

Bulletin

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RESERVE BANK OF AUSTRALIA

Contents

1. What Can You Do With Your Damaged Banknotes?	1
2. Recent Trends in Banknote Counterfeiting	13
3. Job Mobility in Australia during the COVID-19 Pandemic	24
4. First Nations Businesses: Progress, Challenges and Opportunities	35
5. Household Liquidity Buffers and Financial Stress	41
6. An International Perspective on Monetary Policy Implementation Systems	50
7. Bank Fees in Australia	58
8. Fallbacks for BBSW Securities	66
Copyright and Disclaimer Notices	72

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What Can You Do With Your Damaged Banknotes?

Amanda Burton and Henry Winata^[*]



Photo: Reserve Bank of Australia

Abstract

Through the Reserve Bank's damaged banknote claims service, members of the public can ask for their damaged banknotes to be assessed and the value redeemed. Removing poor-quality banknotes also supports the Bank's aim of ensuring that the public has confidence in Australian banknotes as a means of payment and a secure store of wealth. This article provides an overview of the service, its key users and the circumstances in which claims are lodged. While the value of the majority of claims is relatively low, claims containing banknotes damaged in storage can be significant, reflecting the role of cash as a secure store of wealth.

Introduction

The Reserve Bank aims to have only good-quality banknotes in circulation. High-quality banknotes make it more difficult for counterfeits to be passed or remain in circulation, and help to minimise problems in banknote accepting or dispensing equipment. However, due to mishaps and natural disasters, banknotes can become damaged beyond normal wear and tear, making them unsuitable for transactions or as a store of wealth. Damaged banknotes include those with significant pieces missing, with excessive damage from heat or other environmental factors, or that have become contaminated.

When presented with such banknotes, authorised deposit-taking institutions (ADIs) may be unable to reimburse holders with the full value. This may be due to uncertainty of their value, or health and safety concerns with the handling of the banknotes.

For many years, the Reserve Bank has offered a free claims service to eligible holders of damaged Australian banknotes to 'redeem', or be reimbursed, their value.^[1] By removing damaged banknotes from circulation, the service also supports the Bank's objective of maintaining good-quality circulating banknotes.^[2] Claims for damaged banknotes can be lodged through ADIs, which will forward them to the Bank. Once received, the Bank assesses the

damaged banknotes in accordance with its Damaged Banknotes Policy. More information about the Policy and how to redeem value for damaged banknotes can be found on the Reserve Bank’s website.^[3]

Recent trends in claims

Between 2014 and 2021, the Reserve Bank processed around 110,000 damaged banknote claims and made \$44 million in payments – an average of around 14,000 claims worth \$5.5 million each year (Graph 1). During the COVID-19 pandemic, the number of claims processed fell significantly, to an average of around 10,000 claims per year in 2020 and 2021. The reduction in the number of claims in 2020 likely reflects the pandemic-related lockdowns that restricted people’s movements and their ability to transact with cash. The significant increase in the *value* of claims paid in 2021 can be attributed to two high-value bank claims: one through a foreign exchange bureau;^[4] and the other from a fire-affected branch.

Who uses the claims service?

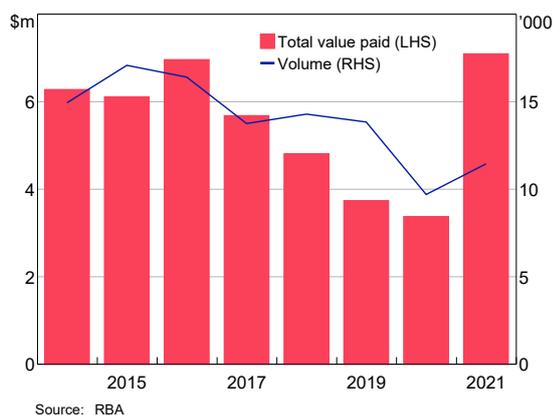
The claims service is accessed by a set of diverse users, including individuals, businesses, government organisations and professional cash handlers (e.g. ADIs, cash-in-transit companies (CITs) and operators of automated teller machines (ATMs)). Government organisations include the police who, during the course of performing their duties, can come into possession of damaged banknotes or cause banknotes to be damaged (e.g. by forensic analysis).

ADIs, CITs, major businesses and the police tend to make a higher number of claims as they encounter damaged banknotes more frequently than individuals, who tend to only make one-off claims.

Between 2014 and 2021, claims from individuals constituted around two-thirds of the total number of claims, but only 25 per cent by value (Table 1). This reflects that most claims from individuals typically consist of single banknotes. By contrast, claims by ADIs and CITs combined constituted 15–20 per cent of the total number each year, but around 60 per cent by value. CITs tend to batch together the damaged banknotes identified during processing of customer deposits, prior to submitting a claim to the Reserve Bank. A mishap, such as a flooding event, affecting an ADI or CIT site can also involve a significantly larger volume of damaged banknotes. Although police claims were relatively infrequent, a few made between 2014 and 2021 were of high value.

The vast majority of claims processed were from claimants based in Australia. However, between 2014 and 2021, the Reserve Bank paid around 80 claims from claimants in approximately 30 foreign countries, worth \$422,000, excluding one unusually large claim via a foreign exchange bureau. Overseas claims are typically lodged by individuals holding Australian banknotes from previous travel, banks/foreign exchange bureaus, and government organisations operating in countries where Australian banknotes are used for day-to-day transactions.^[5]

Graph 1
Claims Settled



Types of damage to banknotes

The circumstances under which claims for damaged banknotes arose during this period were diverse. For the purpose of this article, we have used four broad damage classifications: ‘torn or ripped’; ‘heat’; ‘environment’; and ‘contamination’. These four classifications constituted the vast majority of claims received (Graph 2).

Torn or ripped banknotes

Torn or ripped banknotes are ‘incomplete’ banknotes that have significant pieces missing (Figure 1). Generally, payment for an incomplete banknote is proportional to the part of the

Table 1: Claims by User
2014–2021

Category	Number of claims		Value	
	('000)	Per cent of total	(\$ million)	Per cent of total
Individuals	72.5	65	11.1	25
Businesses & other	18.5	17	3.4	8
ADIs ^(a)	12.6	11	11.0	25
CITs	7.1	6	16.2	37
Police	0.7	1	2.3	5
Total	111.5^(b)	100	44.1^(b)	100

(a) Includes overseas financial institutions.

(b) Totals may differ from sub-totals due to rounding.

Source: RBA

banknote remaining.^[6] In this way, the combined value paid for all the pieces, were they to be presented, would be the face value of the original banknote. When lodging a claim for incomplete banknotes, the claimant should include as many of the remaining banknote pieces as possible to ensure that the largest value can be paid.

Between 2014 and 2021, claims for torn or ripped banknotes constituted over one-half of claims received and one-fifth by value. The most common claim scenario was where a claimant had accidentally torn their banknote, and lost a part of it. Claimants may also have inadvertently come into possession of torn or ripped banknotes during a transaction with cash, such as when receiving change. The mix of claims for torn or ripped banknotes differed from the mix for damaged

banknotes overall – CITs accounted for a higher share of the value of claims, and businesses and ADIs a lower share. The breakdown of the claims made during this period is as follows:

- Claims from individuals constituted almost two-thirds of all claims for torn or ripped banknotes received (Graph 3). However, these accounted for only a small proportion of the *value* of claims as most were for a single banknote.
- Submissions from businesses and ADIs accounted for around 30 per cent of all claims for torn or ripped banknotes, but each accounted for 5 per cent or less by value.
- There were relatively few torn or ripped claims submitted by CITs. However, these represented the majority of the value of payments for this damage category as CITs typically batch their torn or ripped banknotes and lodge them as a higher-value claim.

Graph 2

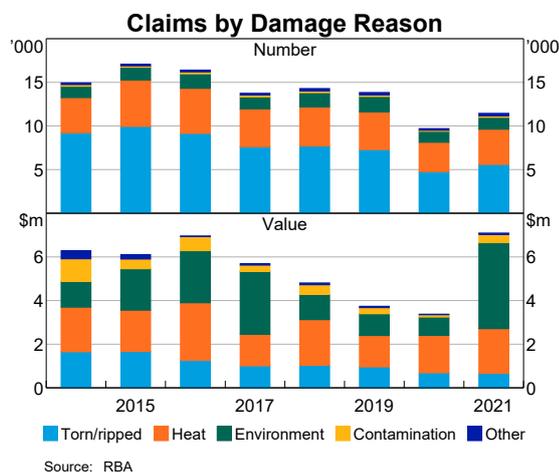


Figure 1: Incomplete Banknote



Heat-damaged banknotes

Heat-related claims are relatively common, typically accounting for over 30 per cent of claims by both number of submissions and value. Banknotes may shrink, burn or melt, due to heat from appliances, building fires, bushfires and other heat sources (Figure 2). In cases where the banknotes have become severely damaged, the Reserve Bank’s ability to accurately assess the claim will be improved if the claimant has collected as much banknote debris as possible – including the container they were stored in if it is unable to be separated without loss of banknote material.

Between 2014 and 2021, the majority of heat-related claims were from individuals, representing around half of the value of payments for this damage category – and accounting for one-fifth of the total value of all payments made.

The bulk of heat-related claims were typically due to damage by household appliances. The following are some examples:

- It was common for claimants to report that they accidentally burnt their banknotes in kitchen/ electrical appliances (e.g. oven, toaster, light fittings) where they were intended to be temporarily stored or hidden.
- There were instances where banknotes were accidentally damaged while the individual

performed an activity, such as leaving banknotes in clothing that was then placed in the dryer or ironed, attempting to dry wet banknotes or placing them too near to a heat source.

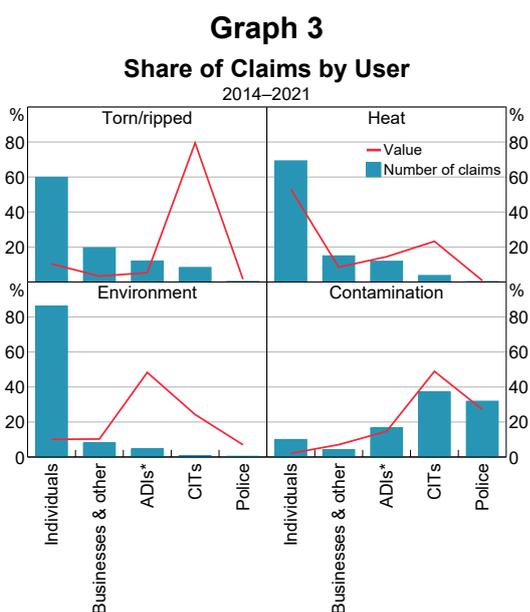
- After the onset of the COVID-19 pandemic in 2020, several claimants indicated that they had used heat – including microwaving, boiling or using a hair dryer – in an attempt to sanitise the banknotes as a precaution, but damaged them in the process.

Heat damage can also occur to banknotes held in storage; such claims tend to be higher in value. Between 2014 and 2021, there was an average of around 50 house fire claims per year, representing 1 per cent of the number of heat-related claims, but accounting for around 15 per cent by value. There were also around four bushfire claims each year, though this number increased significantly during major bushfire events, as was experienced following the 2019–2020 bushfires (see below).

The motives for lodgement of claims by businesses are similar to those of individuals. Businesses may unwittingly receive heat-affected banknotes from customers during transactions, or accidentally damage their banknotes via heat from appliances (which is common for a restaurant business) or as a result of a building fire. There have also been a few instances of fires affecting ATMs, in which banknotes have fused to internal components of the ATM. While lodgements by CITs between 2014 and 2021 accounted for less than 5 per cent of all heat-related claims, by value they accounted for around one-quarter of payments made; as with torn or ripped banknotes, CITs will typically batch together the damaged banknotes before making a claim.

Australian 2019–2020 bushfire claims

There was a large increase in the number and value of bushfire claims received by the Reserve Bank as a result of the 2019–2020 bushfires in Australia; as at the end of 2021, a total of 57 claims valued at around \$475,000 had been received and settled. Of those claims:



* Includes overseas financial institutions.
Source: RBA

Figure 2: Heat-damaged Banknotes

(a) Burnt banknotes examined at the laboratory



(b) Banknotes shrunk by heat



(c) Comparison of a shrunk NGB \$50 banknote to its original size



(d) Boiled banknotes

- 49 claims were from New South Wales, four from Queensland, two from Victoria, and two from South Australia
- 53 claims worth around \$440,000 were lodged by individuals (mainly banknotes burnt while stored at home), one low-value claim was lodged by a small business, and three claims were lodged by banks (received as deposits)
- an equivalent of 7,300 banknotes were assessed, with 90 per cent of the claims for \$50 and \$100 banknotes, reflecting the role of high-denomination banknotes as a store of value
- payments ranged from small amounts to around \$70,000, with a median value of \$4,500.

The extent of damage to the banknotes varied from claim to claim, depending on how the banknotes were stored at the time of the bushfires (Figure 3). Banknotes stored in a fireproof safe sustained some degree of shrinkage and minor burns. In situations

where the banknotes were not stored in a fireproof safe, the banknotes had either melted, fused or burnt. Despite the extent of damage of these banknotes, the Reserve Bank was still able to use various techniques to assess their underlying value from the debris that was submitted.

Environmental factors

Banknotes can be damaged due to exposure to certain environmental factors, including the elements (such as the sun, dirt or water), animals (e.g. eaten by animals or insects) or harsh storage conditions (Figure 4). Environment-related claims also include banknotes affected by floods or other natural disasters that do not arise from heat. If the banknotes are showing signs of disintegration, claimants are advised to handle them with care and to package them carefully to prevent further damage or loss of banknote material. Banknotes that are affected by flood water must be sealed in

Figure 3: Banknotes Damaged in the 2019–2020 Bushfires



(a) Shrunken banknotes



(b) Shrivelled banknotes, with burnt edges



(c) Molten banknotes



(d) Molten banknotes

packaging and clearly labelled as such so that any potential health and safety concerns can be appropriately managed.

Between 2014 and 2021, environment-related claims accounted for around 10 per cent of total submissions, but a significantly larger share by value. While most environment-related claims are made by individuals, these represent only a small share of the value of claims in this damage category. Some examples of environment-related claims by individuals received over the period are provided below:

- A few high-value claims were for banknotes that were stored at home, usually over an extended period. One common category was deceased estate claims for banknotes found on properties. These claims often consisted of old paper series banknotes that had disintegrated from

excessive exposure to water or become soiled from being buried.

- The circumstances under which low-value claims were made were diverse; however, a number of claims arose from polymer banknotes that had been accidentally left in the sun (and forgotten for an extended period), making them brittle when handled.
- While uncommon, some claims involved banknotes that exhibited extensive ink wear due to constant friction and perspiration from being stored in the claimant's shoes.

By volume, total submissions by ADIs and CITs accounted for around 5 per cent of all environment-related claims, but represented around 75 per cent of the value paid.

Figure 4: Banknotes Damaged by Environment



(a) Paper decimal series banknotes that disintegrated from moisture



(b) Banknote that faded after being left in the sun for an extended period



(c) Mouldy banknotes



(d) Banknotes damaged by ants while in storage

In those years where major floods occur, claims by ADIs, CITs and businesses involving flood-affected banknotes can account for a significant proportion of claims by value, across all user and damage categories.^[7] In the aftermath of Cyclone Debbie in early 2017, several high-value claims were lodged by ADIs, CITs and major retailers (see below). Assessment of claims from the 2022 Queensland and New South Wales floods are still in progress; as at 3 June 2022, payments totalling \$6.9 million have been made for over 70 claims.

Water damage caused by events other than natural floods (e.g. leaks or moist storage conditions) can also result in high-value submissions by CITs and ADIs. In 2021, a bank branch fire resulted in a claim for banknotes that were wet from an automatic sprinkler system.

By value, the majority of claims for banknotes damaged by animals since 2014 have been related to mice infestations on sites where ATMs were located. Following the mice plagues covering parts of eastern Australia in early 2021, two high-value claims for banknotes damaged by mice in ATMs were lodged. There were also cases of individuals' banknotes being damaged by mice and other rodents, although their values were much lower.

Environment-related claims from the police are rare; however, when they do occur, they can be significant in value. Over 2014–2021, these claims were typically for banknotes that were seized or reported to the police following their discovery in a buried state.

Figure 5: Banknotes Affected by Floods

(a) Mould-affected banknotes in an ATM canister presented as a claim



(b) Banknotes being dried prior to assessment

Claims from Cyclone Debbie in 2017

In March 2017, a number of towns in New South Wales and Queensland were affected by floods caused by Cyclone Debbie. In the aftermath, the Reserve Bank received 32 flood claims and made a total of \$3.3 million in payments. Payments on flood claims represented around half of the total value of claims processed in the 2017/18 financial year.

ADIs accounted for over half of the claims received. The remainder were by CITs, retail outlets and businesses that operate ATMs.

Around 92,000 banknotes were processed, mostly of the \$50 and \$20 denominations (which accounted for 55 per cent and 25 per cent of the banknotes, respectively), reflecting the key denominations used in ATMs.

Banknotes from flood claims are typically wet and sticky, requiring multiple counting iterations to ensure accurate assessment. To assist with the process, banknotes can be placed in a drying cabinet by Reserve Bank staff prior to assessment (Figure 5).

Contaminated banknotes

Contamination can occur when banknotes come into contact with bodily fluids (e.g. blood), chemicals and stains (Figure 6). As a general rule, all banknotes identified as contaminated are forwarded to the Reserve Bank's laboratory where they can be safely handled. For such claims, claimants are required to properly seal their

banknotes and state the nature of the contaminant to assist management of any potential health and safety issues.

