Bank funding costs relative to the cash rate rose sharply as the global financial crisis (GFC) unfolded in 2008, reflecting a sharp repricing of credit and liquidity risk. In response to this repricing of risk and associated regulatory changes, banks shifted their funding mix towards more stable funding sources such as deposits and long-term debt, which drove up the cost of these funding sources and banks' total funding costs (Kent 2025a; Brown *et al* 2010; Debelle 2010).² These factors contributed to a rise in banks' lending rates relative to the cash rate. This spread increased further in the late 2010s and in early 2020, in part due to higher wholesale debt spreads (Black and Titkov 2019).

The spread between the RBA's estimate of major banks' funding costs and the cash rate has declined since the onset of the pandemic and is currently around 70 basis points below end-2019 levels (Graph 1). Overall, this trend reflects favourable funding conditions for banks in both retail and wholesale markets, underpinned by three main drivers:

- **The share of banks' funding sourced from at-call deposits is historically high and has increased substantially since the pandemic** (Graph 2).

The increase in the at-call deposit share since the pandemic largely reflects strong credit growth, the RBA's purchase of government bonds from the private sector during the pandemic, and a decline in the stock of banks' outstanding wholesale debt (RBA 2020; Cole, De Zoysa and Schwartz 2025).³ At-call deposits are the cheapest source of funding available to banks, and so the increase in the at-call deposit share since the pandemic contributed to lower funding cost spreads. At-call deposit rates also tend to adjust by less than one-for-one with changes in the cash rate; consequently, as interest rates rose in 2022, at-call deposit rates increased by less than the cash rate, which contributed strongly to the decline in funding costs relative to the cash rate.



- **Bank bill swap (BBSW) reference rate spreads to overnight indexed swaps (OIS) have narrowed compared with pre-pandemic** (Graph 3). Much of banks' funding is linked either directly or via hedging to BBSW rates, which are the rates at which major banks can issue short-term wholesale debt. BBSW rates are closely linked to the expected path of the cash rate, reflected in OIS rates. However, they also incorporate a spread capturing a range of factors, including banks' credit and liquidity risk and their willingness to pay for the benefits to their liquidity from issuing a bank bill (which also boosts a bank's liquidity coverage ratio (LCR)).⁴ A lower spread reduces banks' funding costs relative to the expected path of the cash rate. During the pandemic, the availability of ample funding from other sources, including deposits and the Term Funding Facility (TFF), contributed to the decline in BBSW-OIS spreads as banks' need for short-term wholesale funding decreased while investor demand for this debt remained stable (Aziz *et al* 2022). BBSW-OIS spreads have since become more volatile, though they remain lower than pre-pandemic.

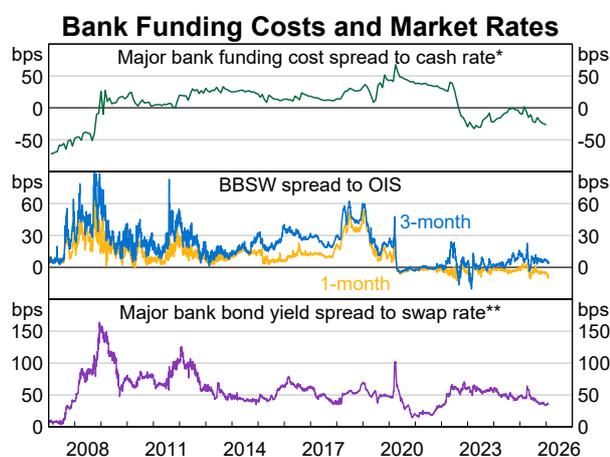
- **More recently, broader wholesale funding conditions have been favourable.** Spreads between bank bond yields and swap rates have narrowed since 2022, reducing the cost of new bond issuance for banks relative to the cash rate.⁵ This partly reflects a broad-based narrowing in risk premia across global risk assets (RBA 2026). Investor demand for bank bonds has also been supported by participation from a broader range of investors within the domestic market, including Asian investors and domestic superannuation funds (Jacobs 2024).⁶

Are these trends likely to persist?

One important driver of the decline in bank funding costs spreads since the pandemic was an increase in the share of funding sourced from at-call deposits. This share could decrease in the future – for example, as bonds purchased by the RBA during the pandemic are allowed to mature (which can lead to a decline in deposits).⁷ Customers could also substitute between at-call and term deposits in response to future changes in interest rates, as occurred when interest rates increased from low levels in 2022. Regulatory changes can also influence banks' funding mix. Even so, the at-call deposit share is likely to remain above pre-pandemic levels in the near term. This reflects the fact that one of the major drivers of this trend was a substantial increase in total credit, which has led to a large and persistent increase in deposits (RBA 2020). This increase is not expected to be offset by the factors discussed above.⁸

The outlook for wholesale funding markets is less clear, given that conditions in those markets are influenced by a wide range of factors and can change quickly. One factor that could have a persistent influence on short-term funding markets is the RBA's transition to a new 'ample reserves' monetary policy operating framework (Kent 2024; Kent 2025b). This transition will see exchange settlement balances (i.e. reserves) decline from current levels but remain higher than before the pandemic, as the RBA will supply as many reserves as banks demand through weekly open market operations. Relative to the 'scarce reserves' system in place before the pandemic, this system is expected to contribute to a lower risk of liquidity shortages in the banking system.⁹ This could affect other short-term funding markets, such as the bank bills market, via a reduction in liquidity risk premia. For this reason, BBSW-OIS spreads might remain lower than

Graph 3



* RBA estimates of overall outstanding hedged debt and deposit costs for the major banks.

** Domestic market; 3-year target tenor.

Sources: ABS; AFMA; APRA; ASX; Bloomberg; LSEG; major bank liaison; major banks' websites; RBA; Securitisation System; Tullett Prebon; US Federal Reserve.

pre-pandemic, on average. However, there is significant uncertainty around this outlook, as banks will continue to rely on the bank bill market to manage their regulatory liquidity ratios as reserves decline from current levels. Other factors, including a rise in risk aversion or regulatory changes influencing banks' funding preferences, could also lead to conditions tightening.

The decline in mortgage rates relative to the cash rate

Pass-through from the cash rate to mortgage rates is an important component of monetary policy transmission. Changes in new mortgage rates influence the willingness and ability of households to take on new mortgage debt. This affects housing prices and economic activity, particularly dwelling investment and household consumption (Mulqueeny, Ballantyne and Hambur 2025). Changes in outstanding mortgage rates also influence consumption via their effect on households' cash flows and incentives to save, spend, or pay down debt (Elias *et al* 2025; Jennison and Miller 2025).

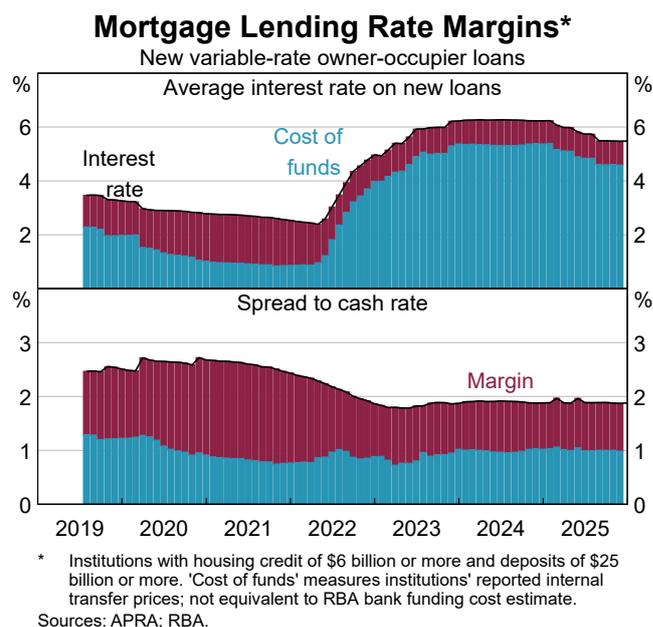
Why have mortgage spreads narrowed?

The spread between the average *new* variable mortgage rate and the cash rate has declined by around 65 basis points since December 2019, with most of this narrowing occurring in 2021 and 2022. This narrowing partly reflects the decline in bank funding cost spreads discussed above, which banks passed on to customers through lower lending rates (relative to the cash rate). It is estimated that this contributed around two-fifths of the narrowing in new variable mortgage rate spreads, based on data reported by banks (Graph 4).¹⁰

The larger driver was a narrowing in banks' lending margins – the difference between the rate charged on a loan and the cost of funding the loan. This is consistent with other information suggesting that competition between lenders increased over this period and pushed down lending margins, shown by larger discounts on new loans and the introduction of cashback deals of up to \$5,000 for new and refinancing borrowers (Ung 2024).