Between 2014 and 2021, contamination claims constituted 1 per cent of all claims by number and 8 per cent by value. The extent of claim lodgements for contaminated banknotes differed across user categories, as follows:

- Claims for contaminated banknotes were relatively infrequent among individuals and businesses, and usually involved cleaning agents, chemical spills or stains (e.g. from hair dye, pens) where the chemicals had removed or defaced the designs on the banknote.
- Submissions from CITs accounted for over one-third of contamination claims, and around one-half of the value paid. These claims often involved banknotes contaminated with unknown substances, as they were sourced from the CITs' commercial customers and lodged as contamination claims as a precaution.
- Claims containing banknotes stained by an anti-theft device can be lodged by banks, CITs and operators of ATMs. This can be the result of a robbery attempt, an accidental trigger of the device or testing of new equipment.^[8] Over this period, the value of such claims was typically small for banknotes stained in a till, but larger for a safe or an ATM.

Figure 6: Contaminated Banknotes

(a) Banknotes affected by commercial cleaning agents



(b) Banknotes after exposure to bleach



(c) Banknote stained by an anti-theft device



(d) Banknotes after police forensic analysis

- Police claims accounted for a significant share of all contamination claims received, both by number of submissions and value. The banknotes had typically been subject to chemicals used in forensic analysis, exposed to illicit substances or removed from a deceased person. Around 60 contamination police claims were received a year, with each claim worth an average of around \$2,000.

Assessment value

Between 2014 and 2021, around 75 per cent of claims assessed consisted of a single banknote. This resulted in a relatively low median value of payments of \$25 over the full period, and around \$30 in more recent years. Around 80 per cent of claims paid between 2014 and 2021 were valued at \$50 or less. Torn or ripped banknote claims were

typically low value (Graph 4), with a median value of \$15. Heat and environment-related claims had a higher median of \$50 each, while contamination claims had a median of \$120. Despite relatively small median claim values, a small number of high-value claims – less than 4 per cent – accounted for a significant portion of all payments by value. Claims assessed at between \$1,000 and \$10,000 accounted for 25 per cent of the value of all payments, while claims over \$10,000 accounted for 60 per cent of the total value of payments.

Conclusion

For many years the Reserve Bank has operated a damaged banknote claims service. This enables holders of damaged banknotes to redeem value provided their claims meet the Bank's criteria for payment. In particular, the claims service is available

to people or organisations that have accidentally damaged their banknotes or inadvertently come into possession of damaged banknotes. In providing the service, the Bank undertakes due diligence to ensure only eligible claims are reimbursed – this reduces the risk that the service could be used for criminal purposes.

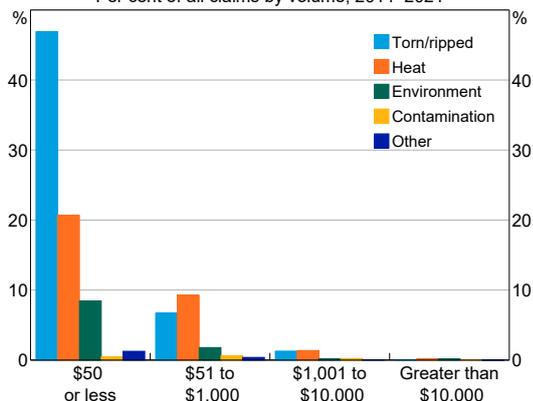
The median value of claims is typically low, at around \$30. Most frequently, the service is used to remove torn or ripped banknotes held by individuals, which are often claims for single banknotes. However, where banknotes have been damaged in storage, their value can be large, reflecting the use of banknotes as a store of value. Natural disasters are a source of damage to banknotes, and lead to an influx of claims for reimbursement; claims related to bushfires most typically come from individuals, while businesses (and particularly financial institutions) tend to lodge a higher value of claims related to floods.

As well as providing reimbursement, the Reserve Bank offers the service as a means to remove poor-quality banknotes from circulation. This is an important aim of the Bank as good-quality banknotes help to maintain the confidence that the public has in banknotes as a means of payment and a secure store of wealth. ✖

Graph 4

Claim Submissions by Damage Reason

Per cent of all claims by volume, 2014–2021



Source: RBA

Box A: What can you do with your damaged banknotes?

If you have damaged banknotes, you can submit a damaged banknote claim. The Reserve Bank will determine the value of the damaged banknotes as per the Damaged Banknotes Policy and reimburse you the assessed amount.

To make a claim for reimbursement:



Do not include any coins or foreign banknotes, as the Reserve Bank is unable to process them.

Further information on payment criteria and how to redeem value for your damaged banknotes can be found on the Reserve Bank's website.

Endnotes

- [*] The authors are from Note Issue Department.
- [1] Based on Reserve Bank archives, the claims service has been in existence in one form or another since the 1920s.
- [2] The Reserve Bank publishes a Banknote Sorting Guide to assist professional cash handlers fitness-sort banknotes. This helps them identify banknotes that are unfit for recirculation and, depending on the extent of the damage, when a damaged banknote claim should be lodged. See RBA, 'Banknote Sorting Guide'. Available at <<https://banknotes.rba.gov.au/assets/pdf/sorting-guide.pdf>>.
- [3] See RBA, 'Damaged Banknotes'. Available at <<https://banknotes.rba.gov.au/damaged-banknotes/>>. The majority of claims submitted to the Reserve Bank are lodged via a branch of an ADI. Where submission through an ADI branch is not possible, claims can be posted to the Reserve Bank's designated address for the National Banknote Site, where claims are processed.
- [4] The claim via the foreign exchange bureau consisted of extremely worn and soiled banknotes from overseas. Given the size of the claim, it would appear the banknotes had been accumulated over an extended period to optimise repatriation cost.
- [5] These include, for example, Kiribati, Nauru and Tuvalu.
- [6] Exceptions to this are if more than 80 per cent of the banknote remains then full face value is paid, and if less than 20 per cent is left then no value is paid. The Reserve Bank Assessment Grid can be used to estimate the value of an incomplete banknote. See, 'Grids for Assessing Value of Australian Polymer Banknotes with Pieces Missing'. Available at <<https://banknotes.rba.gov.au/assets/pdf/grids-polymer.pdf>>.
- [7] Individuals tend not to make as many claims after floods. This may reflect individuals' preference to clean their own banknotes if they can in order to use the cash in time of need. This may, however, not always be practical for

professional cash handlers if a large quantity of banknotes is involved.

[8] The Reserve Bank's approval is required prior to using Australian banknotes for testing purposes.

Recent Trends in Banknote Counterfeiting

Leigh Mann and Siddarth Roche^[*]



Photo: Reserve Bank of Australia

Abstract

Counterfeiting of Australian banknotes is approaching its lowest level in a decade. Several factors are playing a role in this decline, including fewer transactions being made with cash, COVID-19-induced lockdowns, the rollout of a new banknote series with upgraded security features, and law enforcement continuing to interrupt counterfeiting operations. This article quantifies the effect of some of these factors, while exploring the broader trends in banknote counterfeiting.

Introduction

Cash continues to play an important role in the economy as a medium of exchange and a store of value. For cash to function effectively, however, it is important to maintain public confidence in the security of our banknotes. As Australia's banknote issuing authority, the Reserve Bank aims to prevent and suppress counterfeiting. Counterfeiting currency is a crime and is considered fraud – this is because counterfeits are worthless and victims cannot be reimbursed for their loss. Counterfeiting is prosecuted under the *Crimes (Currency) Act 1981*, with penalties including fines of up to \$166,500 and/or up to 14 years in prison.

The Bank assists in preventing counterfeiting by designing, producing and circulating banknotes that have advanced security features, which make counterfeits difficult to pass in the economy; it seeks to raise awareness of these features through various information channels, including via its website and social media.^[1] In addition, the Bank works with the Australian Federal Police (AFP) to suppress counterfeiting, by examining and monitoring counterfeits seized and detected in Australia, and assisting police and prosecutors with information and expert evidence.

This article discusses recent counterfeiting trends in Australia, focusing on three areas that have been prominent since the previous update (Ball 2019):

1. the short-term effect of lockdown restrictions on counterfeiting activity
2. the long-term impact of the Next Generation Banknote (NGB) series upgrade that was completed in 2020
3. an increase in counterfeits passed in person-to-person transactions.

Trends in counterfeiting

Counterfeiting in Australia has been steadily declining since its peak in 2015. The Bank received around 17,000 counterfeits in 2021 with a total value of just over \$1,300,000. This is small relative to the total number of banknotes in circulation (at around 2 billion notes, worth \$102 billion). The counterfeiting rate, which is expressed as the number of counterfeits per million genuine banknotes in circulation (parts per million, or ppm), is currently 9 ppm – much lower than the 2015 rate of 27 ppm (Graph 1). Between 2015 and 2019, most of the decline in counterfeiting can be attributed to law enforcement shutting down several large counterfeiting operations (Ball 2019).

Over the last two years there have been a number of new factors working to reduce counterfeiting even further. Notably, the Bank recently completed the rollout of the NGB series with upgraded security features; this replaced the New Note Series (NNS), which was introduced in the 1990s (Hickie, Miegel and Tsirikas 2021). At the same time, the COVID-19 pandemic has played a role in disrupting counterfeiting, with lockdown restrictions reducing

opportunities to pass counterfeit banknotes, at least temporarily.

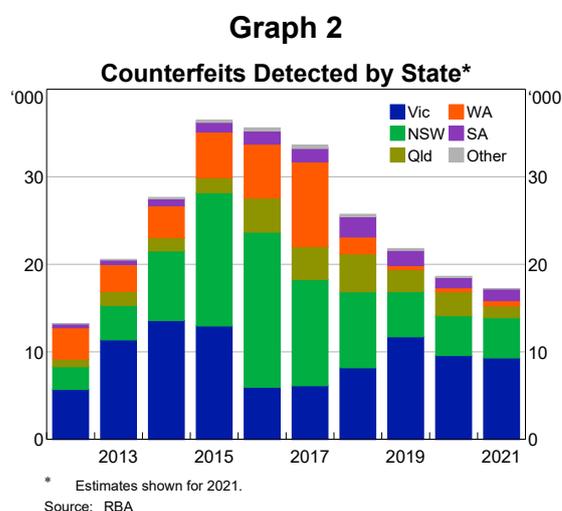
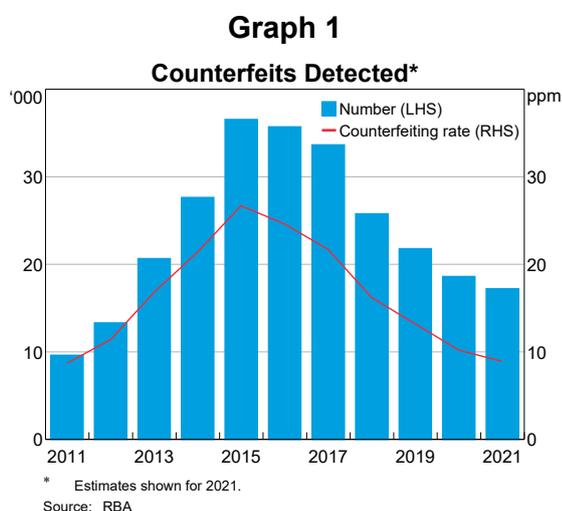
Geographical trends

Counterfeiting in Australia tends to be concentrated in the urban areas of Victoria and New South Wales, with these two states accounting for around 75 per cent of all counterfeit detections (Graph 2). Counterfeits are generally easier to pass in areas with busy retail settings where use of high-denomination banknotes (\$50 and \$100) is more common. The main driver of geographical trends is simply where high-volume counterfeiters choose to distribute their counterfeits. For instance, around 50 per cent of all counterfeit detections over the last two years occurred in Victoria, and this was mainly due to one large-scale counterfeiting operation. On the other hand, counterfeiting in New South Wales has declined, as several counterfeiters from that state have ceased to operate as a result of police actions.

Over the past two years, the COVID-19 pandemic has affected state-based trends in counterfeit detections. The states and territories that experienced longer and more stringent lockdown restrictions – in particular, Victoria and New South Wales – had notable reductions in counterfeit detections.

Lockdowns and counterfeiting

Since 2020, counterfeiting activity in Australia has been inversely related to the stringency of



lockdown restrictions – the tighter the lockdowns, the fewer counterfeits passed (Graph 3). During lockdowns, households were only allowed to leave home for a limited number of reasons and most in-person retail and household services were closed. This led to a sharp decline in household consumption (Bishop, Boulter and Rosewall 2022). As a result, the number of counterfeits detected from retail shops fell, as there were fewer opportunities to pass counterfeit banknotes. Retailers that were less affected by lockdown restrictions because they were deemed essential during the pandemic (e.g. food retailers) reported higher counterfeit detections than non-essential retailers (e.g. department stores).

The recent decline in counterfeiting cannot be solely attributed to COVID-19 lockdowns as a number of other factors were at play, including:

- Fewer transactions were made with cash over this time, meaning less counterfeits should be detected. This is an existing trend that was accelerated over the pandemic, as many vendors and consumers preferred electronic payments for hygiene reasons (Guttmann *et al* 2021).
- Actions by law enforcement continued to disrupt a number of counterfeit operations. Historically, this has been a major driver in reducing the production and distribution of counterfeits.

- A greater proportion of NGB banknotes in circulation has made it more difficult to pass counterfeits of the old banknote series.

To better understand the effect of lockdowns on counterfeiting, we analysed differences in counterfeiting between states, on the basis that some parts of the country experienced longer and more stringent lockdown restrictions than others. The results from the analysis suggest that lockdowns reduced counterfeit detections by around 7 per cent on average, which is about 100 counterfeits detected per month (see Appendix A). However, with lockdown restrictions easing throughout the country in late 2021, early data suggest counterfeiting has picked up somewhat.

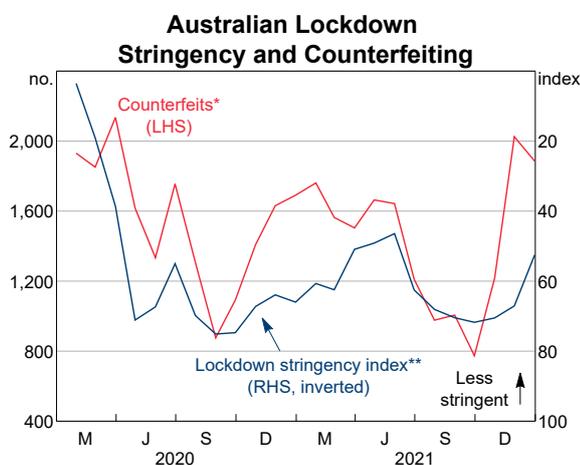
Denominations

In 2020, the \$100 banknote surpassed the \$50 banknote as the most counterfeited denomination (Graph 4). While the \$50 banknote has been the most targeted denomination for the past decade, the number of \$50 counterfeits detected has been declining, and is now at levels last observed in 2009. Currently, there is one suspected counterfeiter specialising in forging the NNS \$100 banknote, which appears to be driving this shift. However, there are a number of other contributing factors, including the introduction of the NGB series. While upgraded \$100 banknotes make up only 10 per cent of all \$100 banknotes in circulation, the number of upgraded \$50 banknotes and older NNS \$50 banknotes in circulation are now almost equal. Consequently, counterfeiters may have found it harder to pass older NNS \$50 counterfeits. Counterfeiting of the smaller denominations remains at low levels, consistent with what has been seen historically.

Quality and substrate

The quality of a counterfeit banknote plays a key role in that counterfeit being passed as genuine in the economy. The quality represents how closely a counterfeit resembles a genuine banknote, including which security features have been counterfeited and how well they were copied. In recent times, the quality of counterfeits has fallen

Graph 3



* Estimates shown for October, November and December 2021.

** Average lockdown stringency over the month.

Sources: Oxford Blavatnik School of Government; RBA

and is now at its lowest level in a decade (Graph 5). The risk of accepting a counterfeit has therefore decreased, as low-quality counterfeits are more easily identified. Effective police operations from 2015 to 2018 interrupted counterfeiters producing higher quality counterfeits, resulting in both lower numbers of counterfeits and a reduction in average counterfeit quality.

All genuine Australian banknotes have been printed on plastic (polymer) substrate since 1996. There were relatively low levels of counterfeiting until about 2010 when counterfeit detections began to rise steadily. After some 25 years since their introduction, it is now easier for counterfeiters to produce high-quality counterfeits and the NNS series of polymer banknotes has become more susceptible to counterfeit attacks. By 2015, polymer had become the predominant substrate used in

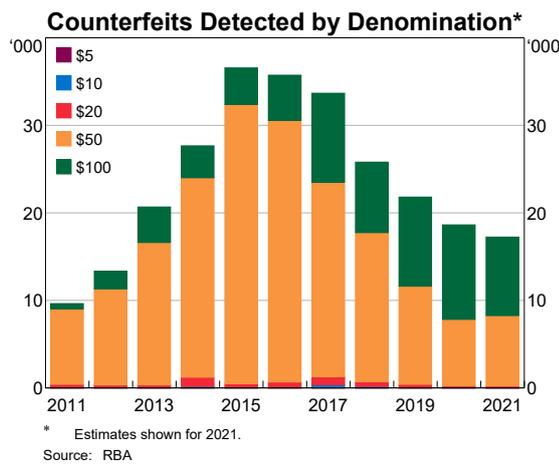
counterfeiting, and counterfeiting operations using polymer were typically producing a relatively high volume of counterfeits that were of reasonably high quality. While this trend of counterfeiters using polymer has continued in recent times, the declining cost of printing technology has meant that even lower quality counterfeits are now being produced on polymer. Currently, around 60 per cent of counterfeits are printed on polymer, compared to just over 20 per cent a decade ago.

Despite the rise in polymer counterfeits, to date there have been very few counterfeits of the NGB series, with only about 50 counterfeits detected. The NGB program incorporated new and upgraded security features, with the goal of ensuring these banknotes were more difficult to counterfeit. All NGB counterfeits detected have been of low quality.