The spread between the average *outstanding* variable mortgage rate and the cash rate has narrowed by around 100 basis points since 2019. Lenders have

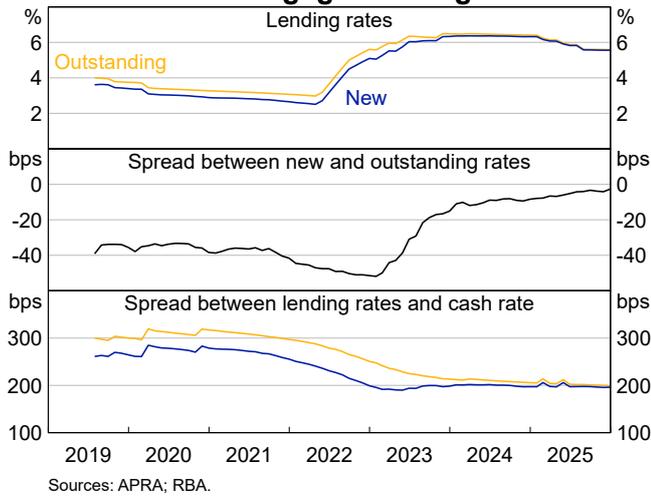
Graph 4



historically priced new variable rates below average outstanding mortgage rates as new customers tend to be significantly more price sensitive than existing customers (ACCC 2018). The spread between the average new and average outstanding variable rate has declined from around 35 basis points in 2019 to around 3 basis points as at December 2025 (Graph 5). In other words, the average variable rate on a new mortgage is now only slightly lower than the average variable rate on existing mortgages. Moreover, the distribution of outstanding variable mortgage rates has become more tightly clustered, with a higher proportion of households paying rates that are closer to the lowest on offer (Graph 6).

Graph 5

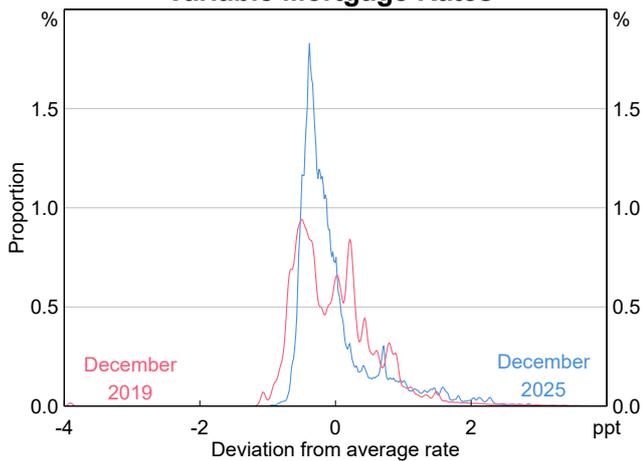
Variable Mortgage Lending Rates



Sources: APRA; RBA.

Graph 6

Distribution of Outstanding Variable Mortgage Rates*

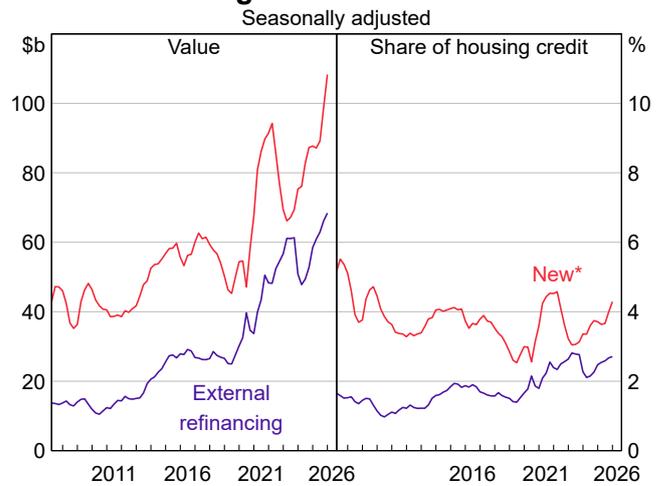


* Data are demeaned for each cross-section, respectively.
Sources: RBA; Securitisation system.

The timing of this narrowing in outstanding mortgage spreads coincided with a period of heightened borrower attention on mortgage rates, as many mortgages that were fixed at low interest rates during the pandemic rolled onto much higher variable rates over 2023 and 2024. In this environment, lenders competed to both attract refinancing customers and retain existing customers. External refinancing activity increased to a record share of housing credit (Graph 7), and many borrowers requested and obtained better rates from their existing lender. To retain customers, some lenders made the negotiation process easier (such as by enabling requests to be made via an app rather than over the phone), while others offered borrowers better

Graph 7

Housing Loan Commitments



* Excludes refinancing.
Sources: ABS; APRA; RBA.

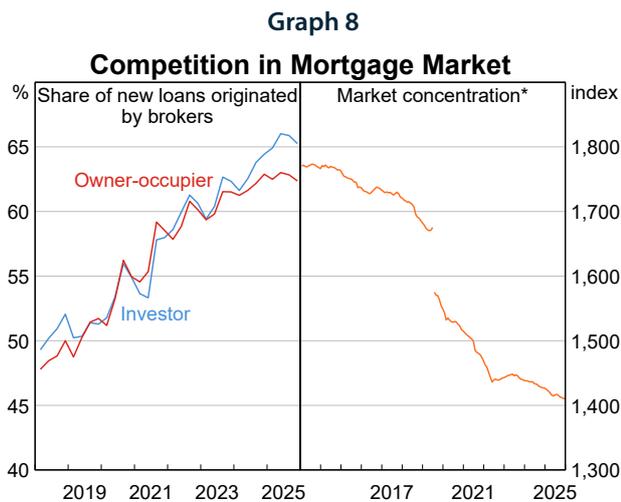
rates as their fixed-rate periods were ending. Some borrowers also benefited from brokers negotiating better rates on their behalf.

While discounting on new loans and cashback incentives eased from 2023 onwards, most of the narrowing in lending spreads has persisted. The spread between new variable mortgage rates and the cash rate has increased by 6 basis points since its lowest point in mid-2023. By contrast, outstanding variable mortgage rate spreads have narrowed further over this period, including a 6-basis point narrowing over 2025. This likely reflects that a small share of borrowers have continued to negotiate better rates on their mortgages (consistent with external refinancing activity remaining high), while the substantial share of borrowers who secured better rates over recent years have not seen these discounts unwind.

Are these trends likely to persist?

The narrowing in mortgage rate spreads since the pandemic reflects a combination of low bank funding cost spreads and strong competition between lenders. These drivers partly reflect cyclical factors that are likely to be temporary, including low losses on mortgage lending underpinned by strong conditions in the labour market. However, they also reflect longer term structural factors that are supporting competition and are more likely to persist, consistent with a longer term decline in measures of bank profitability such as net interest margins and return on equity. For example, the increase in lender competition has occurred alongside:

- **The growth of services and technology that have made it easier for borrowers to compare mortgage rates (reducing search and switching costs).** This includes a rising share of mortgages originated by brokers, and websites that allow borrowers to compare mortgage rates across lenders (Graph 8). Evidence suggests that – under appropriate commission structures – brokers may contribute to lower mortgage pricing by improving upstream competition, providing greater access to a wider network of lenders and reducing household shopping costs (Deloitte Access Economics 2018; Robles-Garcia 2020). While some lenders have recently announced a strategic focus on shifting mortgage origination towards proprietary channels, this appears unlikely to materially dampen price competition in the near term. This is because lenders seeking to increase proprietary lending will need to compete with brokers and to do so, may need to offer lower rates on loans.

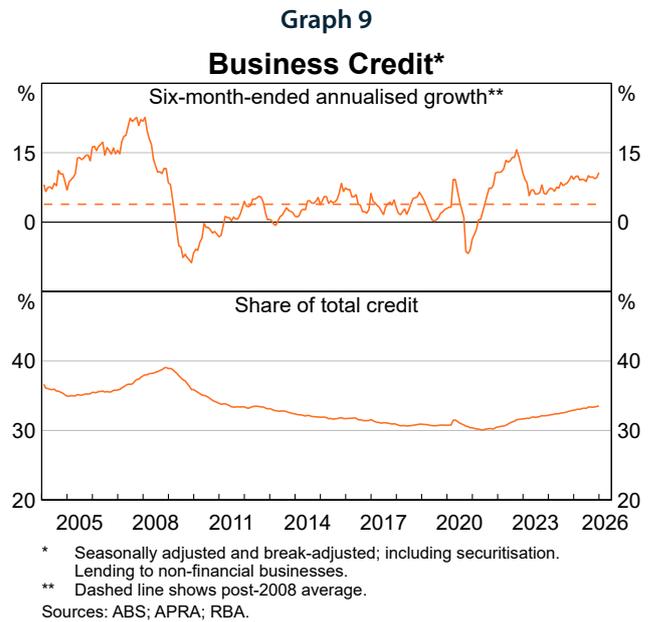


* Herfindahl-Hirschman Index based on share of housing loans. A higher index indicates a more concentrated market. Series break in July 2019 due to transition to Economic and Financial Statistics.
Sources: APRA; RBA.

- **A decline in lender concentration in the mortgage market, as smaller lenders have gained market share from the major banks.** While the effect of market concentration on competition can be complex, cross-country evidence suggests that lower concentration in the banking sector typically leads to lower lending rates (Calice and Leonida 2018). It is likely that this decline in lender concentration will persist to some extent, supported by factors such as the high broker share and Australia’s regulatory regime prohibiting mergers among the larger banks or acquisitions that would be likely to substantially lessen competition (ACCC 2025).

Increased supply of business credit

The post-pandemic period has seen business credit grow consistently faster than its post-GFC average. Business credit has also increased as a share of total credit, reversing its post-GFC decline (Graph 9). Demand for business finance and the supply of credit from lenders has been strong over recent years. While strength in business credit has been underpinned by strong macroeconomic fundamentals, it is also likely to have partly reflected emerging structural changes that have supported the supply of business credit.



* Seasonally adjusted and break-adjusted; including securitisation. Lending to non-financial businesses.
** Dashed line shows post-2008 average.
Sources: ABS; APRA; RBA.

What has driven the increase in business credit supply?

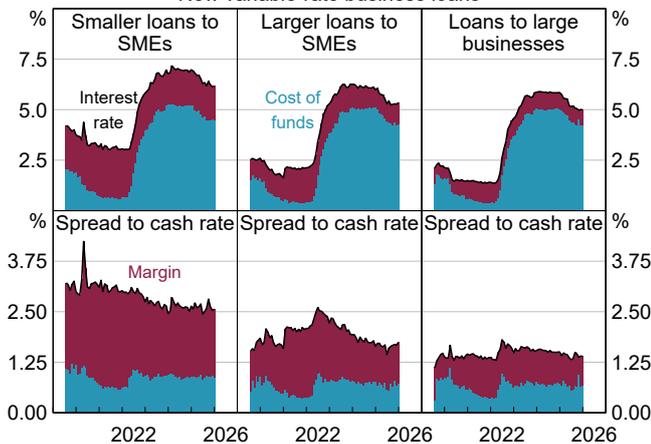
Increased supply of business credit has been driven by two main trends: stronger competition among established lenders and the growth of specialist non-bank and private credit lenders.

Like the mortgage market, stronger competition among established lenders has partly been manifested in cheaper pricing. Business lending margins have narrowed by around 10–30 basis points since 2023, contributing to a modest narrowing in business lending rate spreads to the cash rate (Graph 10).

Graph 10

Business Lending Rate Margins*

New variable-rate business loans



* Institutions with business credit of \$2 billion or more and deposits of \$25 billion or more. 'Cost of funds' measures institutions' reported internal transfer prices; not equivalent to RBA bank funding cost estimate.

Sources: APRA; RBA.

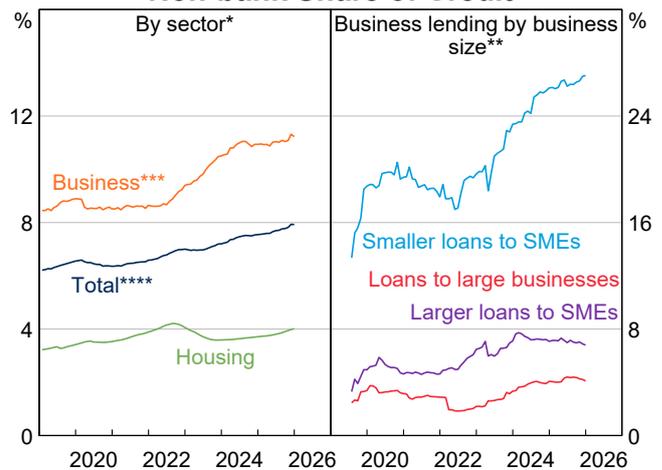
Notably, competition on non-price factors has also increased, supporting the supply of business credit. Bank commentary and liaison have highlighted competition along dimensions such as collateral and loan documentation requirements, and approval times (Harvey, Lai and Spiller 2025). Several banks have indicated a new strategic focus on expanding business lending to both small and medium-sized enterprises (SMEs) and large businesses in recent years, supported by factors such as increased staffing or investments in technology. Several measures of lending standards have also eased slightly in some market segments, namely commercial real estate lending (RBA 2025).

A second factor that has supported the supply of business credit has been strong growth in the non-bank share of business lending since 2022, especially for smaller loans to SMEs (Graph 11).¹¹ This growth has supported competition in markets where both banks and non-banks operate, such as SME lending. It has also likely made it easier for some businesses to access credit, as many non-banks specialise in segments where banks are less active or inactive, including automotive finance, unsecured SME finance and early-stage construction finance (Harvey, Lai and Spiller 2025). Non-banks are subject to fewer prudential regulatory constraints than banks because they do not take deposits and so may have greater potential or willingness to lend to riskier borrowers (Hudson, Kurian and Lewis 2023).

For example, non-banks may provide loans that are considered uneconomical for banks to provide because they are too capital intensive.

Graph 11

Non-bank Share of Credit



* Financial aggregates measure; seasonally adjusted and break-adjusted.

** Excludes loans to financial businesses. Not seasonally adjusted or break-adjusted. Business size definitions changed in April 2023 and June 2024.

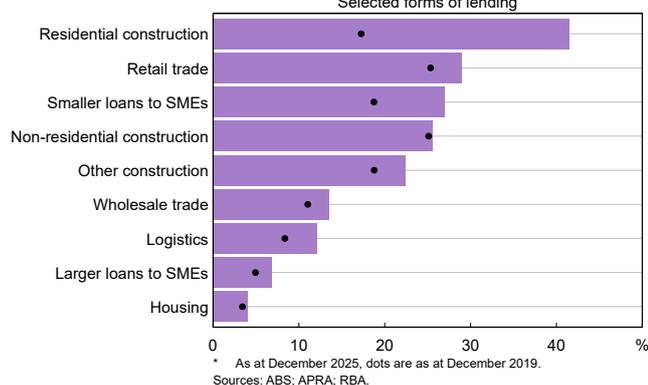
*** Excludes loans to financial businesses.

**** Includes housing, non-financial business and personal credit.

Sources: ABS; APRA; RBA.

One form of non-bank lending that has grown strongly in recent years is private credit – a form of non-bank lending that is typically facilitated by asset managers and funded by a range of investors (such as superannuation funds, insurance firms and family offices) (Chinnery *et al* 2024; Williams and Timbs 2025). Estimates of the size of the Australian private credit market vary. Alvarez and Marsal (2025) estimate the size at \$224 billion in assets under management as of late 2025, whereas the RBA estimates the size to be around \$50 billion in credit outstanding as of December 2025 (though there are notable data gaps in this estimate).¹² The Australian private credit sector is particularly concentrated in the real estate sector (Williams and Timbs 2025), so recent growth is likely to have supported construction and development activities that may have otherwise been unable to secure funding. This is reflected in an increase in the non-bank share of residential construction lending since 2019 (Graph 12). Although private credit lending is typically to larger businesses, it may also have improved access to funding for smaller companies with long-term growth opportunities.¹³ This is because private credit is a form of ‘patient capital’ that is invested with longer time horizons and is not under immediate pressure to generate returns (ASIC 2025).

Graph 12
Non-bank Share of Credit*
Selected forms of lending



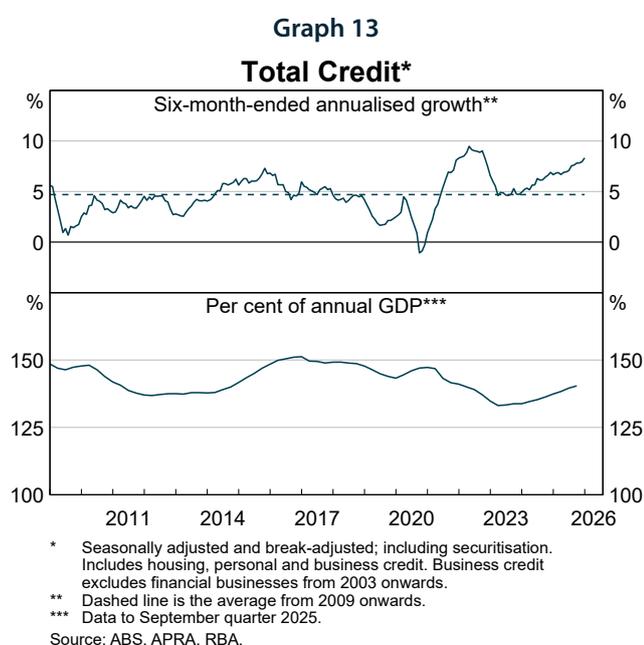
Are these trends likely to persist?

The increase in competition among lenders, including the growth of non-bank lenders in the business lending market has been driven by several factors, some of which may be persistent:

- Banks’ pivot towards expanding business lending has been partly driven by the longer term decline in mortgage margins discussed above. To the extent that this decline reflects enduring structural factors, this pivot may be a persistent trend.
- Reductions to the Australian Prudential Regulation Authority’s capital requirements for banks’ SME loans, which took effect from January 2023, reduced the cost to banks for funding SME loans.¹⁴
- The strong performance of banks’ business loan books over recent years has supported their capital positions and increased their willingness to take on risk within business lending – for example, by increasing their volumes of unsecured or less well-secured credit. While this could represent a persistent re-evaluation of risk by banks, it could also reverse if macroeconomic conditions deteriorate.
- Increased broker activity is likely to have contributed to stronger competition in market segments such as SME lending and asset finance (Banjo Loans 2025; Harvey, Lai and Spiller 2025). As in the mortgage market, this trend is unlikely to quickly unwind.
- The growth of non-bank and specialist lenders has been partly underpinned by favourable conditions in wholesale debt and securitisation markets, which have lowered non-bank lenders’ funding costs. While this partly reflects a cyclical narrowing in risk premia, it also reflects what appears to be a structural deepening in the Australian securitisation market over recent years, driven by more frequent participation from a wider range of investors (Jacobs 2024). This deepening could provide longer term support for non-banks’ ability to compete with banks.
- Some of the recent growth in private credit is likely to have been cyclical, underpinned by strong investor demand for risky assets. However, several structural factors have also contributed to the growth in private credit, suggesting it may be sustained. These factors include higher inflows into superannuation accounts, diversification of investment and superannuation portfolios towards ‘alternative’ investments, offshore fund managers seeking exposure to the Australian market, and growing wealth from family offices (Williams and Timbs 2025).