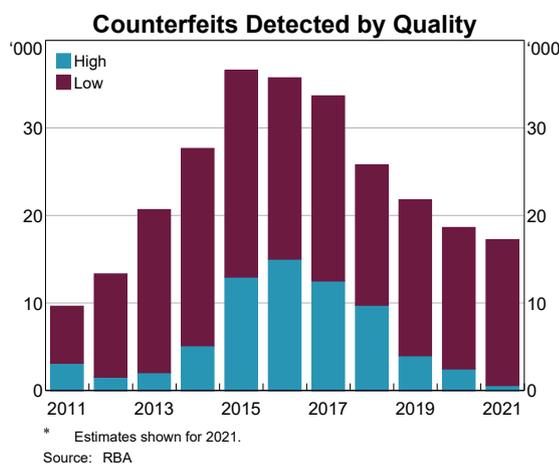
The effect of the NGB upgrade on banknote counterfeiting

The decline in counterfeiting in recent years correlates closely with the staggered release of the NGB series, which has innovative security features that are harder to counterfeit (see Box A). Counterfeit detections for the denominations most commonly used in ATMs – the \$20 and \$50 banknotes – declined after the upgraded versions were issued, although they were already declining before the upgrade (Graph 6). Detections for the \$5 and \$10 banknotes also declined after their upgrade, albeit from low bases.

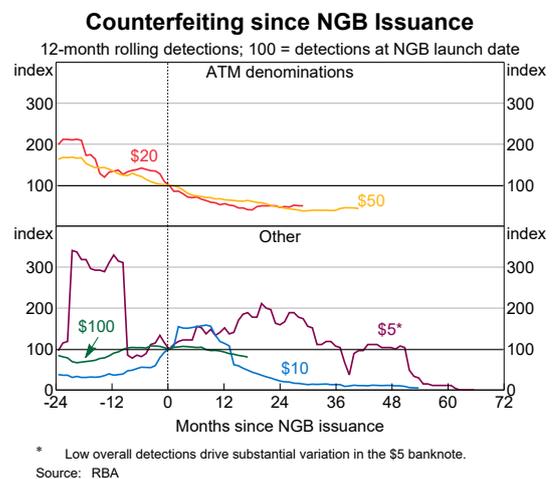
Graph 4



Graph 5



Graph 6



One possible explanation for this could be that as the share of NGBs in circulation – also known as the NGB saturation rate – rises, it becomes more difficult to pass counterfeits of the old banknote series (as they are rarer and attract more scrutiny). To explore this potential relationship, we conducted correlation analysis, focusing on the \$20, \$50 and \$100 banknotes, as the higher denominations are targeted by counterfeiters in Australia. A basic scatter plot reveals that as NGBs in circulation have become more common relative to the old series, counterfeit detections have been lower than before the upgraded version was issued (Graph 7).

While these results suggest that counterfeiting is negatively correlated with the new banknote upgrade, there may be other factors driving the decline in counterfeiting over time, including: law enforcement shutting down several counterfeiting operations; fewer banknotes being used for transactions, meaning less counterfeits should be detected; and recent COVID-19 lockdowns reducing opportunities to pass counterfeit banknotes. To disentangle the effects of these factors and isolate the effect of the banknote upgrade, we used regression analysis (see Appendix B).

The regression results support the theory that the NGB banknote upgrade has led to lower levels of counterfeiting. After controlling for other factors, a 10 percentage point increase in the NGB saturation rate for higher denominations (\$50 and \$100) reduces the average number of counterfeits detected each month by 70 (around 5 per cent of

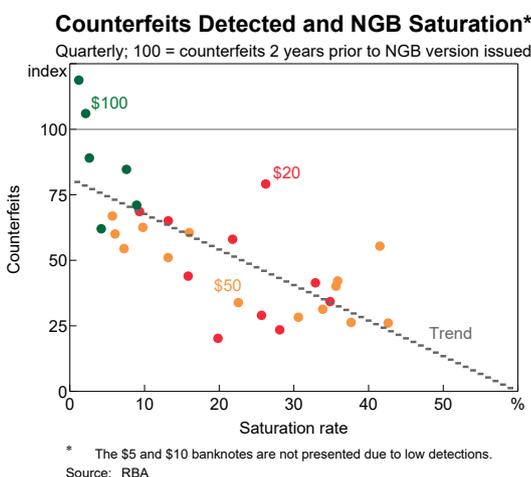
recent monthly detections), whereas a similar increase for the lower denominations does not have an effect.

Overall, the results indicate that the NGB program met its intention of reducing counterfeiting. While the reduction may not seem large, at higher saturation rates the reduction can be sizeable. The results also suggest that as the NGB series becomes more prevalent in the economy, counterfeiting rates could decline further. However, as counterfeiters become more familiar with the enhanced sophisticated security features and technology continues to evolve, this trend may reverse. Lower cash use may also reduce the public’s familiarity with banknote security features, making it easier to pass counterfeits.

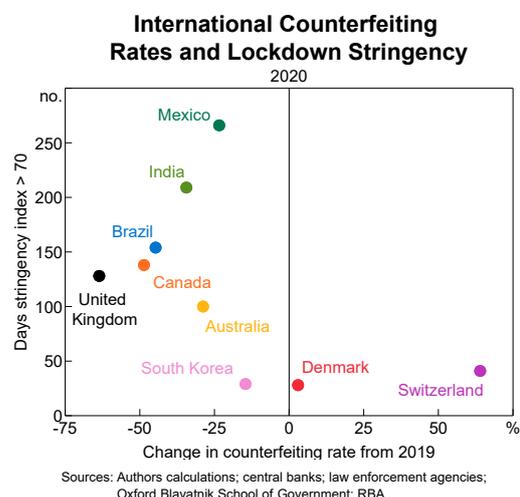
International comparison

Counterfeiting rates internationally declined over 2020, and Australia’s counterfeiting rate remained low relative to other major currencies. Echoing a similar experience to Australia, declines in counterfeiting internationally appear to be associated with the stringency of COVID-19 lockdowns. In 2020, countries with a higher number of days in strict lockdown, such as Canada and the United Kingdom, experienced larger decreases in their counterfeiting rates than unrestricted countries, like Denmark and Switzerland – where counterfeiting rates increased (Graph 8).

Graph 7



Graph 8



Nevertheless, counterfeiting rates across countries are affected by a number of factors, including the broader crime rate, the age and security of the banknotes, the public’s awareness of security features, the quality of banknotes in circulation, the cost of equipment used to counterfeit banknotes, and how widely the currency is used (international versus local). International comparisons of counterfeiting rates are also imperfect, as monitoring and reporting practices vary from country to country.

Role of law enforcement

Law enforcement plays an important role in managing the threat of counterfeiting. The AFP, state police and the Commonwealth Director of Public Prosecutions investigate and prosecute counterfeit operators. The Bank provides expert witness statements and information around counterfeit activity, as well as classifying, monitoring and referring counterfeit groups to the AFP (Miegel and Symeonakis 2020). Police operations have successfully shut down many counterfeit operations. As noted above, the significant decline in counterfeiting from 2015 largely reflected several high-quality, high-volume counterfeit operations being shut down by law enforcement.

Law enforcement can also seize counterfeits before they enter circulation. These seizures do not form part of the counterfeit statistics, as they have not been used in general circulation. While there were some sizeable seizures in 2014 and 2015, the largest seizure of Australian banknotes occurred in 2018 and 2019, when a combined 550,000 counterfeit banknotes were intercepted at the Australian border (Graph 9). These notes had a combined face value of just over \$45 million. While these notes were of poor quality and therefore more difficult to pass, there have been ongoing instances of similar counterfeits being accepted and causing financial loss to members of the public. Overall, preventing such large quantities of counterfeit banknotes entering circulation highlights the importance of effective law enforcement on counterfeiting rates.

Person-to-person counterfeiting

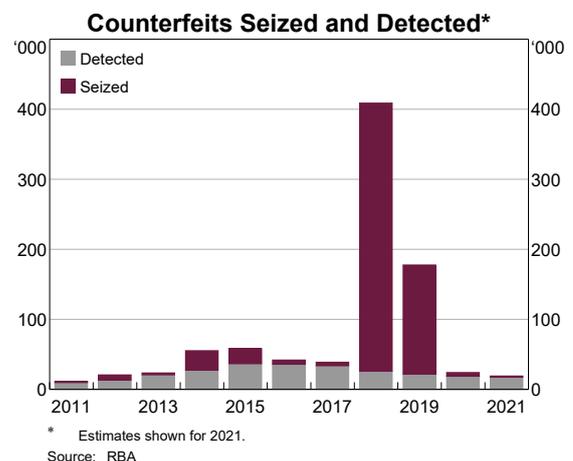
Despite the overall downward trend in counterfeiting, there is an emerging trend in person-to-person passing of counterfeits. This method of passing counterfeits is facilitated through online marketplaces in which goods are bought, sold and swapped, rather than the more traditional route of passing counterfeits at retail outlets. The buyer of goods from online

Figure 1: Counterfeit Currency Seizure



Source: Image courtesy of the Australian Federal Police

Graph 9



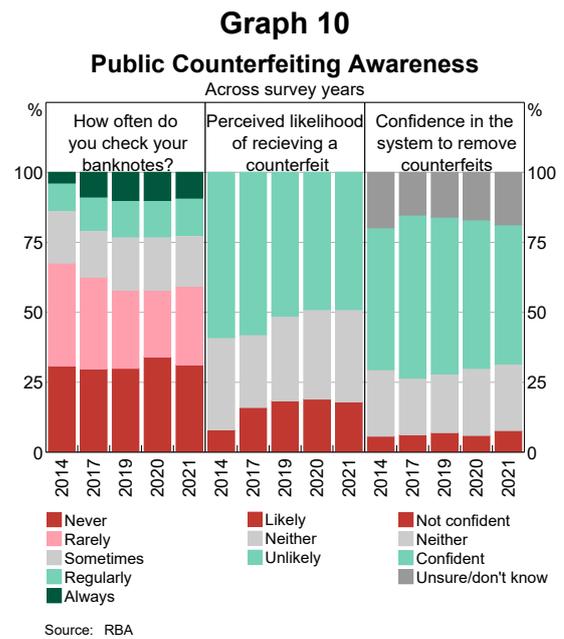
marketplaces uses counterfeit banknotes, typically to purchase high-value goods; mobile phones and bicycles are among the most commonly purchased items. Those paying with counterfeit banknotes typically prefer platforms that offer greater anonymity. Using counterfeit banknotes in this way makes up only 1.4 per cent of annual counterfeit detections. However, it is growing and generally involves a larger number of counterfeit banknotes per transaction than that used when passing counterfeits at retail outlets, thereby increasing the potential loss to a seller who accepts the counterfeit banknotes.

Moreover, this can be exacerbated by the fact that a large portion of the public do not check their banknotes for counterfeits. According to a regular survey commissioned by the Bank, over 50 per cent of respondents said they rarely or never check their banknotes (Graph 10). Part of the reason for this would appear to be that people have a high level of confidence that counterfeits will be removed from circulation, coupled with a low expectation of receiving a counterfeit. Both of these trends have been relatively constant over time, despite the changing counterfeiting landscape (Nguyen and Francis 2019). Nonetheless, as the popularity of online marketplaces grows, this serves as a timely reminder to be vigilant when accepting cash for high-value items.

Conclusion

Counterfeiting of Australian banknotes has steadily declined since 2015. The \$100 banknote is currently the most counterfeited denomination and the vast majority of counterfeits are of low quality, even

when printed on polymer. Several factors have played a role in the decline in counterfeiting. Law enforcement has continued to interrupt high-volume and high-quality counterfeiting operations. The introduction of the NGB series has made counterfeiting harder, and the larger number of NGBs in circulation has made it increasingly difficult to pass counterfeits of the older series. More recently, COVID-19-induced lockdowns played a temporary role in reducing counterfeiting by restricting opportunities to pass counterfeit banknotes. While counterfeiting is expected to remain at low levels, it is important to be vigilant. If you receive a suspicious banknote, check the security features and contact police if you believe that it may be a counterfeit (see Box A).



Box A: How to detect a counterfeit note

Australian banknotes are printed on polymer (a type of plastic) and they have a distinctive feel. Banknotes from the same series have similar security features, though their location and design can vary.

First polymer series: NNS

Second polymer series: NGB



Coat of Arms
Hold the banknote up to the light to see the Australian Coat of Arms.



Flying bird
Tilt the banknote to see a bird move its wings and change colour in the top-to-bottom window.



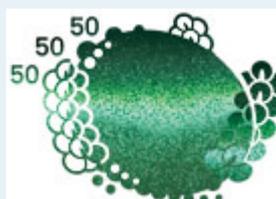
Federation Star
Hold the banknote up to the light to see the diamond patterns form a seven-pointed star.



Reversing number
Tilt the banknote to see a number change direction within the building in the top-to-bottom window.



Clear window
Check that the clear window is part of the banknote and that the white ink cannot easily be rubbed off.



Rolling colour effect
Tilt the banknote to see a rolling colour effect. On one side of the banknote it is a prominent patch near the top corner. On the other side it is within a bird shape.

Shared features

- Intaglio print** Feel the distinctive texture of the dark printing. The slightly raised print can be felt by running a finger across the portraits and numerals.
- Microprint** Look for tiny, clearly defined text in multiple locations on the banknote.
- Fluorescent ink** Look at the banknotes under a UV light to see features fluoresce.

What should you do with a counterfeit note?

If you have received a banknote that you suspect may not be genuine, first check the security features (see above). If any security features are missing, take the following steps:

1. Handle the suspect banknote as little as possible and store it in an envelope.

2. Note any relevant information, such as how it came into your possession.
3. Report the matter immediately to state or federal police.

More details about what to do if you come into possession of a counterfeit can be found on the Reserve Bank's website or the AFP website.^[2]

You are within your rights to refuse to accept a banknote you suspect is counterfeit. Knowingly passing a counterfeit banknote is a crime.

Appendix A: Counterfeiting and lockdown model

We used a panel regression model with state-level monthly data from 2020–2022 to quantify the effect of lockdowns on counterfeiting. We used state fixed effects to control for time-invariant differences between the counterfeiting environment in each state; this includes differences in crime rates and state economic policies. We also included year fixed effects to capture the effect of federal law enforcement and saturation – two factors that vary over time but are constant between the states. Finally, we included banknote lodgements at cash depots – a proxy for retail cash use – which controlled for differing levels of cash transactions between the states. The model specification is:

$$CF_{it} = \delta L_{it} + \beta Cash_{it} + S_i + \gamma T_j + \varepsilon_{it}$$

Where:

1. CF_{it} is the number of counterfeits detected for state i in month t
2. L_{it} is a dummy equal to 1 if state i was in lockdown for 10+ days in month t , and zero otherwise

3. $Cash_{it}$ is the value of cash lodgements (\$b) for state i in month t
4. S_i is a state fixed effect, and T_j are year fixed effects.

Table A1 shows the estimates of variables from the above specification. Notably, the coefficient estimate on the lockdown variable was statistically significant and negative. This indicates that a lockdown episode reduced monthly counterfeits detected. The results also highlight the positive relationship between counterfeiting and cash lodgements – our proxy for transactional cash use.

The results are robust to a number of alternative specifications. First, the effect of (state-based) law enforcement on counterfeiting may differ between states, and vary over time. To account for this, we interacted state and year fixed effects. Second, we took the natural logarithm of lodgements to address the potential skewness in this variable, as the value of lodgements can differ largely between states. Third, instead of cash lodgements, we used retail sales to capture economic activity and less transactional cash use over the sample period.

Table A1: Lockdown Panel Regression Results^(a)

Dependent variable: Monthly counterfeits detected

Variables	Coefficient
Lockdown	-104*** (32.04)
Cash lodgements	99*** (34.06)
Observations	192
State FE	Yes
Year FE	Yes

(a) ***, ** and * represent statistical significance at the 1, 5 and 10 per cent level, respectively. Standard errors in parenthesis.

Source: RBA

Appendix B: Counterfeiting and NGB saturation model

We used a panel regression model with monthly denomination-level data from 2016 to estimate the effect of NGB saturation on counterfeiting. We used denomination fixed effects to control for time-invariant differences between counterfeiting operations for each denomination. We included yearly fixed effects to capture the effect of law enforcement and COVID-19 lockdowns – two factors that vary over time but are constant between denominations. We also included banknote lodgements at cash depots to control for differing levels of transactional cash activity. Overall, we exploited the variation within each denomination, within each year. The model specification is:

$$CF_{it} = \delta SR_{it} + \beta Cash_{it} + D_i + \gamma T_j + \varepsilon_{it}$$

Where:

1. CF_{it} is the number of counterfeits detected for denomination i in month t
2. SR_{it} is the saturation rate (%) for denomination i in month t
3. $Cash_{it}$ is the value of cash lodgements (\$b) for denomination i in month t

4. D_j is a denomination fixed effect, and T_j are year fixed effects.

Table B1 shows the estimates of variables from the above specification. Assuming the effect of saturation is equal across all denominations, a 10 percentage point increase in the saturation rate reduces average monthly counterfeit detections by around 20 (column 1). However, after accounting for the differing impact of saturation between denominations (by interacting saturation with a high-denomination dummy), we found the effect of saturation was driven by the high denominations (column 2). Namely, a 10 percentage point increase in the saturation rate for higher denominations reduced average monthly counterfeits detected by 70 (around 5 per cent of average monthly detections), whereas a similar increase for the lower denominations only reduced detections by around one per month (and is no longer statistically significant). In addition, the results reinforce the positive relationship between transactional cash use and counterfeiting, with the coefficient on cash lodgements having a similar magnitude to that in the above lockdown regression (Appendix A). ✎

Table B1: Saturation Panel Regression Results(a)

Dependent variable: Monthly counterfeits detected

Variables	(1)	(2)
Saturation	-1.96* (1.12)	-0.11 (1.19)
Saturation x High Denom	-	-6.87*** (1.85)
Cash lodgements	146*** (15.54)	101*** (19.25)
Observations	198	198
Denomination FE	Yes	Yes
Year FE	Yes	Yes

(a) ***, ** and * represent statistical significance at the 1, 5 and 10 per cent level, respectively. Standard errors in parenthesis.