Implications for monetary policy transmission

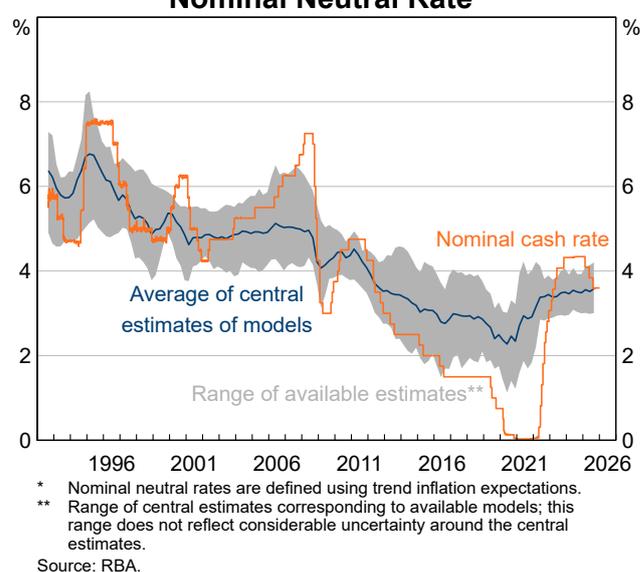
The developments discussed above have contributed to financial conditions being somewhat less restrictive than they otherwise would have been for a given level of the cash rate, relative to the pre-pandemic period. Improved credit supply has been an important factor supporting total credit, which has grown consistently faster than its post-GFC average despite the substantial increase in interest rates between May 2022 and November 2023 (Graph 13). Demand-side factors, such as growth in populations and incomes, have also supported credit growth. These developments have been considered by the Monetary Policy Board in determining the appropriate stance of monetary policy.



The developments in credit supply, to the extent they reflect persistent shifts, may also have contributed to an increase in the neutral interest rate – the real cash rate that balances savings and investment at levels consistent with full employment and stable inflation over the medium run, in the absence of shocks. Estimates of the neutral rate have increased since the pandemic, with the average of estimates from the RBA's suite of models now higher than it was over most of the decade prior to the pandemic (Graph 14). Factors that increase investment (or decrease savings) tend to increase the neutral rate. Accordingly, the increase in the neutral rate could partly reflect the recent decline in bank lending spreads in Australia and the increased

willingness of lenders to supply credit to businesses, as these are developments that appear at least somewhat structural in nature and are likely to support increased investment, all else equal. However, it is hard to be definitive on (a) changes in the neutral rate, as it is unobservable and estimated with substantial uncertainty, and (b) drivers of those changes, as Australia's neutral rate is influenced by international developments and estimates of the neutral rate in some other countries have also increased since the pandemic (Smith 2025; Morley and Wong 2025).

Graph 14
Nominal Neutral Rate*



Conclusion

Recent structural and cyclical changes in credit markets have had an important influence on monetary policy transmission. Lower bank funding costs, narrower lending spreads, and increased business credit supply have supported stronger credit growth despite higher interest rates following the 2022 tightening phase. While some drivers – such as low risk premia – are cyclical, others, including higher deposit shares, greater competition among lenders, and the rise of non-bank and private credit, could be more persistent. These developments have made financial conditions less restrictive than they otherwise would be for a given level of the cash rate. They may also have contributed to an increase in the neutral interest rate since the pandemic, although global developments may also be playing an important role.

Endnotes

- * The authors are from Domestic Markets Department. They would like to thank Patrick Manning, Sharon Lai, Paul Hutchinson, Philipp Grozinger, Jess Marnie, Hebe Williams, Duke Cole, Anirudh Suthakar, Leon Berkelmans, Indigo Adamson, Fay Bekiaris, Sean Dowling, Alice Frank, Elena Ryan, David Jacobs and Michael Thornley for providing feedback on this article or for their internal work on which this article draws.
- 1 Data and article contents are prior to the February 2026 cash rate increase.
 - 2 Although deposits are currently the lowest cost source of funding available to banks, the shift towards deposit funding following the GFC led to higher funding costs. This is because the post-GFC shift occurred alongside prudential regulation and other developments that intensified competition for deposits significantly, leading to a rise in deposit rates relative to the cash rate (Brown *et al* 2010).
 - 3 Lending by banks creates deposits as the funds made available to the borrower are deposited in the banking system, either in the borrower's account or in another account when those funds are used by the borrower. The other transactions also tend to create deposits if the government bond or wholesale debt is ultimately sourced from a non-bank investor. For more information on the creation of deposits and money, see Kent (2018).
 - 4 To meet their LCR requirements, large banks are required to hold enough high-quality liquid assets (HQLA) to meet 30 days of outflows under a stress scenario (Australian Prudential Regulation Authority 2018). Issuing a bill at a tenor longer than 30 days increases a bank's LCR because it obtains reserves (which are classified as HQLA), while its liability to repay the bill on maturity is outside the 30-day window of the LCR requirement.
 - 5 Spreads between bank bond yields and swap rates are an important benchmark for the pricing of bank bonds. Swap rates – which measure the interest rate on the fixed leg of an interest rate swap – are considered a proxy for risk-free rates at longer tenors. These spreads represent the premium paid by banks over the risk-free rate, and therefore reflect the perceived risk of the banks. A narrower spread-to-swap should, all else equal, imply a lower cost of bond issuance relative to the cash rate.
 - 6 Funding conditions for non-bank lenders have also been supported by a narrowing in spreads on residential mortgage-backed securities in recent years. Similar to the bond market, this narrowing has been supported by both cyclical factors (including the broad-based narrowing in risk premia) and structural factors supporting demand in the Australian securitisation market (such as a deeper pool of investors).
 - 7 For example, if a maturing bond held by the RBA is replaced by a newly issued government bond purchased by a non-bank.
 - 8 To date, the maturation of bonds purchased during the pandemic has not led to a notable decline in the deposit share of funding; since early 2022, over \$100 billion of the RBA's bond purchases have matured without a decline in the deposit share.
 - 9 Under the previous scarce reserves system, interest rates in money markets – such as the bank bill market – would often trade above the cash rate (or OIS) for lengthy periods. This partly reflected tight liquidity in these markets, as banks were often reluctant to lend large volumes of reserves until later in the day when they were confident of their capacity to meet their own liquidity needs (Kent 2024).
 - 10 The measure of funding costs used in this chart is different to the funding costs measure used to calculate the spread in Graph 2. The measure in Graph 4 and Graph 10 is reported directly by lenders as a product-specific 'cost of funds' and captures an internal funds transfer pricing rate (i.e. the rates charged by an institution's treasury area to supply funds to the relevant business unit) (see ACCC (2023)). By contrast, the measure in Graph 2 is an RBA estimate of major banks' total funding costs (i.e. a weighted average of total hedged debt and deposit costs). Funds transfer pricing can be influenced by a range of factors, including competition – for example, a bank could decide to set a lower transfer price for a particular business unit to encourage growth in that area. However, empirically, changes in the cost of funds measures reported by banks have tended to broadly track RBA estimates of total funding costs, with competition appearing to largely influence lending margins.
 - 11 These data likely underestimate the actual share of non-bank lending due to gaps in non-bank lending data. While most non-bank lenders (i.e. registered financial corporations) are subject to reporting requirements, data gaps exist as some lenders are not well captured by current reporting frameworks. Furthermore, data collections with more disaggregated information, such as lending by business size or by sector, capture only those lenders with a stock of business loans of \$2 billion or more. This means the non-bank share of lending is likely underestimated, particularly in sectors where smaller non-bank lenders are more active (such as SME lending).
 - 12 See Appendix A of Chinnery *et al* (2024) for a discussion of these data gaps.
 - 13 Indeed, liaison has indicated that some private credit lending is to SMEs, although most is to larger businesses (Harvey, Lai and Spiller 2025).
 - 14 These changes lowered the risk weights on loans to SMEs, reducing the amount of capital banks are required to hold against these loans. They also revised the definition of retail SMEs, which attract lower capital requirements than loans to non-retail SMEs, to include loan exposures of up to (but not including) .5 million.

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Developments in Foreign Exchange and Over-the-counter Derivatives Markets

Joel Findlay and Ronan McCarthy*



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Abstract

This article discusses recent developments in foreign exchange (FX) and over-the-counter (OTC) derivatives markets, as well as key results from the 2025 Triennial Central Bank Survey. Activity in FX markets increased significantly in April 2025, both globally and in Australia. The increase was largely driven by an increase in hedging activity and speculative trading during a period of heightened market volatility. Globally, the Australian dollar was the seventh most traded currency, down from sixth in the previous survey. Global turnover of OTC interest rate derivatives increased in the three years to April 2025, led by strong growth in overnight index swaps. Turnover in the Australian OTC interest rate derivatives market rose to become the fifth highest in the world. The size of global OTC derivatives markets also increased.

Introduction

The Bank for International Settlements (BIS) Triennial Central Bank Survey is conducted every three years and provides extensive information about the size and structure of global foreign exchange (FX) and over-the-counter (OTC) derivatives markets. The global survey involves central banks and monetary authorities from 52 jurisdictions, including the Reserve Bank of Australia, which collect data from more than 1,100 banks. This article discusses the key results from the Triennial Survey, including trends in FX turnover and market structure as well as activity in single-currency interest rate derivatives and developments in OTC derivatives markets.

FX turnover

The survey was conducted in April 2025, which was a period of heightened FX volatility amid a surge in trading activity in response to significant shifts in US trade policies. While the results may not be fully representative of ‘typical’ market activity, the data nevertheless offers a glimpse into how the FX market responds to episodes of market turbulence. Global FX turnover increased to US\$9.5 trillion per day on average in April 2025, up 27 per cent from the previous survey in April 2022 (Graph 1).¹ Turnover in the Australian FX market also saw strong growth, up 34 per cent since the previous survey in April 2022.

The increase in global turnover in April 2025 was partly driven by factors that commonly emerge during episodes when volatility rises sharply:

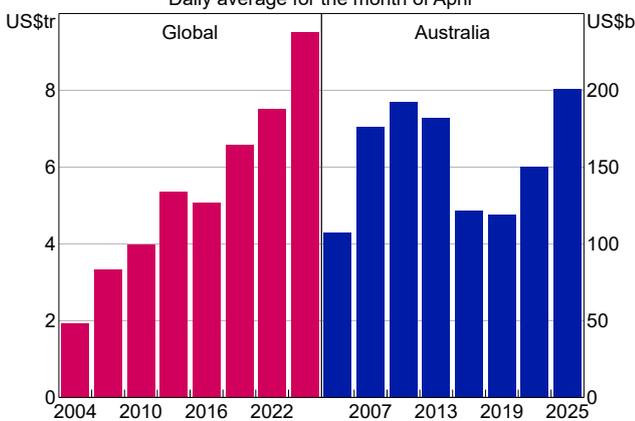
- **More trading between dealers, which tends to rise with volatility** (Drehmann and Sushko 2022). This is because market-makers trade more in the inter-dealer market to offload risk when imbalances from customer trades become more difficult to manage internally.²
- **Increased portfolio rebalancing from institutional investors and asset managers, driven by currencies trading in unusually wide ranges.**

In addition, other factors driving the increase were specific to the events of April 2025:

- **An increase in hedging activity, led in part by an ex-post rush to hedge against movements in asset and currency markets, including a depreciating US dollar.** This resulted in strong growth in outright forward transactions, which served as the preferred instrument to adjust hedges on existing exposures.
- **Heightened speculative activity that arose from intraday volatility and trading around tariff announcements.** This contributed to an increase in FX spot and currency option transactions.

The pronounced increase in turnover in April 2025 provides further evidence of the established positive relationship between FX trading activity and market volatility. However, the results demonstrate that the factors that drive turnover growth during episodes of volatility can vary depending on the source of shock.

Graph 1
Foreign Exchange Turnover
Daily average for the month of April

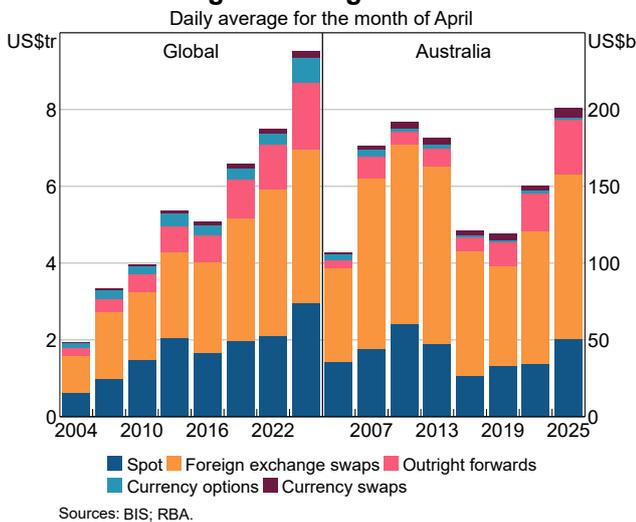


Sources: BIS; RBA.

Turnover by instrument

Global turnover increased sharply in April 2025 and growth across instruments was uneven. For instance, global turnover in spot and outright forwards contributed to most of the increase, growing by 40 per cent and 50 per cent respectively (Graph 2). By contrast, growth in FX swaps was relatively moderate, rising by about 5 per cent. Nonetheless, FX swaps remained the most traded instrument globally, accounting for 42 per cent of turnover (down from 51 per cent in 2022).

Graph 2
Foreign Exchange Turnover

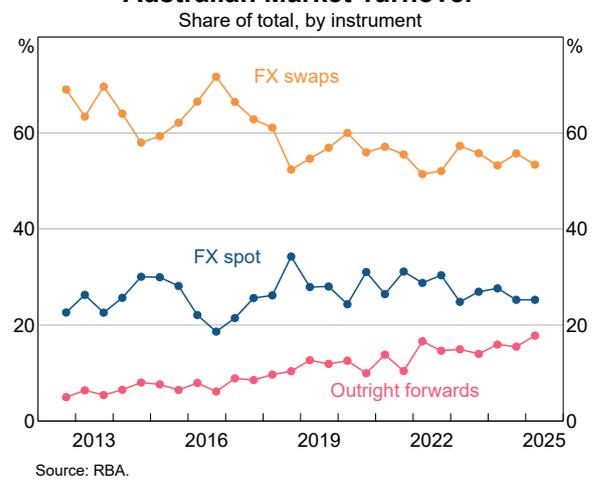


Turnover in currency options, which are mainly used to manage currency risk or speculate on price movements, more than doubled (rising by 108 per cent) amid heightened market volatility in April 2025 and its share of turnover rose to 7 per cent, from 4 per cent in 2022. By contrast, turnover in currency swaps (which differ from FX swaps and are commonly used for longer term funding across currencies) remained broadly stable at around 2 per cent of global turnover.³

While some of the increase in forwards turnover in April 2025 can be attributed to one-off factors related to market volatility, some of the increase also reflects structural growth in forwards relative to swaps, particularly in the inter-dealer segment (i.e. dealers/banks trading among themselves).⁴ This trend of relative growth in forwards over swaps since 2022 is also evident in higher frequency turnover series including semi-annual turnover surveys and monthly data from CLS (McGuire, Schimpf and von Peter 2025).

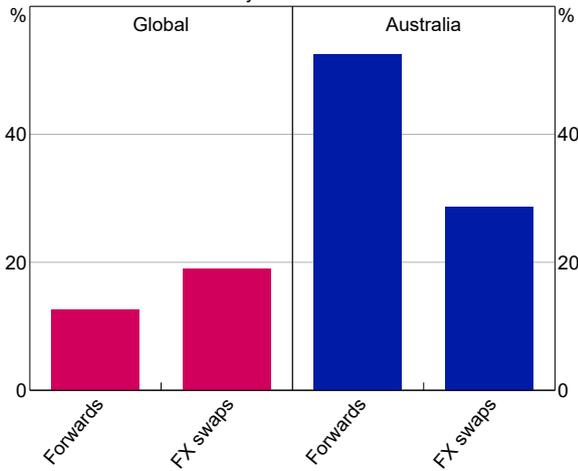
Consistent with the global results, the rise in FX turnover in the Australian market was mostly driven by increases in FX spot and forwards amid heightened volatility (growing by 48 per cent and 43 per cent respectively). FX swap turnover also rose but at a relatively slower pace of 24 per cent. Forwards turnover in the Australian market has grown strongly over the past decade, and its growth rate has outpaced that of FX swap turnover (Graph 3). While this development is similar to the global trend, the observed trend in Australia has occurred over a longer period as there are additional idiosyncratic factors at play.

Graph 3
Australian Market Turnover



One of the main factors driving the growth in forwards turnover in the Australian market over the last decade has been an increase in related-party trades (Armour and Beardsley 2023). A large portion of outright forwards turnover in the Australian market can be attributed to these types of transactions (Graph 4). Related-party trades are commonly used to transfer risk within the same institution or among affiliated firms and have risen substantially over the past decade alongside a centralisation of risk management practices of global banks.

Graph 4
Related-party Turnover
By instrument



* Data on related party trades are only available for FX swaps and forwards.

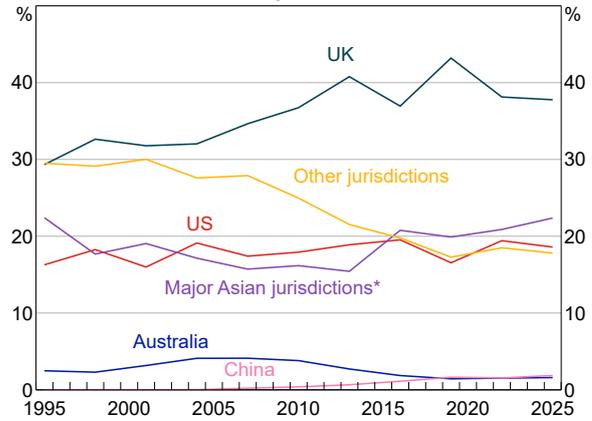
Sources: BIS; RBA.

Another factor supporting the growth in forwards relative to swaps in recent years is the expanding footprint of Australia’s superannuation sector, as super funds’ hedge books have significantly increased alongside rising offshore investments (Hauser 2025).⁵ Outright forwards are the main instrument used by super funds to hedge the currency risks on their offshore investments. Over the past decade, turnover data by counterparty segment reveals that swap activity from local non-bank financial institutions (of which super funds account for a sizeable proportion) has seen relatively modest growth, while forwards turnover has risen sharply. FX swaps are used by super funds for liquidity management purposes, and the modest growth may reflect recent evidence that the average tenor of FX swaps has lengthened.⁶

Turnover by jurisdiction

Global FX trading remained concentrated within major financial centres in April 2025. The two largest financial centres, the United Kingdom and the United States, accounted for a little under 60 per cent of global turnover (Graph 5). While the relative share of major financial centres has remained broadly stable since 2022, FX turnover in major Asian jurisdictions continued its recent growth. This was largely driven by increased activity in Singapore, which grew its share of global turnover to 11.8 per cent, from 9 per cent in 2022.

Graph 5
Geographical Distribution of Foreign Exchange Turnover
Share of global turnover



* Hong Kong, Japan and Singapore.

Sources: BIS; RBA.

China overtook Canada to become the ninth largest FX market, while Australia retained its position as the eleventh largest FX market, with each country marginally increasing their share of global turnover (Appendix A, Table A.1).