Source: RBA

Endnotes

- [*] Leigh Mann is from Note Issue Department and Siddarth Roche completed this work in Note Issue Department.
- [1] See RBA, 'Counterfeit Detection'. Available at <<https://banknotes.rba.gov.au/counterfeit-detection/>>; RBA, 'Social Media'. Available at <<https://www.rba.gov.au/updates/social-media.html>>.
- [2] See RBA, 'Suspect Banknotes'. Available at <<https://banknotes.rba.gov.au/counterfeit-detection/suspect-banknotes/>>; AFP, 'Counterfeit Currency'. Available at <<https://www.afp.gov.au/what-we-do/crime-types/counterfeit-currency>>.

References

- Ball M (2019), 'Recent Trends in Banknote Counterfeiting', *RBA Bulletin*, March.
- Bishop R, J Boulter and T Rosewall (2022), 'Tracking Consumption during the COVID-19 Pandemic', *RBA Bulletin*, March.
- Guttmann R, C Pavlik, B Ung and G Wang (2021), 'Cash Demand during COVID-19', *RBA Bulletin*, March.
- Hickie K, K Miegel and M Tsirikas (2021), 'Review of the NGB Upgrade Program', *RBA Bulletin*, June.
- Miegel K and K Symeonakis (2020), 'A Counterfeit Story: Operation Gridline', *RBA Bulletin*, December.
- Nguyen K and A Francis (2019), 'Confidence in Australian Banknotes', RBA Research Discussion Paper No 2019-12.

Job Mobility in Australia during the COVID-19 Pandemic

Susan Black and Emma Chow^[*]



Photo: skynesher – Getty Images

Abstract

The COVID-19 pandemic has led to large disruptions to the Australian labour market. Initially, workers were less likely to change jobs because of the uncertain economic environment, the decrease in advertised jobs and the JobKeeper program that helped workers remain attached to their employers. More recently, job mobility has increased as workers have caught up on planned job changes or been encouraged by the strong labour market to change jobs, particularly in high-skilled roles experiencing strong labour demand. This article reviews developments in job mobility in Australia through the pandemic, and compares these outcomes to other advanced economies. It also examines the potential implications for wages; a high rate of job mobility tends to be associated with higher wages growth in a tight labour market, as employers in sectors with high demand for labour compete for new staff or raise wages to retain staff.

Introduction

Job mobility – the movement of workers between jobs – underpins the efficient operation of the labour market by matching people with jobs that better fit their preferences and skills. People switch jobs for a number of reasons. These can include higher wages, improved working conditions, different hours, workplace flexibility, job satisfaction or job security. To the extent that job mobility results in better job matching and increased labour

reallocation to more productive firms, it can play a role in labour productivity gains. Job mobility is also a key feature of labour market flexibility that helps the economy adjust to economic shocks and structural change, which can affect the number and types of jobs available.

Prior to the pandemic, the Australian labour market had experienced a downward trend in job mobility for a number of decades, and job mobility was around historically low levels (Graph 1). While low

job mobility is not necessarily problematic – some job changes are not voluntary and there can be benefits from longer job tenure – the decline in job mobility may have been associated with a general decline in business dynamism (Ellis 2021). In particular, it coincided with a slower reallocation of labour to productive firms, which contributed to lower productivity growth (Andrews and Hansell 2019). The rate of job mobility tends to move with the business cycle, with sharp declines experienced in the recessions of the early 1980s and 1990s and following the global financial crisis (GFC). The step down in mobility following the latter two downturns suggests that structural factors are also usually at play.

The onset of the COVID-19 pandemic led to large disruptions to the Australian labour market that corresponded with an initial decline in economic activity amid restrictions to contain the health effects of the virus. A significant number of people were stood down from their jobs or faced reduced hours during this period. There was also a sharp fall in job mobility, reflecting a reluctance to change jobs, fewer opportunities to switch jobs and the effect of JobKeeper in keeping workers linked to their employers. As economic activity rebounded in late 2020, so too did the labour market. As of early 2022, job mobility appears to be around its highest level in over a decade, returning to levels last seen prior to the GFC. The increase has been

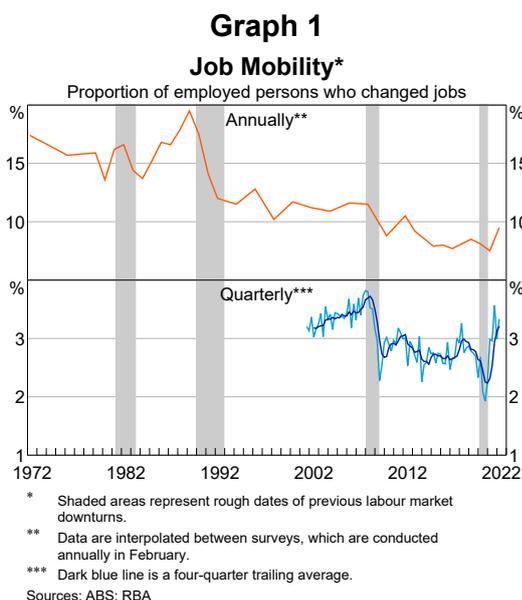
underpinned by the strength of the labour market, especially in particular sectors, and a backlog of job changes that had been deferred.

This article reviews developments in job mobility and turnover in Australia since the onset of the pandemic, and compares these outcomes to other advanced economies. It also examines the role of job mobility as a potential factor influencing wage outcomes, which can have implications for monetary policy.

Measuring job mobility and turnover

Aggregate measures of job mobility and job turnover in Australia are published by the Australian Bureau of Statistics (ABS) on an annual basis as a supplement to the monthly Labour Force Survey (LFS) and are available from 1972. To examine job mobility and turnover on a timely basis through the pandemic, we made use of several quarterly measures in the person-level Longitudinal Labour Force Survey (LLFS) microdata, which covers LFS responses from 1982.^[1] The dataset followed (anonymised) individuals for eight consecutive months, which allowed us to track job switching behaviour over that time. The key metrics of interest are:

- **Job turnover:** people that lost or left any job in the past three months.^[2] Job turnover can be voluntary or involuntary. Voluntary job separations capture workers who leave a job with the intention of finding another job, as well as those who quit for life-cycle or other personal reasons. Involuntary separations include workers who lose a job due to economic reasons (such as retrenchments), dismissals, the ending of a temporary job and own illness.
- **Job mobility rate** (constructed by the Reserve Bank): the share of employed persons who have been working for their current employer/ business for less than three months and were also employed in the previous quarter.^[3] The job mobility rate is a narrower measure than job turnover; job mobility captures workers who left their jobs and are currently employed in a new one, including those who started a new job after a brief period of unemployment or



absence from the labour force. The higher frequency measure of job mobility tracks relatively closely with the annual ABS data, despite conceptual differences between the measures; a person who switches jobs multiple times during the year would only be counted once in the annual measure.

- **Expected job mobility rate:** the share of workers who expect to change jobs in the next 12 months.

Job mobility at the onset of the pandemic

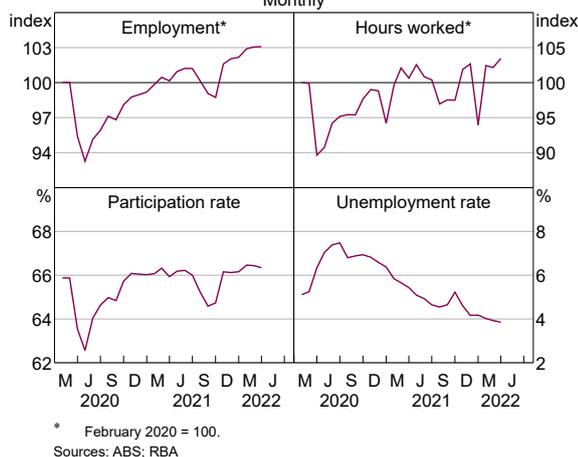
The onset of the COVID-19 pandemic in Australia in March 2020 had significant effects on the labour market (Graph 2). Movement restrictions and lockdowns, as well as precautionary behaviour, meant many businesses closed or operated at reduced capacity. Corresponding to the decline in economic activity, a significant number of workers lost their jobs or had their hours reduced, while others rapidly adjusted to working from home. Job vacancies and advertisements also fell sharply. Government policy measures, including the introduction of the JobKeeper wage subsidy, helped to keep many workers attached to their employer; in the absence of JobKeeper, employment would have declined much further (Bishop and Day 2020).

These disruptions had a large impact on job turnover (Graph 3). The number of employed persons who lost their jobs rose sharply. This

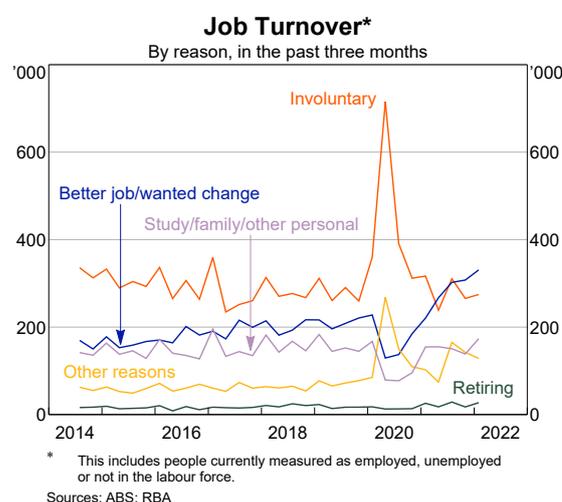
included workers who were retrenched or made redundant, and those who lost their jobs because their employer went out of business or had no work available. This was associated with a large increase in the number of people temporarily exiting the labour force, with a 3.3 percentage point drop in the participation rate in the three months to May 2020.

Job mobility also declined at the start of the pandemic. The share of employed persons who changed jobs fell to its lowest level in over two decades in mid-2020; only around 2 per cent of employed people changed jobs in the three months to August 2020 (Graph 1). Seeking out a better job/wanting a change became a much less common reason for leaving a job. This likely reflected workers' increased risk aversion to switching jobs amid heightened uncertainty, as well as fewer opportunities for workers seeking to improve their job match due to lower labour demand. In broad terms, this is consistent with the pro-cyclical nature of voluntary turnover. Voluntary turnover tends to fall during economic downturns when workers are less confident about switching jobs and employment opportunities are less plentiful; it tends to rise during periods of strong labour market conditions when workers are more willing to bear the costs and risks of changing jobs. However, this wasn't a typical cyclical event as the downturn was precipitated by lockdown measures to counter the health effects of the pandemic. The extended lockdowns also meant it was more difficult for workers to look for new jobs, and the

Graph 2
Labour Market
Monthly



Graph 3



implementation of JobKeeper kept many workers linked to their employers. With that said, the number of people who left their jobs due to ‘other reasons’ spiked during periods of lockdowns, which may have captured workers who left their jobs during the pandemic for a multitude of reasons, including wanting a better job, but felt that it was too difficult to attribute their situation to one category.

The decline in job switching was evident for both full-time and part-time workers, but more so for the latter group. This likely reflected the more adverse impact of lockdowns on contact-intensive industries that typically employ a higher proportion of part-time workers and casuals, such as accommodation & food services (discussed below).

The recovery in job mobility

As health-related restrictions eased and the economic recovery progressed, the number of people working reduced hours was gradually unwound and more workers gained employment as firms resumed hiring (or workers resumed their previous jobs if they returned to their previous employer). Many workers who had left the labour force at the height of the pandemic have since returned. Consistent with the improvement in labour market conditions, the number of involuntary job separations has declined to be around more usual levels. Voluntary resignations have picked up, with the most common reason being to seek a better job or the desire for a change. This is also evident in the increase in the job mobility rate, which since mid-2021 has been at a high level relative to recent history. For example, the average job mobility rate over the past decade was 2.8 per cent; in February 2022, it was 3.3 per cent – nearly 440,000 people switched jobs in the three months to February. In contrast to the earlier stages in the pandemic when the mobility rate declined more for part-time workers, it is now at a similarly high level for both full-time and part-time workers. Information from the Bank’s liaison program also indicates that voluntary turnover rates have increased since mid-2021 to be above average, particularly in sectors or roles experiencing strong demand for labour. According to liaison, while this

partly reflects some catch-up following two years of lower staff turnover during the pandemic, it is also due to increased competition for labour, with workers being enticed to join other firms for a higher salary. A simple counterfactual exercise – which compares the actual cumulative flow of job switches since February 2020 to what the cumulative flow would have been if the number of job switches had remained at its average level in 2019 throughout the pandemic – suggests there has been a sizeable number of job switches beyond a simple catch-up following the initial decline, accounting for around 1.5 per cent of total employment as of February 2022.

The speed of recovery in job mobility from the COVID-19 shock is in contrast to the GFC – job mobility did not recover to its pre-GFC levels and trended lower for the next decade. The natures of these events, however, were distinctly different. The recent downturn was precipitated by lockdown measures to counter the health effects of the virus. The rapid recovery in the labour market that followed the removal of these measures and ongoing underlying momentum supported by policy settings have enabled a faster rebound in job mobility, which quickly exceeded its pre-pandemic level. The labour market recovery was much slower after the GFC and aggregate demand remained low for many years. A similar post-GFC decline in job mobility has been evident in other advanced economies, suggesting that structural factors play a role – for example, this may be related to the ageing population, the decline in the share of startups and a rise in larger firms, and policy settings (Engbom 2019; Decker *et al* 2014; Decker *et al* 2020; Hermansen 2019).

Characteristics of job mobility during the pandemic

The impacts of the pandemic on the labour market have been uneven across different groups of people and sectors in the economy. Activity restrictions and isolation requirements have more adversely affected industries that tend to be contact intensive, such as accommodation & food services. These industries also tend to employ a higher share of younger, part-time and casual workers. By contrast,

employment has recovered rapidly to be well above pre-pandemic levels in other industries, such as health care & social assistance and professional services; this is partly due to the health response to the pandemic, strong underlying demand and/or the availability of remote or socially distanced work.

While the extent of job mobility generally varies across industries, the impact of the pandemic on job mobility has also been more concentrated in some areas of the economy than others. In general, industries with lower earnings, lower wages growth and a younger average worker age are typically associated with higher job mobility. This is consistent with workers having less incentive to move from their existing job or industry in which they have accumulated experience that adds to their earning potential (D'Arcy *et al* 2012). High-skilled jobs have experienced particularly sharp increases in job mobility since mid-2021; notably, the job mobility rate in professional services has increased to be around its highest level in over two decades (Graph 4). This is consistent with information from the Bank's liaison program that suggests that strong labour demand in professional services has encouraged more employees to seek higher rates of pay or new opportunities, and resulted in a very competitive job market for businesses seeking to hire workers, particularly those skilled in IT. Job mobility in the healthcare industry – where employment growth has been particularly strong since the start of the pandemic – has also increased to be at its highest level in over two decades. Likewise, job mobility in contact-intensive industries and construction has recently picked up, after being relatively low during the earlier stages of the pandemic.

Changes in job mobility during the pandemic have been evident across most age groups (Graph 5). At the onset of the pandemic, the decline in job mobility was most pronounced among younger workers (aged 15–19 years and 20–29 years), likely reflecting reduced demand for entry-level workers and the more adverse impact on contact-intensive industries that employ a higher share of young workers. Typically, younger workers have higher rates of job switching than older workers. This is because young people have less firm- and industry-

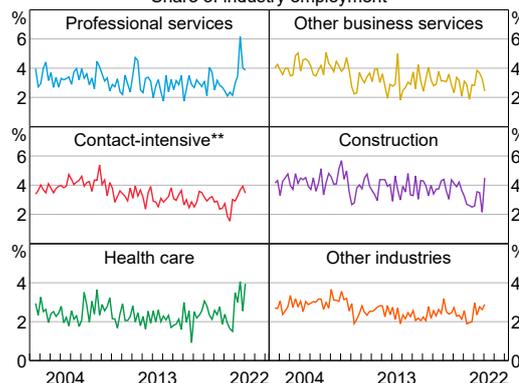
specific human capital than more experienced older workers and so have more to gain by changing jobs and increasing the quality of a job match; an example of this is a university graduate who switches from casual employment to a full-time career in an industry related to their studies. Job mobility for these workers has since recovered, alongside improvements in youth labour market outcomes. In fact, job mobility has increased for most age groups in recent months to be above pre-pandemic levels.

Job mobility includes workers changing jobs within the same sector (referred to as 'churn') and workers switching to jobs in different sectors (Graph 6). In the early stages of the pandemic, there was a sharper decline in job churn than in workers

Graph 4

Job Mobility by Industry*

Share of industry employment

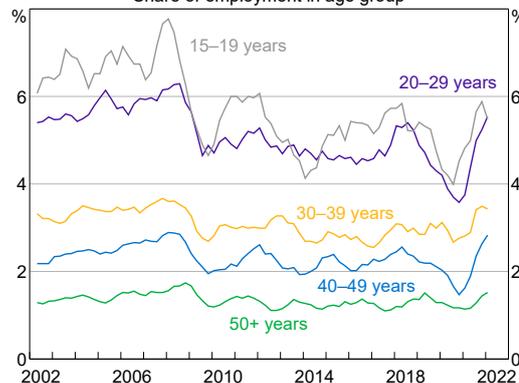


* Based on the industry of new job.
 ** Includes accommodation & food services, arts & recreation and retail trade.
 Sources: ABS; RBA

Graph 5

Job Mobility by Age Group*

Share of employment in age group



* Four-quarter trailing average.
 Sources: ABS; RBA

changing industries, though the latter also declined. Since mid-2021, as job mobility increased with the strengthening labour market, the proportion of job switches involving changing industries as distinct from churn has returned to its historical average. However, there have been some differences across sectors. In the business services sector, the large increase in job mobility from mid-2021 was mostly driven by increases in job churn, with only a modest increase in workers switching jobs from outside the sector. The household services sector has experienced similar increases in job switches within and into this sector, while job mobility in the goods sector has been relatively stable throughout the pandemic. In addition, data on job switching by the skill level of the job shows that those workers who have changed jobs have mostly moved into a job requiring the same level of skill.