Turnover by currency

The US dollar retained its position as the most traded currency in the world, being on one side of around 90 per cent of all FX transactions globally and in Australia (Appendix A, Table A.2). This reflects its ongoing role as a vehicle for FX transactions (whereby non-US dollar currency pairs are often exchanged via the US dollar), its importance in offshore funding markets, its high usage in international trade and global payments, and its role as a reserve currency. The euro and Japanese yen, the third and fourth most traded currencies respectively, recorded similar shares of turnover compared with 2022.

The Chinese renminbi extended its trend of strong turnover growth over the last decade, increasing its share of global turnover to 8.5 per cent (from 7 per cent in 2022 and 2.2 per cent in 2013). Despite the strong growth, RMB turnover by geography was little changed since the previous survey, with over 60 per cent of turnover occurring within the major Asian jurisdictions.

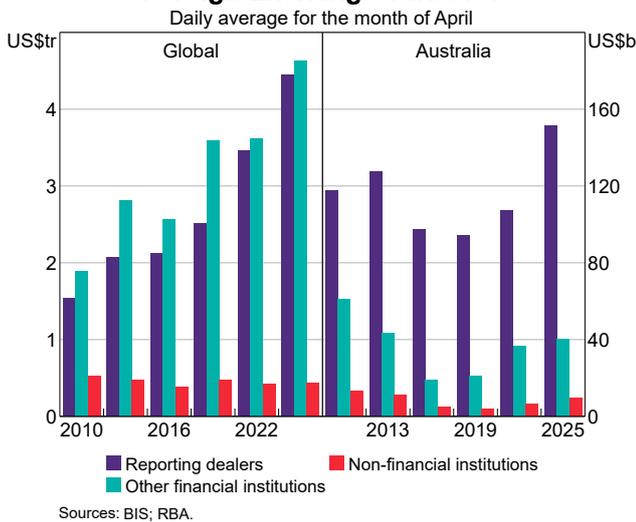
The Australian dollar was the seventh most traded currency globally, down from sixth in the previous survey, although its share of turnover remained stable around 6 per cent. The AUD/USD remained the sixth most traded currency pair globally, accounting for around 5 per cent of all transactions. By geography,

the Australian dollar continued to be traded heavily in major financial centres, with around 90 per cent of its turnover occurring outside of Australia.

Turnover by counterparty

Globally, the rise in turnover was somewhat evenly spread across the two largest counterparty segments: *reporting dealers* (dealers trading among themselves, or ‘inter-dealer trading’) and *other financial institutions* (non-reporting banks, institutional investors and hedge funds) (Graph 6). While inter-dealer trading typically rises with volatility, turnover with financial customers such as institutional investors and asset managers also exhibited strong growth in April 2025. This reflected an increase in trading activity from global investors, who may have reassessed their portfolios and FX exposures in response to tariff news that caught many market participants by surprise. Relatedly, hedge fund trading also increased (particularly in FX options), suggesting an increase in speculative activity. By contrast, activity with *non-financial customers* (such as large corporations) declined as a share of global turnover. This may suggest that trading activity from corporate customers are relatively less sensitive to market volatility than other market participants.

Graph 6
Foreign Exchange Turnover



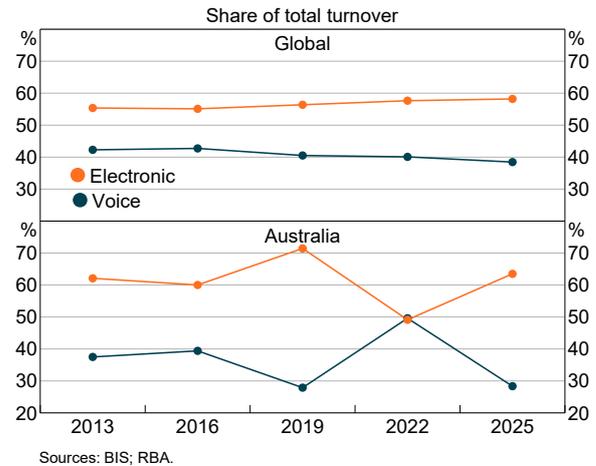
Inter-dealer trading represents a larger share of total turnover in the Australian FX market than the global market, while the share of other financial institutions is smaller. This is partly a function of the significant volume of related-party transactions in Australia, where local branches transfer risk to offshore affiliated entities as part of broader group-wide risk management frameworks.

In addition, the greater concentration of the banking sector means that there is less activity between dealers and ‘non-reporting’ banks. Nevertheless, turnover also rose with other counterparty segments in April 2025, driven by an increase in hedge fund and corporate client activity.

Turnover by execution method

Globally, the share of turnover executed electronically continued its upward trend, albeit only marginally (Graph 7). The degree of electronic trading varied across instrument types, from highly electronic spot transactions to more complex derivatives that mostly still rely on voice execution, such as cross-currency swaps and currency options. The 2025 survey also showed a slight increase in indirect forms of electronic trading, which includes primary venues such as Refinitiv and EBS, reflecting the tendency for market activity to return to primary venues during episodes of market volatility.⁷

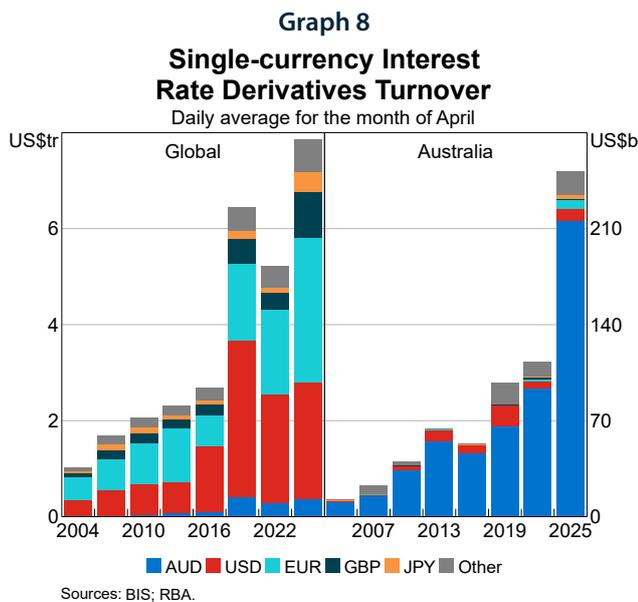
Graph 7
Execution Method –Voice vs Electronic



In the Australian market, the share of turnover executed electronically returned to levels consistent with earlier surveys, following an outlier in the previous survey. Like the global results, indirect forms of electronic trading also increased in the Australian market and accounted for about half of turnover.

Single-currency interest rate derivatives turnover

Consistent with the rise in FX turnover, global turnover in single-currency OTC interest rate derivatives (IRDs) increased sharply in April 2025, rising by around 60 per cent to US\$7.9 trillion per day (Graph 8). The increase was partly driven by a sharp rise in euro-denominated contracts, which overtook the US dollar to represent the biggest share of global turnover at 38 per cent. Relatedly, trading in US-dollar denominated forward rate agreements (FRAs) effectively vanished. This reflects the continued effects of the transition away from instruments that reference the London interbank offered rate (Libor) to those that reference ‘risk-free’ rates such as overnight indexed swaps (OIS). Indeed, OIS trades accounted for the majority of global turnover at 65 per cent.

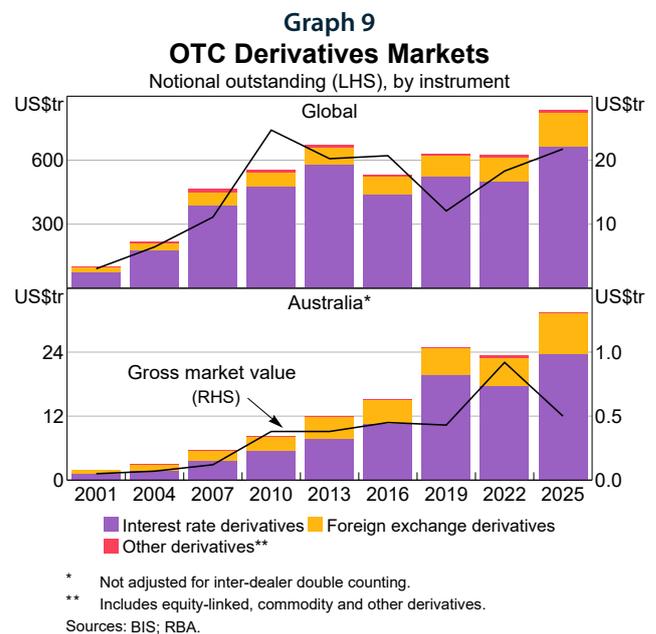


Like the global results, turnover in the Australian market rose sharply, more than doubling in the three years to April 2025. The increase was largely driven by a rise in AUD-denominated IRDs, which accounted for the majority of IRD turnover in Australia. OIS transactions accounted for around half of Australian market turnover, with the remainder of turnover being attributable to other types of interest rate swaps (e.g. basis swaps, vanilla fixed-for-floating swaps). By geography, the Australian IRD market was the fifth largest market globally in April 2025, up from seventh in April 2022.

The size of OTC derivatives markets

In addition to measuring turnover in FX markets, the Triennial Survey also provides data on aggregate outstanding contracts in OTC derivatives markets as at the end of June 2025. It provides three measures of market size: notional amounts outstanding; gross market values; and gross credit exposures.