Job switching expectations

Some insights on whether job mobility will remain elevated or return to previous levels can be obtained from data on future employment expectations. Actual job mobility has largely followed expected job mobility over the past two decades, although these have differed at times (Graph 7). Workers remain upbeat about the jobs outlook, with the share of workers expecting to change jobs/seek other employment within the next year being around its highest level since 2008. The increase in expected job mobility has been primarily driven by full-time workers and is more

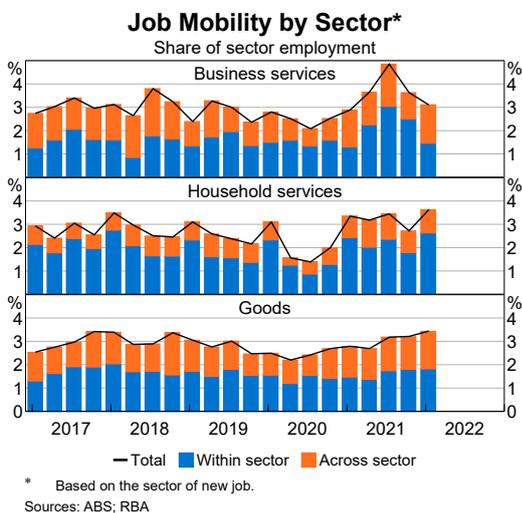
pronounced among female full-time workers. By contrast, the share of part-time workers expecting to change jobs has returned to its longer term downwards trajectory.

Higher skilled occupations have continued to report elevated levels of expected job mobility, while lower skilled occupations have remained more in line with the longer term average. By industry, expected job mobility for the year ahead was elevated in healthcare & social assistance and financial & insurance services, and subdued in accommodation & food services, arts & recreation and other services, and construction.

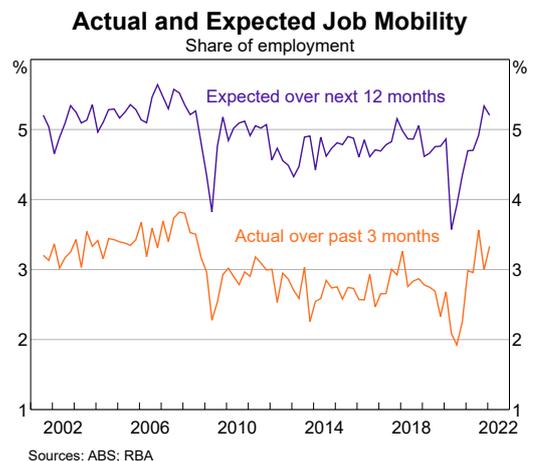
Job mobility and wages growth

While workers may change jobs for a number of reasons, higher wages are often the motivation. Data from the Household, Income and Labour Dynamics in Australia (HILDA) survey show that people who move jobs generally gain higher-than-average wage increases (Graph 8). People who stay with the same employer have lower but more stable wage growth over time. Recent domestic and international research has shown that higher job mobility also tends to be associated with higher aggregate wages growth (Faberman and Justiniano 2015; Karahan *et al* 2017; Moscarini and Postel-Vinay 2017; Deutscher 2019). This can arise from two channels: directly, because workers typically experience a pay bump from changing jobs; and indirectly, because an employer may offer a pay raise to retain a worker in their current job due to competition for labour.

Graph 6



Graph 7



In Australia, higher job mobility has tended to be associated with higher aggregate wages as measured by the Wage Price index (WPI) (notwithstanding that other factors are also important drivers of wages, as discussed below) (Graph 9). The WPI measures the wages of a sample of jobs (rather than a sample of workers). In this way, it will capture the higher wages that an employer pays for a particular job in the face of high job mobility – for example, higher wages offered to poach or retain a worker.^[4] While high job mobility tends to be associated with wages growth, the direction of causality could run either or both ways. High job mobility may lead to workers receiving a wage increase by switching jobs or through higher competition for workers in their industry. However, the reverse could also occur, whereby wages growth incentivises workers to switch jobs within their industry or it could lead to higher job mobility across industries – for example, higher wages growth in particular sectors may lead workers to retrain and switch jobs into those sectors, and/or encourage firms to consider workers coming from other industries even if their work experience is not seen as directly relevant.

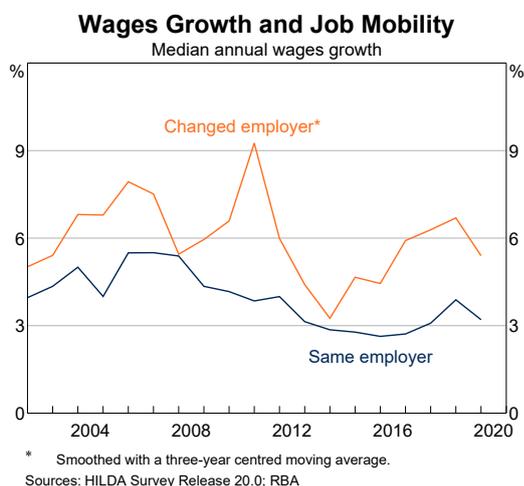
As part of its set of models, the Reserve Bank uses the Phillips curve framework to consider the implications for wages growth based on a number of cyclical factors, including: spare capacity in the labour market; inflation expectations; a measure of changes in firms’ output prices; and lagged wages growth (Bishop and Greenland 2021). Job mobility

is not usually included in this model; however, using this framework, we explored whether job mobility provides additional information for future wages growth above and beyond the variables in the Bank’s baseline wages model (see Appendix A for full model results).

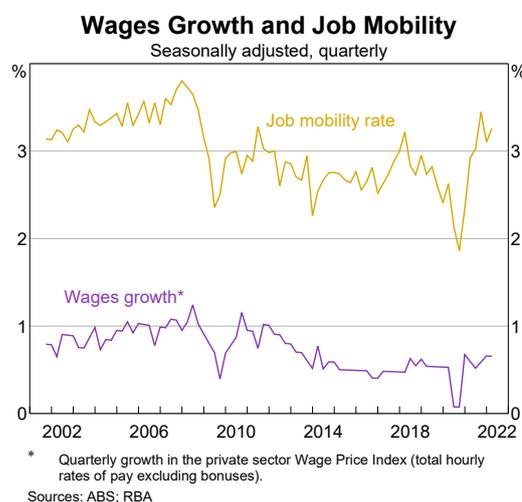
The results indicate that job mobility can help to explain future changes in WPI growth in the near term. According to the model, the increase in the job mobility rate in the decade leading up to the GFC supported wages growth generally, and the trend decline in job mobility over the following decade is estimated to have been a drag on wages growth. With that said, the inclusion of job mobility in the model provides some but not much additional information to explain wages growth beyond the baseline model. The existing measure of spare capacity in the labour market in the model (the unemployment gap) is able to account for most of the variation in wages growth related to labour market tightness, including the effects of job mobility. This result is not too surprising as the unemployment gap and job mobility tend to move closely together.

Overall, the recent pick-up in job mobility in some sectors in Australia is expected to contribute over time to employers offering higher wages to retain workers or hire new workers as the labour market tightens. Some firms in the Bank’s liaison program reported having increased wages in response to elevated turnover, with some of these firms paying out-of-cycle wage increases to some workers to

Graph 8



Graph 9



meet the increase in market salaries for those roles and prevent further increases in turnover. In addition, some firms have paid more to attract new staff to fill vacant or new roles.

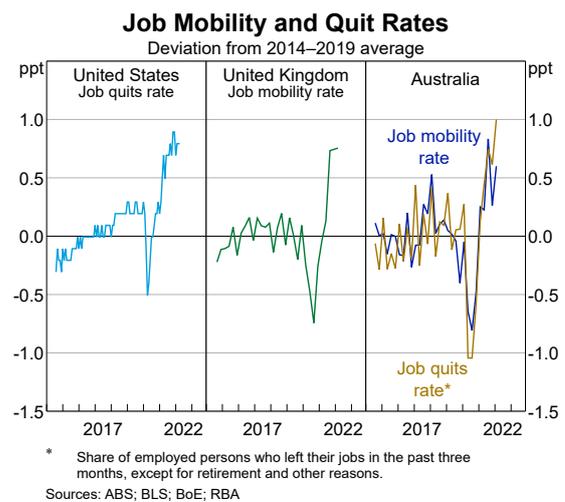
Job turnover, mobility and wages growth through the pandemic: Comparing Australia with the United States and the United Kingdom

Similar to Australia, job turnover and mobility have increased sharply in recent months in the United States and the United Kingdom (Graph 10). In the United States, where data on job mobility are not readily available, the job quits rate – the share of workers leaving their jobs to take new jobs or to exit the labour force – has been around a record high since mid-2021. In the United Kingdom, the job mobility rate has increased to an elevated level. Wages growth has picked up sharply in both of these countries – notably more so than in Australia. Notwithstanding the structural differences in the US and UK labour markets, the extent of the recovery in labour supply, in the face of strong labour demand, appears to have played a role in the different wage growth outcomes so far. While labour force participation declined at the onset of the pandemic in all three countries, it has since increased in Australia to be at a record high, whereas the US and UK participation rates still remain below pre-pandemic levels (although it has been recovering recently in the United States) (Graph 11). COVID-19-related health concerns, high accumulated savings due to fiscal support, increased retirements and workers re-evaluating longer term personal and professional goals (perhaps as part of the ‘Great Resignation’) have likely contributed to people leaving the labour force in the United States and the United Kingdom (Agarwal and Bishop 2022). As a result, firms in these countries have been paying higher wages to retain and attract workers. Conversely, health concerns appear to have had less of an impact on labour supply in Australia – partly due to comparatively better health outcomes – and retirements have remained around usual levels throughout the pandemic.

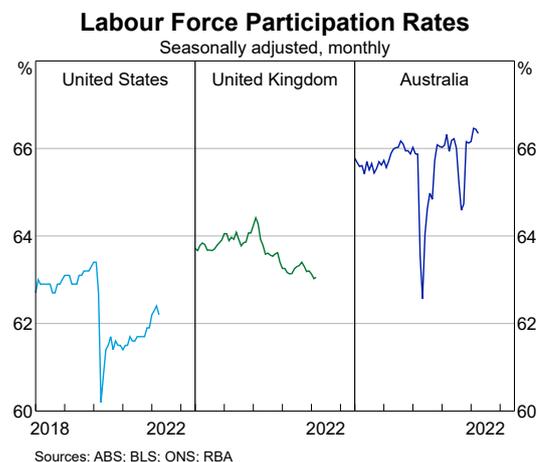
Conclusion

Job mobility in Australia has increased to a high level recently, underpinned by the strong labour market. This followed a sharp decline in job switching at the onset of the pandemic amid widespread disruptions to the labour market, and a multi-decade trend decline prior. The increase in job switching appears to be partly driven by strong labour demand for some high-skilled jobs, coupled with workers catching up on planned job changes that were put on hold during the pandemic. High levels of job switching tend to be associated with higher wages, both at the individual and aggregate level, in a tight labour market. While job turnover has also been high in the United States and the United Kingdom, labour force participation rates have not yet recovered to pre-pandemic levels; by contrast, Australia is experiencing a record high

Graph 10



Graph 11



level of participation. This appears to have played a role in relative wage outcomes across the countries. The increased rates of job mobility in Australia in some sectors is expected to contribute to higher labour costs as firms find that they need to offer

higher wages and other benefits to attract new workers or retain existing staff.

Appendix A: The RBA Wages Phillips curve model with job mobility

We examined whether the addition of the job mobility rate to the RBA Wages Phillips curve model provides additional information for wages growth. We estimated the equation below:

$$\% \Delta WPI_t = \alpha + \beta \% \Delta WPI_{t-1} + \gamma \left(\frac{u_{t-1} - u_{t-1}^*}{u_{t-1}} \right) + \tau \Delta u_{t-1} + \phi \frac{\% \Delta^{ye} DFDdef_t}{4} + \theta \frac{Inflationexp_{t-1}}{4} + \delta Jobmobility_{t-1} + \epsilon_t$$

Where: \forall

$\% \Delta WPI_t$	Quarterly growth in the private sector Wage Price Index (WPI) (hourly rates excluding bonuses); seasonally adjusted.
u_t	Quarter-average unemployment rate; seasonally adjusted.
u_t^*	Non-accelerating inflation rate of unemployment (NAIRU) (described in Cusbert 2017); two-sided smoothed quarterly estimate.
Δu_t	Quarterly change in the unemployment rate; seasonally adjusted.
$\% \Delta^{ye} DFDdef_t$	Year-ended growth in the domestic final demand implicit price deflator; seasonally adjusted.
$Inflationexp_t$	Trend inflation expectations estimated using a Kalman filter (described in Cusbert 2017); two-sided smoothed quarterly estimate.
$Jobmobility_t$	Quarterly job mobility rate; seasonally adjusted.

Table A1: The RBA Wage Phillips Curve Model with Job Mobility – Regression Results^(a)

Estimated on December 2001–December 2019

	Baseline model	Job mobility
Constant	0.066*** (0.020)	-0.362** (0.169)
% ΔWPI_{t-1}	0.425*** (0.109)	0.337*** (0.110)
$\left(\frac{u_{t-1} - u_{t-1}^*}{u_{t-1}}\right)$	-0.533*** (0.156)	-0.402** (0.193)
Δu_{t-1}	-0.097 (0.073)	-0.059 (0.073)
$\frac{\% \Delta^{ye}DFDdef_t}{4}$	-0.012 (0.086)	-0.109 (0.102)
$\frac{Trend_{t-1}}{4}$	0.587*** (0.132)	0.771*** (0.153)
$Jobmobility_{t-1}$	–	0.142** (0.057)
Adjusted R^2	0.74	0.77

(a) The dependent variable is the quarterly growth in the private sector WPI (hourly rates excluding bonuses); standard errors in parentheses; ***, **, and * denote statistical significance at the 1, 5, and 10 per cent levels, respectively.

Sources: ABS; authors' calculations

Endnotes

- [*] Susan Black is from Economic Analysis Department and Emma Chow completed the work while in Economic Analysis Department. The authors would like to thank Nalini Agarwal, James Bishop, Mark Chambers, Matthew Fink, Jonathan Hambur, Jess Meredith, Neya Suthaharan and Tom Williams for thoughtful advice and suggestions in preparing this article.
- [1] The LFS is a monthly survey of Australia's resident population aged 15+ years. The LLFS data – the longitudinal data from this survey – contains responses to the monthly labour force survey from 1982 onwards, and include respondents' employment outcomes in the surveyed months as well as some data on worker characteristics.
- [2] This captures individuals who indicate that they have lost or left any job in the previous three months, and not necessarily an individual's main job. For multiple job holders, this data may reflect changes in their main job or in a secondary job.
- [3] We infer whether an individual switched jobs using the variable on job tenure, which records the number of months an individual has been employed with their current employer/business. Depending on how an individual is interpreting the question and when LFS samples were taken, a tenure of three months might not signify a recent switch.
- [4] The WPI does not capture the pay bump that a worker might receive from switching to a role that is substantially different to their previous role. This would be included in broader measures of employee earnings growth like average weekly earnings.

References

- Agarwal N and J Bishop (2022), 'COVID-19 Health Risks and Labour Supply', RBA *Bulletin*, March.
- Andrews D and D Hansell (2019), 'Productivity-Enhancing Labour Reallocation in Australia', Treasury Working Paper No 2019-06.
- Bishop J and I Day (2020), 'How Many Jobs Did JobKeeper Keep?', RBA Research Discussion Paper No 2020-07.
- Bishop J and E Greenland (2021), 'Is the Phillips Curve Still a Curve? Evidence from the Regions', RBA Research Discussion Paper No 2021-09.

- Cusbert T (2017), 'Estimating the NAIRU and the Unemployment Gap', *RBA Bulletin*, June, pp 13–22.
- D'Arcy P, L Gustafsson, C Lewis and T Wiltshire (2012), 'Labour Market Turnover and Mobility', *RBA Bulletin*, December, pp 1–12.
- Decker R, J Haltiwanger, R Jarmin and J Miranda (2014), 'The Role of Entrepreneurship in US Job Creation and Economic Dynamism', *Journal of Economic Perspectives*, 28(3), pp 3–24.
- Decker RA, J Haltiwanger, RS Jarmin and J Miranda (2020), 'Changing Business Dynamism and Productivity: Shocks versus Responsiveness', *American Economic Review*, 110(12), pp 3952–3990.
- Deutscher N (2019), 'Job-to-Job Transitions and the Wages of Australian Workers', Treasury Working Paper No 2019-07.
- Ellis L (2021), 'Innovation and Dynamism in the Post-pandemic World', Speech to the Committee for the Economic Development of Australia, Webinar, 18 November.
- Engbom N (2019), 'Firm and Worker Dynamics in an Aging Labor Market', Federal Reserve Bank of Minneapolis Working Paper No 756.
- Faberman RJ and A Justiniano (2015), 'Job Switching and Wage Growth', Chicago Fed Letter No 337.
- Hermansen M (2019), 'Occupational Licensing and Job Mobility in the United States', OECD Economics Department Working Paper No 1585.
- Karahan F, R Michaels, B Pugsley, A Şahin and R Schuh (2017), 'Do Job-to-Job Transitions Drive Wage Fluctuations over the Business Cycle?', *American Economic Review*, 107(5), pp 353–357.
- Moscarini G and F Postel-Vinay (2017), 'The Relative Power of Employment-to-Employment Reallocation and Unemployment Exits in Predicting Wage Growth', *American Economic Review*, 107(5), pp 364–368.
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First Nations Businesses: Progress, Challenges and Opportunities

Michelle Evans and Cain Polidano^[*]



Photo: Jorge de Araujo

Abstract

Australia's First Nations business sector is growing at a pace of around 4 per cent per year, fuelled by growing demand. However, many budding First Nations entrepreneurs still face substantial barriers to establishing a successful business. This article discusses the need to develop trust for effective policy environments that support First Nations businesses, and describes how ongoing challenges of access to financial, social and symbolic capital continue to test First Nations business owners. Despite this, there are opportunities for First Nations businesses in the forms of Indigenous preferential procurement policies, and First Nations-specific business development programs as well as financial products and services. It is not yet clear how effective the policy environment is in addressing access and discrimination challenges, nor how widespread the benefits are to First Nations businesses. As such, the article concludes by discussing the role of data development for accountability.

The importance of trust to growing First Nations businesses and the role of government

Trust has long been understood to be an important ingredient in a thriving business environment, especially for the success of new businesses and entrepreneurs – trust reduces the transaction costs that would otherwise limit their viability. In the absence of trust, customers, suppliers and

employees must vet the quality of new goods/ services, scrutinise the claims made by businesses without a proven track record, and/or enter complex contractual arrangements to protect themselves from possible harm. So how is trust produced and reproduced in the Australian economy and what effects does that have on First Nations people?

While Australia may be considered a ‘high-trust’ economy, it is not universally so. Trust in our economy is conditional on membership of a group that is deemed worthy of trust. This is based not only on race but also on crude indicators of trustworthiness, including well-resourced networks, past intergenerational advantages, business experience, financial and other assets, and education qualifications. The long shadow of Australia’s racist past means that many First Nations Australians are shut out of attaining these credentials and are excluded from the benefits of a high-trust economy.

A trust deficit can impact First Nations entrepreneurs in many ways, including difficulty in attracting low-cost finance, building a customer base, winning contracts or establishing links with reliable suppliers. Low trust in First Nations enterprises is further exacerbated by historical barriers to human and social capital development of individuals, such as the (still) low participation in business education and difficulty in accessing powerful business and professional networks that are often opened by family and other intergenerational social connections. As a result, many First Nations entrepreneurs and businesspeople miss out on developing long-term relationships that lead to mutual business opportunities as well as exchange of market information. Economists deem such barriers to business entry a ‘market failure’ because it limits competition, stifles innovation and leads to inefficiencies. Most critically for First Nations entrepreneurs, these inefficiencies mean that opportunities for economic development are lost.

Addressing barriers of business entry for First Nations businesses and the inefficiencies that they cause is a key task that is shared by state and federal agencies. These market barriers are most often attended to through affirmative action policies that intentionally work in favour of First Nations businesses, including preferential procurement policies, business grants and loans schemes. By giving First Nations businesses preferential access to government contracts, the hope is that it will encourage more business startups and help sustain fledgling businesses by giving them opportunities

to make connections, gather market information and develop a track record that will help build trust and reduce the cost of capital; the result being First Nations businesses can more easily scale-up their production and be more competitive and more successful over time. For established small First Nations businesses, preferential access to government contracts can provide them with an opportunity to demonstrate a capacity to deliver high-quality and reliable goods and services at a larger scale than what they are accustomed. Such an established track record can help change perceptions about Indigenous businesses and engender trust among large industry procurers that can grow the sector further. In time, the expectation is that sustained business success will build trust in the sector, which will in turn help other First Nations entrepreneurs establish businesses without necessarily attaining the ‘signals of trustworthiness’ that are often unattainable because of the legacy and systemisation of racism.

Evaluating the impacts of policy

While addressing market barriers is a key role of government, so is ensuring ‘proper evaluation’ of programs to support the sector, including preferential procurement policies. This means going beyond simply reporting numbers of contracts awarded and dollar values. As spelt out in a key recommendation of the 2021 House of Representatives Standing Committee on Indigenous Affairs report:

The National Indigenous Australians Agency (NIAA), in consultation with other agencies, considers developing a richer measurement of performance and outcomes for the Indigenous Procurement Policy (IPP) than just contract numbers and value. Consideration by the NIAA should include how IPP contracts can

help maximise Aboriginal and Torres Strait Islander employment and skills transfer.

—House of Representatives Committee on Indigenous Affairs 2021, Recommendation 1

As well as developing richer outcome measures, it is important to measure any change in business, employment and community outcomes associated with the scheme against a ‘counterfactual’ benchmark – that is, outcomes that would have occurred over time without the program. The sector’s success may have occurred anyway, even without the programs, and government efforts to link policy to any positive outcomes without benchmarking against counterfactual outcomes is misleading. In practice, because we cannot observe counterfactual outcomes, they are constructed from outcomes of ‘like’ groups who face the same pre-post policy trends but, because of differences in eligibility/access, did not participate in the program (or not to the same extent). Such robust analysis of Indigenous policy is rare:

Too often, evaluations of key Indigenous reforms have been of limited usefulness for Indigenous people and policymakers. The evidence about what works, including for whom, under what circumstances, at what cost, and why, remains scant.

—Empowered Communities 2015, p 90

Proper policy impact evaluation is also important to build trust within the broader community. Programs to grow First Nations entrepreneurship are relatively new and are now likely to be designed via a ‘partnership approach’ with leading First Nations entrepreneurs and important First Nations business sector intermediaries. However, for this to work, governments need a license from the wider community for policy experimentation, which includes acceptance that mistakes may be made

along the way. That said, the community’s tolerance for such an approach is likely to depend on the extent to which lessons are learnt from these mistakes, which can only happen in an environment of transparency and accountability that is facilitated by robust evaluation of policy.

Too often governments exclude an evaluation framework from policy design, which considerably limits the ability of robust impact evaluation. This is because it is often too difficult to collect data from a ‘like’ comparison group *after* the program is rolled out. In this setting, failure to plan for evaluation can mean resources are wasted on programs that do not work, which can erode political support for Indigenous business programs. A lack of trust from the community that the programs are working may not necessarily lead to their abandonment – but it may lead to tighter and more onerous monitoring and regulation, and less ambitious policy.

Contribution of First Nations businesses to the broader community

In the face of the entrenched legacy of Australia’s racist past, many First Nations entrepreneurs have established successful businesses and corporations that bring unique Indigenous knowledge and perspectives to our economic, social and cultural lives. The best available evidence suggests that the number of registered Indigenous businesses and corporations grew at around 4 per cent per year between 2006 and 2018 (Evans *et al* 2021). It is important to stress two points in relation to this statistic. First, this growth is from a historically low base, with First Nations entrepreneurs being under-represented in national statistics (Hunter 2015). Second, we all stand to benefit enormously by addressing the challenges of trust faced by First Nations entrepreneurs – as vehicles of self-determination, First Nations businesses and corporations provide social, cultural, environmental and economic contributions to Australian society. These benefits or ‘spillovers’ from First Nations business activity need to be understood and valued.

First Nations businesses are diverse in their business models and motivations (Evans and Williamson 2017); there are cultural businesses that provide art and tourism, knowledge-brokering businesses that

work to bring about greater educative relational knowledges and practices, and businesses that look like any other across all industry sectors in Australia. What makes these firms and this type of enterprising distinct is the unique community benefits they create. For instance, cultural businesses, through the provision of art and tourism, help preserve and share the world's oldest living culture, which enriches the lives of all Australians and helps build understanding, trust and social cohesion. Such businesses are often in remote locations where there are few other employment opportunities, which in turn helps build economic independence that is vital for self-determination.

Irrespective of where they operate, First Nations businesses are more likely than non-Indigenous businesses to hire First Nations workers (Hunter 2015). This helps overcome discrimination, which is a major barrier to employment for First Nations people (Shirodkar 2019; Biddle *et al* 2013). First Nations businesses may also provide a more culturally supportive working environment that may help in attaining sustainable and rewarding employment for Indigenous employees. To the extent that improved employment rates increase the financial autonomy, self-esteem and wellbeing of First Nations people, there are likely to be benefits for the wider community through reduced public health costs and income support payments. The more varied and geographically dispersed the sector, the greater the connections and interactions between people from First Nations and non-Indigenous cultures – which, in turn, should lead to greater trust at an individual and community level.

First Nations businesses and corporations are established for a range of purposes. When looking at Indigenous registered corporations under the *Corporations (Aboriginal and Torres Strait Islander) Act 2006*, the most common purpose is to provide public goods (such as education, health, social and cultural services) and infrastructure in remote communities in ways that are responsive to local needs. As such, some corporations have a not-for-profit status and take on roles that would otherwise be filled by local government. In some cases, corporations act as catalysts for growing local

Indigenous businesses by: providing start-up grants and access to finance; being a major local procurer; or investing in local economic infrastructure, such as air strips, road maintenance and telecommunications. Many of these 'non-market facing' corporations also provide cultural and traditional land management services that are focused on living a life in direct connection to Country and help maintain culture and biodiversity for current and future generations of Australians.

Importance of visualising the sector

A necessary step in building trust in the sector, and in efforts of government to support it, is to make the sector visible. The contributions of First Nations businesses and corporations have seldom been mentioned in the discourse of the Australian economy. More often the focus has been on the expense of payments and services from taxpayer dollars to our First Nations people. What will it take to collectively consider the sizable contribution made by Indigenous businesses and corporations to taxpayers and society at large? First Nations businesses and corporations are some of Australia's most heterogeneous entities, with vast diversity across dimensions of location, size and industry. These businesses and corporations drive revenue, pay taxes, employ large numbers of Australians, operate business models with goods and services that are valued by the market and, most notably, show leadership through impact. So why are First Nations economic contributions unknown and not widely celebrated? What is getting in the way of understanding and supporting this growing part of our economy?

The illumination of successes and failures of First Nations businesses and corporations has been elusive to us all, as the statistical rendering of the 'sector' is a challenging project. The idea of making First Nations businesses and corporations more visible is not a new one; many players in government and Indigenous sectors have been working on this 'problem' for more than 20 years. It is a technical challenge that requires: (1) scanning of all locations, industries and sectors to identify First Nations-owned businesses and corporations; and (2) a level of verification to ensure First Nations

ownership. Verification that the business is Indigenous owned is a criterion for participation in government preferential procurement policies; in most cases, this means at least 50% ownership (see NIAA 2020). How governments verify ownership in practice is likely to vary, but lists of Indigenous business registries are commonly used. The national Indigenous Business Directory managed by Supply Nation and funded by the National Indigenous Australians Agency (NIAA) sets the standard for verification of the ownership of all businesses by: requiring the production of Confirmation of Aboriginality Documents for registration; and conducting regular audit checks to ensure majority First Nations ownership and control of the business. In many cases, the main role of registries is to promote Indigenous businesses and not necessarily to meet requirements of preferential procurement policies.

Better data are needed

To make the sector visible and to enable robust evaluation of programs to support it, we need better data. Currently, very little is known about the First Nations business sector because it is not made visible in any existing national survey or administrative data. First Nations-owned businesses are only made visible through various business registries, such as Supply Nation, the Office of the Registrar of Indigenous Corporations, Indigenous Chambers of Commerce (e.g. Kinaway) and the Industry Capability Network Limited (ICNL). Each of these registries have their own processes and ownership validation requirements for registration and are therefore unlikely to be representative of the entire sector. The decision for businesses to register on these lists is likely to be strongly associated with the benefits they perceive from registering. For example, registries like ICNL and Supply Nation that were established to promote Indigenous procurement, especially for large government projects, under-represent small startups that have limited capacity to compete for these contracts (Evans *et al* 2021). Further, many businesses may decide not to register because of fears of negative discrimination or because they cannot, or choose not, to undergo Indigenous

verification processes. Like the decision to register, the decision to have ownership verified is complex, depending on personal and family history, connections to community and sometimes a philosophical stance on being verified by state mandate. This means that any analysis of businesses on any registry or groups of registries is unlikely to be representative of all First Nations businesses and may lead to misleading characterisations of the sector.

To meet this need, we are working in partnership with the Australian Bureau of Statistics (ABS), the NIAA and business registry custodians to bring all anonymised registry data together in one dataset and integrate it with annual outcome data (back to at least 2008) from the ABS. This project – known as the *Indigenous Economic Power Project (IEPP)* – will track procurement and First Nations business outcomes for a period that spans before and after the implementation of government preferential procurement policies. The ABS outcome data will include business outcomes (including Indigenous employment, business income, measures of business viability) from the Business Longitudinal Analysis Data Environment (BLADE) and community outcomes data (health, education and financial wellbeing) from the Multi-agency Data Integration Project (MADIP). These data will be used to produce a comprehensive national picture of registered businesses and their contribution to the community each year and to conduct robust impact analysis to measure the effectiveness of affirmative action policies and how they can be tweaked to ensure all Indigenous businesses share in their benefits. The latter is part of an Australian Research Council Linkage project *Evaluating the Impact of Indigenous Preferential Procurement Programs* in partnership with the NIAA, the ABS, FMG, the Minerals Council of Australia and Procurement Australasia.

As important as comprehensive registry data are for identifying businesses for potential government support, there are likely to be many First Nations businesses that do not make themselves visible for various reasons, as discussed above. Ideally, the use of *IEPP* for policy analysis will be supported through the development of a comprehensive database of *all* Indigenous-owned (but not necessarily verified)

businesses. Although such a database should not be used to represent the sector, it could be used in tandem with registry data to identify what proportion of the sector chooses to remain invisible, the types of businesses that remain invisible and their motivations for remaining invisible. This knowledge will be important for designing policy to support the sector more widely and equitably, without compromising the integrity of that support. Despite the enormous potential of the *IEPP* to make the sector and its contribution visible and to understand and improve government policies,

there is a need for stronger cooperation between government, First Nations business leaders and researchers to bring it to fruition. Such cooperation is difficult in the shadow of our racist past that has excluded First Nations people from power with dire policy consequences mostly unacknowledged. The hope is that the promise of mutual benefits for the First Nations business sector, the First Nations communities they serve and wider Australia society will be enough to convince leaders to work together to build the necessary data to make the sector – and its hidden benefits – visible. ✖

Endnotes

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References

- Biddle N, M Howlett, B Hunter and Y Paradies (2013), 'Labour Market and Other Discrimination Facing Indigenous Australian', *Australian Journal of Labour Economics*, 16(1), pp 91–113.
- Empowered Communities (2015), 'Empowered Communities: Empowered Peoples — Design Report', Wunan Foundation, Sydney.
- Evans M, C Polidano, J Moschion, M Langton, M Storey, P Jensen and S Kurland (2021), *Indigenous Businesses Sector Snapshot Study, Insights from I-BLADE 1.0*. University of Melbourne, Melbourne.
- Evans MM and IO Williamson (2017), 'Understanding the Central Tension of Indigenous Entrepreneurship: Purpose, Profit and Leadership', *Academy of Management Proceedings*, 2017(1), pp 1–6.
- House of Representatives Standing Committee on Indigenous Affairs (2021), 'Report on Indigenous Participation in Employment and Business', Parliament of Australia, 30 August.
- Hunter B (2015), 'Whose Business Is It to Employ Indigenous Workers?', *The Economic and Labour Relations Review*, 26(4), pp 631–651.
- NIAA (National Indigenous Australians Agency) (2020), 'Indigenous Procurement Policy', December. Available at <<https://www.niaa.gov.au/sites/default/files/publications/ipp-guide.pdf>>.
- Shirodkar S (2019), 'Bias Against Indigenous Australians: Implicit Association Test Results for Australia', *Journal of Australian Indigenous Issues*, 22(3–4), pp 3–34.

Household Liquidity Buffers and Financial Stress

Lydia Wang^[*]



Photo: Viaframe – Getty Images

Abstract

The ratio of household liquid assets to household income in Australia has increased substantially over recent decades, at both the aggregate and individual household levels. The increase in buffers has been most pronounced for households with mortgage debt and among indebted households – with those with the most debt typically holding the highest liquidity buffers. This is important from a financial stability perspective as liquidity buffers allow households to smooth their spending and maintain their debt payment obligations in the event of adverse shocks to their cash flows; as such, they are a key factor in reducing household financial stress. This article considers these trends and finds that, to the extent that rising liquidity buffers have increased household financial resilience, the risks associated with high and rising household indebtedness are unlikely to be as great as suggested by focusing on gross debt-to-income ratios alone.

Introduction

Over recent years, there has been a substantial increase in aggregate household liquidity buffers in Australia (Graph 1). The stock of household liquid assets relative to household income has increased by around 50 percentage points since 2010; at its current level of around 190 per cent, it is now similar to the aggregate household debt-to-income (DTI) ratio. Liquid assets include cash and other assets that can be quickly converted into cash (such

as bank deposits and equities), and so provide a source of funds that households can draw upon during periods of income loss or higher expenses. This, in turn, allows households to smooth their spending and maintain their payment obligations – including their debt payments – over time.

In aggregate, the rise in household liquidity buffers has accompanied a trend decline in the share of households reporting financial stress, despite the well-documented rise in the household DTI ratio (La

Cava and Wang 2021). To the extent that rising liquidity buffers have increased household financial resilience, the risks associated with the high and rising DTI ratio may not be as great as suggested by the gross DTI ratio alone. Indeed, after taking the rapid growth in liquid assets into account, the household sector's net DTI ratio has declined substantially over the past 10 years or so, and especially during the pandemic period when household liquid assets grew rapidly. The value of household liquid assets now almost matches the value of gross household debt.

However, from a financial stability perspective, it is not just the size of the aggregate stock of buffers that matters, but their distribution across individual households. In particular, the ability of a given stock of buffers to reduce the probability of default on lenders' housing books will be greater if these buffers are held by those households with the most debt. Similarly, buffers will also provide greater protection against income shocks for households and their lenders if they are held by those borrowers who are more prone to experiencing income loss and/or by those with lower incomes who may find it more difficult to cover a given increase in expenses.

The article has two key findings:

1. The size of liquidity buffers has been a key determinant of whether a borrower reports facing difficulties paying their mortgage and subsequently entering arrears. In particular, households with low liquidity buffers have been

much more likely to encounter financial difficulty than those with higher buffers.

2. The distribution of liquidity buffers is reasonably well matched to those households who are most likely to need to use them, although there are some vulnerable groups. Specifically, indebted households have accumulated substantial buffers and, within this group, those with the most debt have tended to have higher buffers than those with less debt. Similarly, borrowers who have previously experienced large income losses also generally have higher buffers than those with more stable sources of income. There are, however, some low-income borrowers with only small liquidity buffers to protect them from financial stress.