Notional amounts outstanding reflect the principal amounts used to calculate payments made on derivatives contracts. In Australia, the notional size of the OTC derivatives market increased by around 35 per cent from June 2022 to June 2025, to be more than twice as large as it was a decade ago (Graph 9). The increase in notional amounts outstanding in the global market in 2025 was similarly large, rising by 34 per cent. In both domestic and international markets, the increase was broadly based, though the value of the increase was largest for interest rate derivatives. The increase was partially driven by market volatility in April 2025, which led to more hedging activity in the first half of 2025 (BIS 2025).

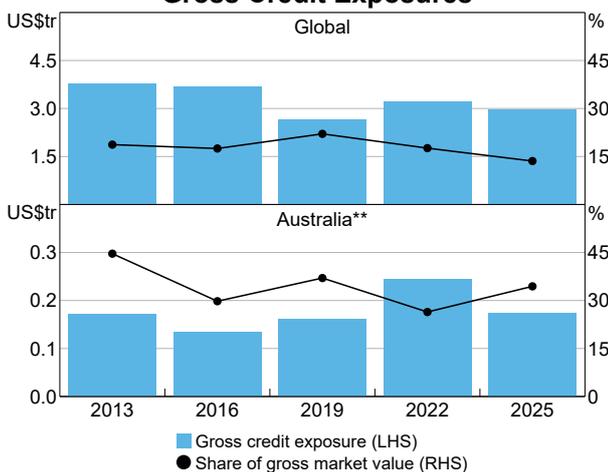


The gross market value outstanding measures the replacement values of outstanding contracts; it is measured as the sum of the absolute values of all contracts evaluated at the market price on the date of the survey. It is sensitive to changes to the value of the underlying instruments and reflects both the face value of the derivatives and changes in market prices.⁸ The global gross market value of derivatives increased by

19 per cent between 2022 and 2025, while it fell by 45 per cent in Australia over this period. The decline in gross market values in Australia largely reflected a decline in the value of interest rate swaps, which were unusually high in 2022 due to the large change in the expected path for interest rates in Australia at that time.

Gross credit exposures provide a more accurate measure of market or counterparty credit risk because they net out the value of offsetting positions held by the same counterparties from gross market values.⁹ Globally, gross credit exposure fell in both absolute terms and as a proportion of gross market value over the three years to June 2025 (Graph 10). By contrast, in Australia, gross credit exposure fell in absolute terms but rose as a share of gross market value.

Graph 10
Gross Credit Exposures*



* Gross credit exposure is defined as the sum of positive and negative replacement costs of OTC contracts outstanding after taking into account legally enforceable bilateral netting arrangements.
** Not adjusted for inter-dealer double counting.
Sources: BIS; RBA.

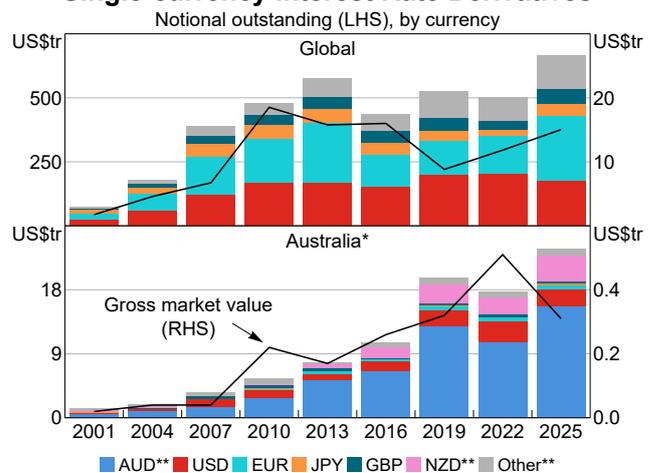
Gross credit exposures as a proportion of gross market value in Australia is more than double the global average. This likely reflects structural differences in the use of derivatives. In Australia, derivatives activity is heavily oriented toward hedging, particularly use of interest rate and FX derivatives by financial institutions and superannuation funds (Cole and Ji 2018). Conversely, dealer intermediation and client-driven trading, which typically results in more offsetting positions, are more significant in other financial centres (Avdjiev, McGuire and von Peter 2025). These differences in usage imply that a smaller share of derivative positions are netted out in Australia than in other markets, resulting in a higher gross credit exposure as a proportion of gross market value. Australia’s higher gross credit exposure in relative

terms may also reflect lower use of trade compression, a practice that reduces the size of derivative positions (and hence market values) while keeping exposure unchanged (Ahn, Matic and Vallence 2012; RBA 2016).

Single-currency interest rate OTC derivatives

The notional value of single-currency interest rate derivatives (primarily interest rate swaps) increased by around one-third over the three years to June 2025, both globally and in Australia (Graph 11). The rise in notional amounts outstanding in Australia was driven by strong growth in Australian dollar-denominated contracts. These contracts accounted for around 66 per cent of outstanding interest rate derivatives in Australia in 2025, reversing the decline observed in the 2022 survey. The notional value of New Zealand dollar-denominated contracts also rose, overtaking the US dollar to be the second most common currency denomination for interest rate derivatives in Australia.

Graph 11
Single-currency Interest Rate Derivatives

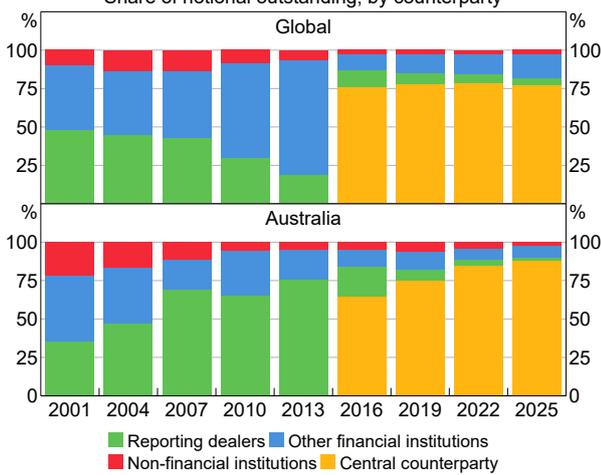


* Not adjusted for inter-dealer double counting.
** 'Other' includes AUD and NZD in the 'Global' panel.
Sources: BIS; RBA.

In Australia, gross market value relative to notional outstanding is notably lower than the global average (1.3 per cent versus 2.3 per cent in 2025). This partly reflects higher use of short-tenor derivatives in Australia, which have lower duration and therefore generate less mark-to-market value per dollar of notional outstanding. Short maturities also mean the effects of interest rate movements unwind more quickly, likely contributing to the decline in the gross market value in Australia in 2025, in contrast to the increase observed globally.

Central counterparties (CCPs) have been the most common counterparty to reporting dealers for transactions of single-currency interest rate derivatives since their separate identification in 2016 (Graph 12). Globally, the use of CCPs remained relatively stable between 2022 and 2025 at around 77 per cent of the notional value of interest rate derivatives. The use of CCPs in Australia increased slightly over this period, accounting for 88 per cent of the notional value of interest rate derivatives in 2025. The predominance of CCPs limits the insight provided by the counterparty breakdown, as the ultimate economic counterparty is not observed for centrally cleared trades. Higher use of CCPs facilitates greater netting of offsetting derivative exposures, though, as discussed above, the overall level of netting in Australia is lower than in other markets due to structural differences in the use of derivatives.

Graph 12
Single-currency Interest Rate Derivatives
Share of notional outstanding, by counterparty



Sources: BIS; RBA.

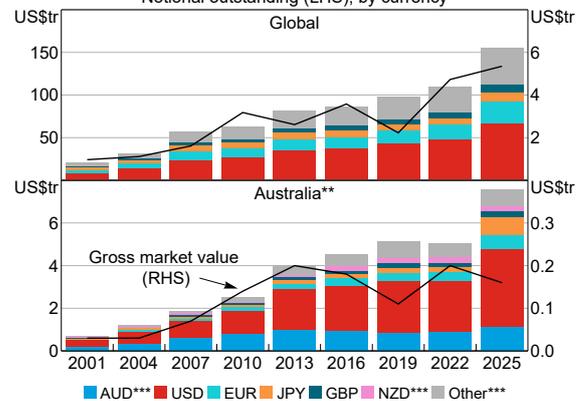
FX OTC derivatives

Notional amounts of FX derivatives outstanding rose sharply in 2025, stemming from a sharp increase in hedging activity, portfolio rebalancing and speculative activity that occurred following market volatility in April 2025 (Graph 13). In Australia, the increase in notional outstandings was driven by US dollar-denominated derivatives, which increased by around 55 per cent between 2022 and 2025. Over the same period, Japanese yen-denominated derivatives more than doubled, likely reflecting heightened yen volatility and increased speculation about the path of monetary policy as the Bank of Japan transitions away from its

zero-interest-rate regime (BIS 2024). Globally, the increase in notional outstandings was broadly based across currencies.

Gross market values diverged between 2022 and 2025, falling in Australia and rising globally (Graph 13). The market value of an FX derivative depends on how the underlying exchange rate has changed since the contract was initiated. In Australia, most outstanding FX derivatives are denominated in US dollars, and the majority have a remaining maturity of less than one year. As a result, the gross market value of Australian FX derivatives is particularly sensitive to recent changes in the AUD/USD exchange rate. The depreciation of the Australian dollar in 2022 contributed to the elevated gross market value at that time. Although the AUD/USD exchange rate was volatile in early 2025, by the June 2025 survey the AUD had appreciated only modestly relative to the start of that year, contributing to the lower market value relative to 2022. By contrast, some other currencies such as the Euro and Japanese Yen appreciated more markedly against the US dollar over this period, contributing to an increase in market values in other jurisdictions.