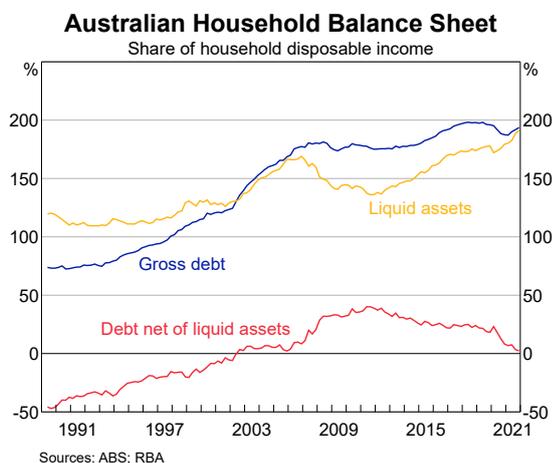
Data

In assessing the distribution of liquidity buffers and the role it plays in the resilience of indebted households, it is necessary to use household-level data to determine whether the households with debt also have liquid assets. Both the Survey of Income and Housing (SIH) and the Household, Income and Labour Dynamics in Australia (HILDA) enable us to do this, each with their own advantages.^[1] The SIH survey is broadly representative of the Australian household sector, though the sample varies over time. By contrast, the HILDA survey tracks a constant group of individual households over time. Both surveys contain a range of questions covering data that is both quantitative (e.g. the level of household debt and income) and qualitative (e.g. whether a respondent has been unable to make a mortgage repayment). These features allow us to map household balance sheet characteristics to self-reported measures of financial resilience.

It should be noted that the available data have some shortcomings, including:

- When examining specific household characteristics, the number of relevant households in the sample can be small, and so the results may not be representative of the entire population.

Graph 1



- The latest data are from 2018, so it is possible that the characteristics of the relevant households may have changed since the most recent survey.
- Balances in redraw facilities, which should ideally be included as liquid assets, are not collected in survey data. This will understate the actual level of household liquidity buffers for indebted households and, if changes in redraw balances are not reflective of broader changes in liquid asset holdings, could also make it difficult to interpret trends.

Recent trends in household liquidity buffers

The increase in liquidity buffers has been driven by households with mortgage debt

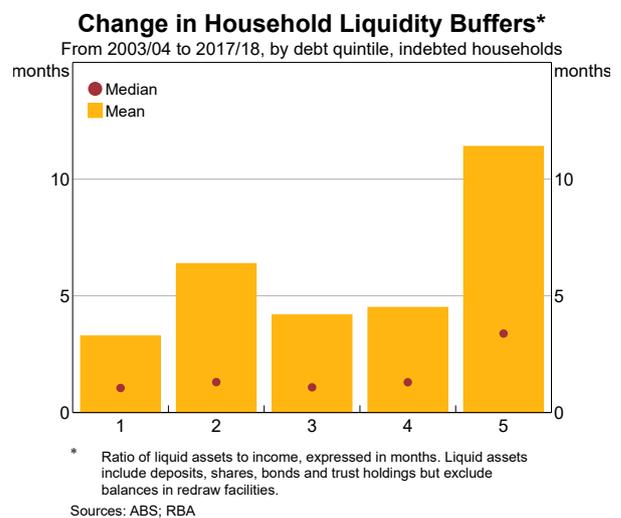
In levels terms, household liquidity buffers are unevenly distributed across households with different types of housing tenure. Outright home owners (many of whom are retired) hold the largest liquidity buffers, though the buffers of indebted home owners are also substantial. Renters have the lowest liquidity buffers, in part because many are young households who have had less time to build them up. The remainder of this article focuses on liquidity buffers for households with mortgage debt, as they are most likely to pose direct risks for financial stability.

The increase in household liquidity buffers has been broad based across households with different housing tenures, but strongest among those with mortgage debt. The SIH data suggest that around 70 per cent of the increase in household liquidity buffers between 2003/04 and 2017/18 was by households with mortgage debt (around one-third of the household population). The increase in liquidity buffers was evident for indebted households across the debt distribution, but most evident for those with debt in the top quintile (20 per cent) (Graph 2). It is worth noting, however, that the level of debt net of liquid assets increased across the debt distribution, including for those with the most debt. This indicates that over the period between 2003/04 and 2017/18 the increase

in liquidity buffers did not offset all the risks associated with the increased level of indebtedness.

Although the latest available survey data are now somewhat dated, other sources indicate that household liquidity buffers have continued to increase since 2017/18, including for indebted households. The aggregate household saving ratio has increased sharply since the onset of the pandemic, largely reflecting a combination of significant fiscal support payments and reduced consumption opportunities (RBA 2022a). For indebted households, prepayment balances (in offset accounts and redraw facilities) make up a large proportion of household liquid assets.^[2] Data collected by the Australian Prudential Regulation Authority show that the aggregate stock of prepayment balances relative to aggregate household income has increased by around 15 per cent since 2018, while the aggregate housing DTI ratio has been little changed over the same period. These more recent increases in buffers for indebted households have continued to be broad based, with evidence from the Reserve Bank's Securitisation Dataset suggesting that around 40 per cent of owner-occupier variable-rate loans (including loans with high debt) have increased their buffers by at least 12 months since 2018.

Graph 2



Highly indebted households typically have higher stocks of liquid assets

In addition to having experienced the largest increases in buffers since the early 2000s, households with the most debt also tend to have the highest liquidity buffers relative to their income (Graph 3, top panel). The most indebted borrowers are also less likely than those with more moderate debt levels to be liquidity constrained or ‘hand-to-mouth’, though they are still more likely to be liquidity constrained than those with very low levels of debt (Graph 3, bottom panel). For this exercise, liquidity-constrained borrowers are defined as those whose liquid wealth is less than one week’s worth of their income (Kaplan, Violante and Weidner 2014).

The most indebted households tend to have large liquidity buffers. This reflects that indebted housing investors, who typically have multiple mortgages and therefore more debt, have larger liquidity buffers on average than owner-occupiers (Graph 4). This is not surprising as housing investors tend to have higher incomes and higher total wealth. In contrast to owner-occupier loans, tax incentives discourage borrowers to prepay their investment loans. As such, investors prefer to save using other methods, such as prepaying their owner-occupier loans (if they have them, as many do) or owning shares. Consistent with this, housing investors are

much less likely to be liquidity constrained than owner-occupiers.

Household liquidity buffers have been rising across all income levels

All else equal, aggregate financial stability risks are lower if adequate liquidity buffers are held by those households who are most vulnerable to income or expenses shocks. This vulnerability is likely to be higher for those with more volatile incomes and/or those with lower incomes who may find it more difficult to cover a given increase in expenses.

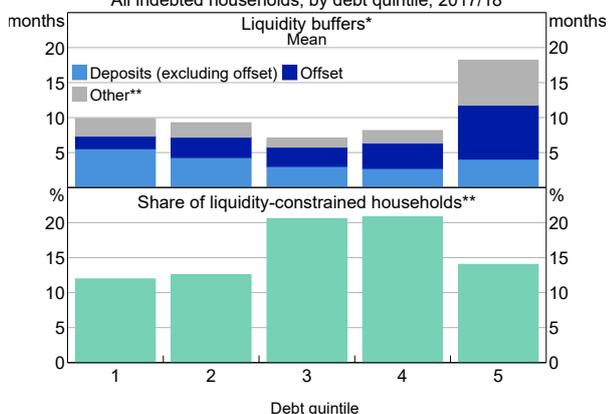
The increase in household liquidity buffers has been broad based for households across the income distribution, including for those with relatively low incomes (Graph 5).

The lowest and highest income households have larger liquid assets relative to their incomes than middle-income households (Graph 6, top-panel). There is considerable variation within the lowest income group as it comprises both retirees with sizable holdings of liquid assets and a relatively high share of (typically younger) liquidity-constrained borrowers (Graph 6, middle-panel). The high share of liquidity-constrained borrowers among low-income households suggests that some do not have sufficient liquidity buffers to protect them from financial stress. Moreover, low-income households tend to have relatively high net DTIs after taking into account their liquidity buffers, making them more vulnerable to cash flow shocks.

Graph 3

Household Liquidity and Indebtedness

All indebted households, by debt quintile, 2017/18



* Ratio of liquid assets to income, expressed in months. Liquid assets include deposits, shares, bonds and trust holdings but exclude balances in redraw facilities.

** Households whose liquid wealth is less than one week of income.

Sources: ABS; RBA

Graph 4

Household Liquidity Buffers Distribution*

By mortgagor type, 2017/18



* Ratio of liquid assets to income, expressed in months. Liquid assets include deposits, shares, bonds and trust holdings but exclude balances in redraw facilities.

Sources: ABS; RBA

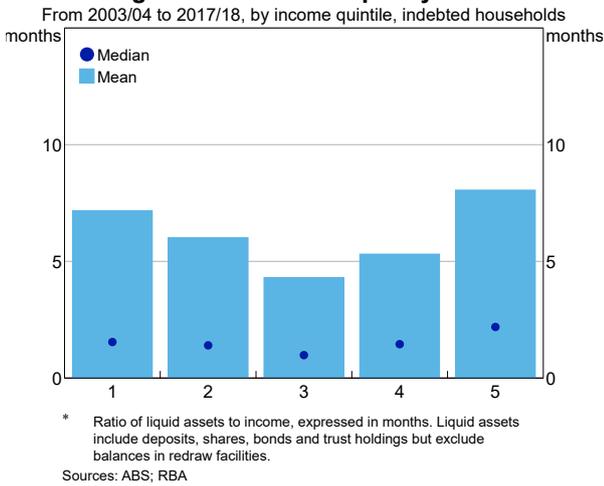
By contrast, high-income households are less risky, with household liquid assets tending to increase with household incomes. This is not surprising as higher income households are likely to have more cash left over after meeting their living expenses and are therefore more able to save. They are also likely to have more opportunities to reduce discretionary spending if required.

In addition to income levels, a household's probability of experiencing sudden income losses will also influence their vulnerability to cash flow shocks. Regression analysis confirms this, indicating that households who have previously experienced a

substantial income loss (defined as annual income that is more than 10 per cent lower than their average income over the previous three years) are more likely to experience future mortgage stress (even after controlling for their income level).^[3] The survey data suggest that low-income households were much more prone to income losses than other borrowers, with around 20 per cent of households in the lowest income quintile having previously experienced a substantial income loss, compared to only 4 per cent of households in the top income quintile. However, within each income quintile, the buffers held by those who had previously experienced a substantial income loss tended to be larger than those who had not, with these differences generally statistically significant (Graph 6, bottom-panel).

Graph 5

Change in Household Liquidity Buffers*

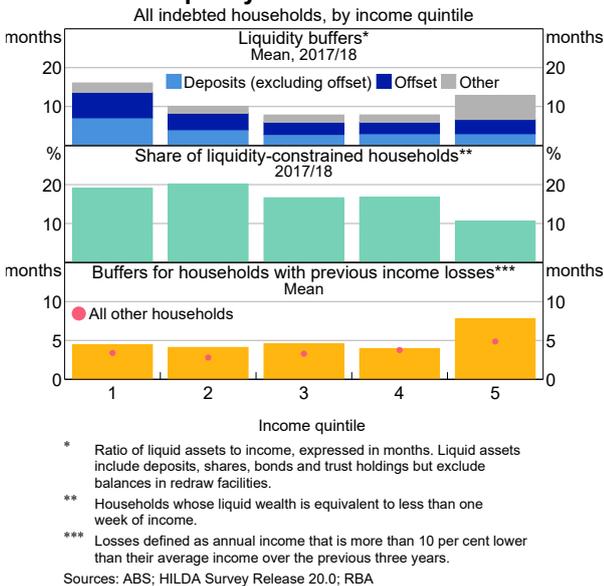


The share of liquidity-constrained households has fallen

Consistent with the broad-based increase in liquidity buffers, the share of indebted households who have low buffers and are therefore liquidity constrained has declined. As a result, the share of indebted households who are most at risk of defaulting on their loans in the event of an adverse cash flow shock has fallen over time. Moreover, based on the 'hand-to-mouth' measure of liquidity constraints, the total share of aggregate mortgage debt held by liquidity-constrained households nearly halved between the early 2000s and 2017/18 (Graph 7).

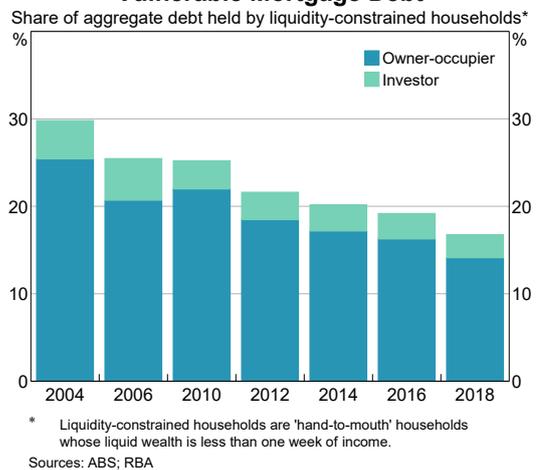
Graph 6

Household Liquidity and Income Characteristics



Graph 7

Vulnerable Mortgage Debt



Household liquidity buffers and mortgage stress

This section examines the relationship between self-reported mortgage repayment difficulties (mortgage stress) and household liquidity buffers in more depth. Specifically, it uses a simple regression framework to identify the effect of current liquidity buffers on self-reported mortgage stress, after controlling for other borrower and loan characteristics (key regression results are reported in Appendix A).^[4] The key findings are:

- Borrowers with low liquidity buffers are much more likely to report missing a mortgage payment due to financial difficulties than borrowers with higher buffers.
- For owner-occupier borrowers, the relationships between borrower indebtedness – as measured by their DTIs, loan-to-valuation ratios (LVRs) or net income surpluses (NIS) at loan origination – and mortgage stress is much weaker after taking borrowers’ liquidity buffers into account.^[5]

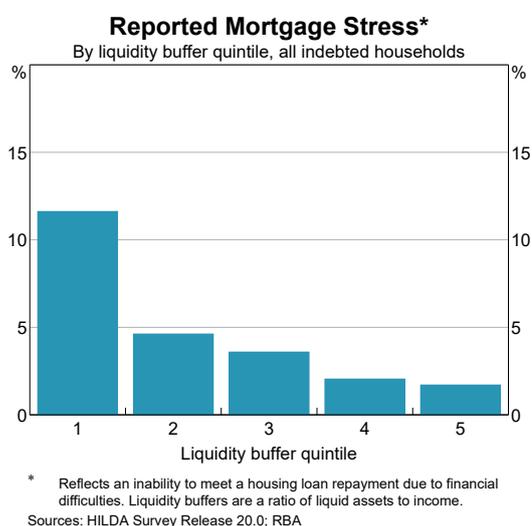
The effect of liquidity buffers on mortgage stress appears to be non-linear. Very low liquidity buffers are associated with a higher probability of mortgage stress, with this probability declining sharply as buffers rise above the bottom 20 per cent of the distribution, which roughly corresponds to around one-half of one month’s income (Graph 8). However, as buffers rise beyond this level, the decline in the incidence of mortgage stress becomes much more gradual.

Highly indebted households – as measured by those with a high initial DTI ($DTI \geq 6$), a high initial LVR ($LVR \geq 90$) or a low initial NIS (bottom quintile of the NIS distribution) – tend to be more likely to report mortgage stress (RBA 2021). However, these differences are most pronounced for those with low liquidity buffers (Graph 9).

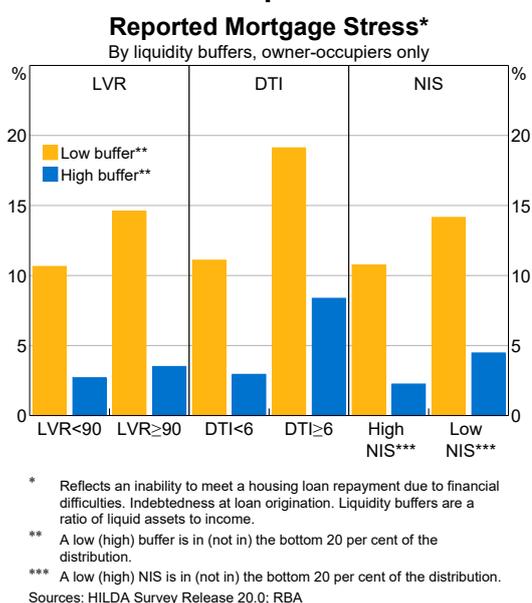
Regression analysis allows the relationships between indebtedness, liquidity buffers and mortgage stress to be tested more formally. Owing to data limitations, this exercise can only be conducted for owner-occupier borrowers. The analysis confirms that households with low liquidity buffers are more likely to report mortgage stress

than other borrowers after controlling for a range of borrower and loan characteristics, further reinforcing that liquidity buffers are an important risk mitigant. The analysis also indicates that borrowers with a high initial DTI or a low initial NIS are in fact no more likely to report mortgage stress after controlling for their liquidity buffers, as well as their household income characteristics (both the level of income and a dummy variable indicating whether the household had previously experienced a substantial income loss, discussed further below). By contrast, borrowers with a high initial LVR remain more likely to report mortgage stress after controlling for these other factors, though the

Graph 8



Graph 9



relationship between the initial LVR and mortgage stress is weaker for those households with adequate buffers. Taken together, the results imply that adequate liquidity buffers at the household level can greatly reduce the financial stability risks that might otherwise be posed by high levels of indebtedness. In addition to liquidity buffers, the regression results suggest that household income characteristics are also an important determinant of self-reported mortgage stress. Higher income households are less likely to encounter mortgage repayment issues, even after controlling for liquidity buffers and other factors including previous substantial income loss. This suggests that higher incomes reduce the incidence of mortgage stress beyond their effect on the ability of households to build liquidity buffers, and it is not just because higher income borrowers have more stable income sources. A possible explanation for the effect of income on mortgage stress is that shocks to expenses may be more easily absorbed by higher income households.