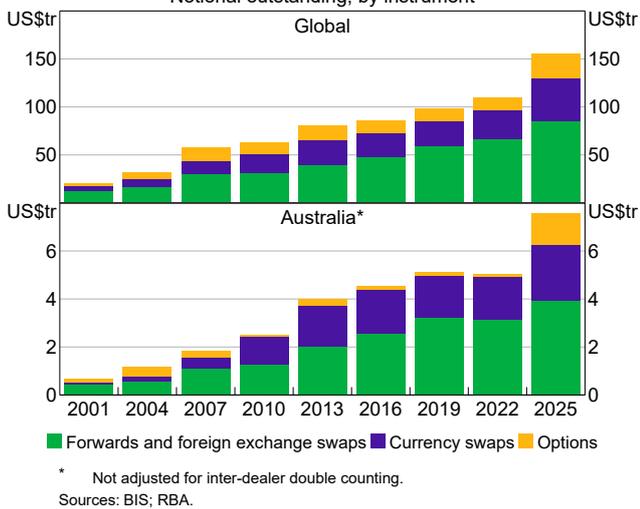
Graph 13
Foreign Exchange Derivatives*
Notional outstanding (LHS), by currency



* The sum of each contract leg is divided by two.
** Not adjusted for inter-dealer double counting.
*** 'Other' includes AUD and NZD in the 'Global' panel.
Sources: BIS; RBA.

Outright forwards and swaps continued to account for the majority of outstanding FX derivative instruments in 2025, but the use of options increased sharply (Graph 14). In Australia, options accounted for around 17 per cent of FX derivative notional outstandings in 2025, compared with just 2 per cent in 2022. The increase was overwhelmingly due to instruments denominated in US dollars and Japanese yen, consistent with the broader rise in FX derivatives activity. Globally, notional outstandings for options nearly doubled between 2022 and 2025, representing around 16 per cent of FX derivative notional outstandings in 2025. The use of forwards, other FX instruments, and currency swaps also increased significantly in 2025, both in Australia and globally.

Graph 14
Foreign Exchange Derivatives
Notional outstanding, by instrument



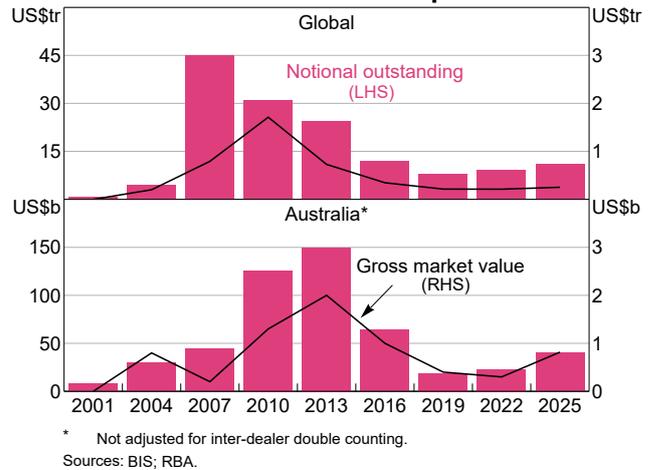
Credit default swaps

The notional amount of credit default swaps (CDS) outstanding increased both globally and in Australia between 2022 and 2025, although remains well below its prior peak (Graph 15). Most outstanding CDS contracts remain multi-name instruments (referencing multiple entities) rather than single-name contracts, both for Australian and international reporting dealers. In Australia, CDS activity is largely concentrated in one- to five-year tenors, and most contracts reference A-rated or BBB-rated entities.

Commodity derivatives

The notional amount of commodity derivatives outstanding declined substantially between 2022 and 2025, both in Australia and globally. The decline in

Graph 15
Credit Default Swaps



Australia was more pronounced, reflecting the outsized increase in 2022 as higher commodity prices increased the value of mining assets to be hedged. Globally, the gross market value of commodity derivatives also fell between 2022 and 2025, which, in addition to the lower notional value, likely reflects the lower volatility in commodity prices in 2025. However, an increase in the price of gold over the first half of 2025 did drive an increase in the market value of gold derivatives.

Conclusion

Turnover in global FX markets increased notably in April 2025, driven by an increase in hedging activity, portfolio rebalancing, and speculative trading amid market volatility. This resulted in uneven growth across instruments, with the sharpest increases occurring in FX spot, forwards and options transactions. Turnover in the Australian FX market picked up in line with the global increase, and the Australian market remained the eleventh largest in the world. The Australian dollar was the seventh most traded currency globally, down from sixth in 2022, although its share of global turnover remained stable around 6 per cent.

The size of global OTC derivatives markets – as measured by notional amounts outstanding – increased over the three years to June 2025 and was driven in part by the increase in hedging activity following market volatility in early 2025. Similarly, the notional amounts outstanding also rose significantly for Australian reporting dealers, with a broad-based increase across derivative types.

Appendix A: Foreign exchange turnover data

Table A.1: Global Foreign Exchange Turnover by Jurisdiction^(a)

	Daily average	Change over	Share of total turnover	
	April 2025 US\$ billion	2022–2025 Per cent	April 2022 Per cent	April 2025 Per cent
Total^(b)	12,557	27.5	n/a	n/a
United Kingdom	4,743	26	38.1	37.8
United States	2,335	22	19.4	18.6
Singapore	1,485	60	9.4	11.8
Hong Kong	883	27	7.1	7.0
Japan	440	2	4.4	3.5
Germany	386	110	1.9	3.1
Switzerland	370	6	3.6	3.0
France	242	13	2.2	1.9
China	235	54	1.6	1.9
Canada	233	36	2	2
Australia	201	34	1.5	1.6
Other jurisdictions	1,003	11	9.2	8.0

(a) Jurisdiction subtotals are not adjusted for cross-border double counting; subtotals may not sum to total due to double counting.

(b) Numbers in this table are reported on a 'net-gross' basis. As a result, the total differs to the global figures reported above on a 'net-net' basis.

Sources: BIS; RBA.

Table A.2: Foreign Exchange Turnover by Currency^(a)

	Global		Australia	
	Daily average	Share of total	Daily average	Share of total
	US\$ billion	Per cent	US\$ billion	Per cent
Total	9,510	n/a	201	n/a
Currency^(b)				
USD	8,471	89.1	181	89.9
EUR	2,714	28.5	36	17.9
JPY	1,608	16.9	28	14.0
GBP	967	10.2	17	8.6
RMB ^(c)	817	8.6	3	1.7
CHF	601	6.3	5	2.5
AUD	582	6.1	94	46.6
Other currencies	3,260	34.3	38	18.7
Currency pair				
USD/EUR	1,970	20.7	26	12.9
USD/JPY	1,370	14.4	23	11.6
USD/GBP	715	7.5	14	6.7
USD/RMB	781	8.2	3	1.6
USD/CAD	492	5.2	4	1.9
USD/AUD	467	4.9	83	41.2
Other currency pairs	3,714	39.1	48	24.0

(a) Subtotals may not sum to total due to rounding.

(b) The sum of currency subtotals is divided by two as each transaction involves two currencies.

(c) Includes onshore (CNY) and offshore (CNH) turnover.

Sources: BIS; RBA.

Endnotes

- * The authors are from Financial Markets Group. They would like to thank Jason Griffin, Marcus Miller and Iris Chan for their helpful feedback.
- 1 McGuire, Schimpf and von Peter (2025) estimate that roughly \$1.5 trillion (or around 16 per cent) of FX turnover in April 2025 can be attributed to the heightened volatility, compared with a counterfactual based on higher frequency but less comprehensive data.
 - 2 Nevertheless, the increase in turnover occurred more broadly across counterparty types than in previous episodes of volatility such as April 2022.
 - 3 Cross-currency swaps differ from FX swaps as they involve swapping interest payment streams (that are often variable) in addition to the exchange of principal.
 - 4 Outright forwards and FX swaps are somewhat substitutable in that both can be used to hedge currency risk; however, each instrument also serves slightly different functions. For instance, FX swaps are comprised of both a near-date and far-date transaction and are commonly used to meet short-term funding and liquidity needs.
 - 5 APRA data suggests that super fund offshore assets increased by around 60 per cent between June quarter 2022 and June quarter 2025.
 - 6 For more information, see NAB (2025). Lengthening the average tenor would mechanically reduce total FX swap turnover, as these FX swaps would be rolled less frequently.
 - 7 'Indirect electronic trading' refers to FX execution via an electronic medium, intermediated by either an anonymous or disclosed third party platform (e.g. via a matching system). This contrasts with direct methods – such as single-dealer platforms – where counterparties are known and not intermediated by a third party.
 - 8 For example, if a counterparty enters an interest rate swap agreement where they pay a fixed rate and receive a floating rate, a decline in the underlying reference rate would reduce the floating rate payments they receive, causing the swap to take on a negative market value. This would contribute to an increase in gross market value outstanding, when measured across counterparties.
 - 9 Derivative positions are economically offsetting if their values or associated cash flows move in opposite directions for a given change in the underlying series that the derivatives reference. Bank dealers enter derivative positions as part of their normal operations, which, at an institutional level, may offset each other. Offsetting positions can also help manage risk. These derivative contracts are often subject to bilateral netting arrangements, which allow two parties to settle their mutual obligations on a net basis, thereby avoiding gross payments that would otherwise cancel each other out. Measures that do not account for offsetting positions, such as notional amounts outstanding and gross market values, may therefore overstate the amount of underlying risk associated with these derivatives since actual payments are made on a smaller net position. However, the increased adoption of central clearing and trade compression (consolidating offsetting trades) in recent years means that notional amounts outstanding and gross market values likely provide a clearer indication of risk than they did in the past.

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