Overall, the results suggest that household indebtedness by itself has not historically had a strong relationship with self-reported mortgage stress. Instead, it is a household's capacity to meet a given level of debt obligations (as determined by their liquidity buffers and income) that has been the more important determinant of whether a household falls behind on their mortgage payments.

The relationship between liquidity buffers and loan arrears

While mortgage repayment difficulties can be an early indicator of default, it may instead simply represent a short-term liquidity problem. Loan arrears – defined as loans that are actually behind schedule, as opposed to a household simply facing difficulties meeting repayments – are a more extreme measure of mortgage stress than the self-reported mortgage stress indicator in the HILDA survey and are more directly related to financial stability risks via losses for lenders. Therefore, this study used loan-level data from the Securitisation Dataset to complement the analysis on mortgage stress from the HILDA Survey.^[6]

Loan-level data from the Securitisation Dataset suggest that over 40 per cent of owner-occupier variable-rate loans currently in arrears had less than three months of prepayments one year prior to entering arrears; this compared to over one-quarter of performing loans (Graph 10). For this exercise, prepayments are defined as the sum of balances in offset accounts and redraw facilities in months of minimum repayments and so are a different measure of household liquidity buffers from the one in the survey data.^[7] Consistent with this, regression analysis suggests that loans that had less than three months of prepayment buffers were around twice as likely to enter 90+ day arrears, after controlling for economic conditions and borrower and loan characteristics.^[8]

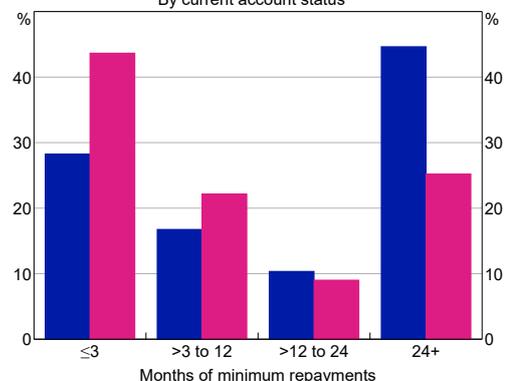
Conclusion

Household liquidity buffers have risen over time, with more than 70 per cent of the total increase in liquid assets from 2003/04 to 2017/18 belonging to the one-third of all households with debt. This is important as there is strong evidence that the size of liquidity buffers is a key determinant of whether a borrower will report facing difficulties paying their mortgage and ultimately enter arrears. In particular, households with low liquidity buffers have been much more likely to report facing mortgage repayment difficulty than those with higher buffers, after controlling for other borrower and loan

Graph 10

Excess Payment Buffers*

By current account status**



* Offset plus redraw balances; measured in months of minimum repayments.

** Share of owner-occupier variable-rate loans (excluding split loans) by account status as at April 2022.

Sources: RBA; Securitisation System

characteristics that could be associated with financial stress (such as their income levels or whether the loan has a high initial DTI or LVR ratio). This underscores the important role that the accumulation of household liquidity buffers has played in reducing the potential risks posed by

highly indebted households (RBA 2022b). To the extent that liquidity buffers can protect households from financial stress, the increase in liquidity buffers suggests that the financial stability risks associated with rising household indebtedness are lower than the gross aggregate household DTI ratios appear. ✎

Appendix A

Table A1: Reported Mortgage Stress

Logit, odds ratios, owner-occupiers only

	(1)	(2)
Liquidity buffers in 1 st quintile (dummy)	1.04*** (0.27)	1.04*** (0.27)
Log of disposable income	-0.97** (0.38)	-0.81** (0.36)
Income loss (dummy)	0.86*** (0.32)	0.91*** (0.32)
Age of borrower	0.03** (0.01)	0.03** (0.01)
Household size	0.20** (0.10)	0.18* (0.10)
Log of NIS at origination	-0.01 (0.03)	
DTI at origination	-0.04 (0.07)	
LVR at origination	0.01** (0.01)	
NIS at origination in 1 st quintile (dummy)		0.37 (0.29)
DTI \geq 6 at origination (dummy)		-0.25 (0.50)
LVR \geq 90 at origination (dummy)		0.73** (0.30)
Constant	3.46 (4.24)	2.23 (4.24)
Observations	1,355	1,355
Pseudo R2	0.140	0.145

Note: Estimates of dummies for year of loan origination are omitted; robust standard errors in parentheses; *** p<0.01, ** p<0.05, * p<0.1.

Endnotes

- [*] The author is from Financial Stability Department. The author would like to thank Amelia Gao for the analysis of prepayment buffers in the Reserve Bank's Securitisation System, and Jonathan Kearns and Michelle Wright for their assistance in drafting this article.
- [1] The SIH consists of cross-sectional data on household loans, which is collected by the Australian Bureau of Statistics every two years. The available sample period ran between 2003/04 and 2017/18. The HILDA Survey is an annual survey that has tracked a representative group of individual households since 2001. Every four years the survey includes a wealth module, which collects detailed information on household assets and liabilities; the latest observation for household wealth (and therefore liquidity buffers) is for 2018.
- [2] An offset account is an at-call deposit account that is directly linked to the mortgage loan. Funds deposited into an offset account reduce the effective outstanding loan balance and therefore the interest payable on the loan. A redraw facility enables the borrower to withdraw excess funds they have already contributed to pay off their loan. The balance of the facility consists of any extra payments the borrower has previously made towards paying their loan, above the amount required by the loan contract. See La Cava and Wang (2021).
- [3] Note that 'substantial income loss' is a backward-looking measure that does not necessarily predict vulnerability to future income loss.
- [4] From 2006, the HILDA Survey's wealth modules ask owner-occupiers if they had been unable to meet a mortgage payment because of financial difficulties. Missing a mortgage payment does not necessarily correspond to the borrower defaulting, but it represents an early stage of the default process. Previous research by the Bank found that households who had previously missed a mortgage payment were more likely to miss another mortgage payment (Read, Stewart and La Cava 2014).
- [5] The NIS refers to the amount of income remaining each month after covering basic living expenses and mortgage payments.
- [6] As loans in the Securitisation System tend to be of higher credit quality, the level of arrears rates in the Securitisation System is lower than that of the broader mortgage market; however, the trends are similar.
- [7] Various data limitations mean that it is not possible to use like-for-like measures of liquidity buffers across the survey and Securitisation Dataset.
- [8] Control variables include indexed scheduled LVR, original LVR, loan types, borrower type, income, self-employment status, region and local unemployment rate.

References

- Kaplan G, GL Violante and J Weidner (2014), 'The Wealthy Hand-to-Mouth', *Brookings Papers on Economic Activity*, pp 77–138.
- La Cava G and L Wang (2021), 'The Rise in Household Liquidity', RBA Research Discussion Paper No 2021-10.
- RBA (Reserve Bank of Australia) (2021), 'Mortgage Macroprudential Policies', *Financial Stability Review*, October.
- RBA (2022a), 'Household and Business Finances in Australia', *Financial Stability Review*, April.
- RBA (2022b), 'Box B: How Risky is High-DTI and High-LVR Lending?', *Financial Stability Review*, April.
- Read M, C Stewart and G La Cava (2014), 'Mortgage-related Financial Difficulties: Evidence from Australian Micro-level Data', RBA Research Discussion Paper No 2014-13.

HILDA Disclaimer

An International Perspective on Monetary Policy Implementation Systems

Nick Baker and Sally Rafter^[*]



Photo: Yuichiro Chino – Getty Images

Abstract

In response to the COVID-19 pandemic and building on policies introduced during the global financial crisis, central banks in advanced economies deployed balance sheet policies to support their economies and address disruptions to the smooth functioning of financial markets. The introduction of these policies has changed how most of these central banks implement their primary policy tool – the policy rate. This article describes how many central banks transitioned from a corridor system of monetary policy implementation to a de facto floor system. It also details the range of implications of choosing a floor system. While this transition may prove to be temporary for some central banks, others have signalled that they expect to retain a floor system in the long term.

Introduction

Central banks in advanced economies implement monetary policy using a variety of policy tools. The primary policy tool used by many central banks is the policy interest rate (or target for the policy rate, shortened to ‘policy rate’ hereafter); however, other tools can also be used, including forward guidance, price or quantity targets for asset purchases, and the provision of low-cost, long-term funding to banks. Central banks generally make use of similar

incentives to align one or more short-term market interest rates with the policy rate. These incentives are a key element of most monetary policy implementation frameworks.

Most central banks in advanced economies use frameworks that influence the interest rate at which banks lend and borrow funds to each other on an overnight basis (the ‘overnight interbank rate’). The overnight interbank rate, in turn, influences other short-term market rates as part of the monetary

policy transmission mechanism. There are five aspects of the market for overnight interbank funding, which help explain how these frameworks operate:^[1]

- **Price:** the price of funding is the interest rate banks charge to lend funds to other banks overnight.
- **Quantity:** the quantity of funds in this market is made up of bank reserves balances, which are at-call deposits banks hold at the central bank and use to settle payment obligations with other banks. Banks are required to have a non-negative balance of reserves at all times, and some central banks also require balances to be above zero (or at least to average some specified amount over time). It can be difficult for banks to predict whether they will have adequate funds on any given day; depending on their needs on the day, banks may trade reserves with one another in the interbank overnight cash market to ensure they have sufficient funds to settle all payment obligations.
- **Demand:** this is the aggregate level of reserves banks want to hold. Demand can vary for many reasons, including changing financial market conditions.
- **Supply:** this is the level of reserves available to banks. Transactions between a central bank (and its clients, such as the government) and commercial banks (and their clients) change the supply of reserves throughout the day. Central banks can control the supply of reserves through open market operations (OMOs) and other transactions that can inject reserves into, or drain reserves from, the payments system.^[2]
- **Standing facilities:** central banks provide banks with access to deposit and lending facilities – together known as ‘standing facilities’ – which create a range of interest rates that provide banks with an incentive to trade reserves among themselves. The interest rate on a central bank’s deposit facility (the ‘deposit rate’) is the overnight rate it pays banks on their reserve holdings. The interest rate on a central bank’s lending facility (the ‘lending rate’) is the overnight rate banks pay to borrow reserves

from the central bank. Banks have no incentive to lend reserves to each other at a rate below the deposit rate because they can earn a higher return by using the deposit facility. Similarly, banks should have no incentive to borrow reserves from each other at a rate above the lending rate because they can pay less to use the central bank’s lending facility.^[3]

Where the overnight interbank rate settles between the deposit rate and the lending rate is determined by the supply of, and demand for, reserves. In recent history, central banks have generally used two types of monetary policy implementation systems within their frameworks: a corridor system; and a de facto floor system (shortened to ‘floor system’ hereafter). The key element that distinguishes these systems is the supply of reserves.

As shown in Graph 1, under a corridor system, reserves are intentionally scarce and central banks use OMOs to fine tune the supply of reserves so that the overnight interbank rate trades to be close to the policy rate (which is often set in the middle of the rate corridor) (Domestic Markets Department 2019). For example, if the supply of reserves falls – perhaps because large amounts of tax are being paid into a government account at the central bank – the central bank will supply reserves to keep the overnight interbank rate close to the policy rate. Similarly, a central bank will supply reserves if there is an increase in the demand for reserves. Larger shocks to the demand for, or supply of, reserves will require a central bank to add or withdraw a greater quantity of reserves to keep the overnight interbank rate close to the policy rate. As reserves are scarce, banks have to manage their daily funding requirements by actively trading reserves with one another in the overnight funding market.

By contrast, under a floor system a central bank supplies a level of reserves that is in excess of demand. In other words, the supply curve sits on the flat part of the demand curve, as shown in Graph 2. The overnight interbank rate typically settles to be relatively close to the deposit rate. This is because the excess level of liquidity means there are plenty of banks with surplus funds willing to lend, and so those banks that need to borrow do not need to pay rates much above the deposit rate

to obtain funding in this market. In this system, a central bank does not need to regularly fine tune the amount of reserves and typically only needs to conduct OMOs if there is a large shock to demand or supply of reserves.

Balance sheet policies and the transition from a corridor to a floor system

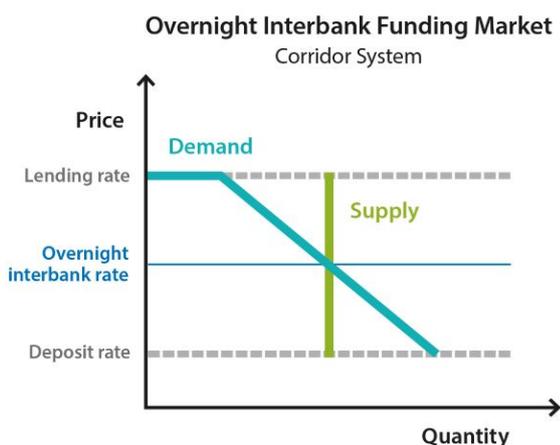
In response to the COVID-19 pandemic and building on policies introduced during the global financial crisis (GFC), most central banks in advanced economies engaged in balance sheet policies, including large-scale asset purchases and lending schemes.^[4] These measures materially increase the supply of reserves because balance sheet policies are funded by the creation of central bank reserves. For the US Federal Reserve (Fed) and

the Bank of England (BoE), reserve liabilities increased significantly in the years following the GFC (Graph 3) (Ng and Wessel 2019; BoE 2021). For the European Central Bank (ECB), reserve liabilities fluctuated in the years following the GFC and the European debt crisis, and increased more permanently from around 2015 (Cerclé, Monot and Le Bihan 2021).

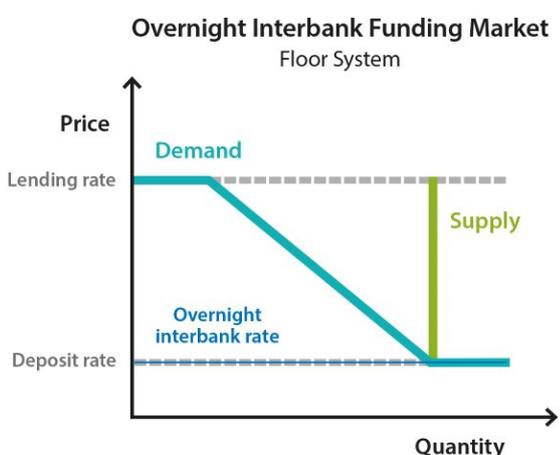
In response to the large increase in reserves that were far in excess of demand (hence they were commonly referred to as being ‘abundant’), most central banks transitioned to a floor system. The Reserve Bank of New Zealand (RBNZ) and the Bank of Canada (BoC) transitioned to floor systems following the COVID-19 crisis, joining those other central banks in advanced economies that followed a similar path following the GFC.^[5] At present, the Reserve Bank of Australia (RBA) is effectively operating a floor system owing to the large amount of liquidity in the payments system (Debelle 2021). By contrast, Sveriges Riksbank (the Riksbank) has maintained a corridor system that relies on draining a material proportion of reserves created by its asset purchases to steer short-term market interest rates close to its policy rate target (Sveriges Riksbank 2022a).

As central banks have transitioned to floor systems, OMOs have become less prominent. In general, the value transacted is smaller, and the operations are conducted less frequently. The abundant liquidity in the payments system means central banks no longer need to fine tune the supply of reserves to

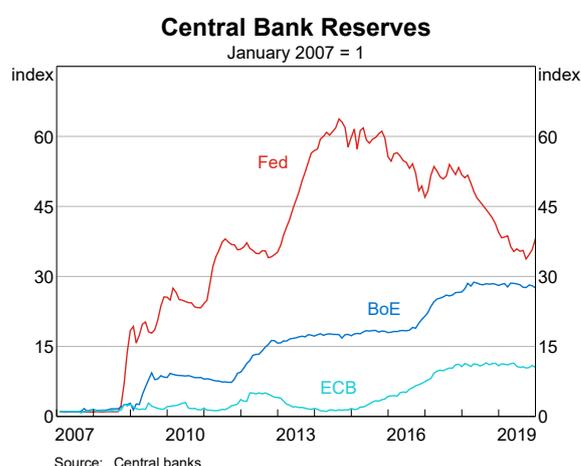
Graph 1



Graph 2



Graph 3



meet demand. However, most central banks continue to use OMOs at least on an ad hoc basis, typically to provide term liquidity or liquidity when market conditions deteriorate and demand for reserves increases (Schrimpf, Drehmann and Cap 2020). The continued operation of OMOs also ensures that banks retain operational links with the central bank and maintain the operational capacity to obtain reserves under OMOs.

The different ways to express the policy rate

Some central banks express their policy decision in terms of one or more of the interest rates they administer, commonly the deposit rate. Other central banks express it as a target for one or more market interest rates. The target may be a range of values or a single value, and the relevant market interest rate may cover unsecured or secured borrowing (or both). A summary of selected central bank policy rates is shown in Table 1.

The ECB, the BoE, the RBNZ and the Riksbank express policy in terms of one or more administered rates. The ECB sets three key interest rates: the rate on the deposit facility; the rate on the main refinancing operations (MRO); and the rate on the marginal lending facility (ECB 2022). The BoE and the RBNZ explicitly set the policy rate equal to the deposit rate, while the Riksbank defines the policy rate as the interest rate at which banks can borrow or deposit funds at the Riksbank for a period of seven days.

By contrast, the Fed, the BoC and the RBA express the key policy rate as a target for one or more key money market rates. The Fed specifies a target range, while the BoC and the RBA specify a target value. In recent years, the Fed, the BoC and the RBA have all adjusted where the target rate (or the midpoint of the target range for the Fed) sits in relation to its deposit and lending rates. For example, since March 2020, the BoC has set its deposit rate equal to its target for the overnight rate (BoC 2022b). Targets for the policy rate vary across these central banks; while the Fed and the RBA target a market rate based on unsecured transactions, the BoC considers a range of market rates, including the Canadian Overnight Repo Rate

Average (CORRA) which is based on secured transactions.

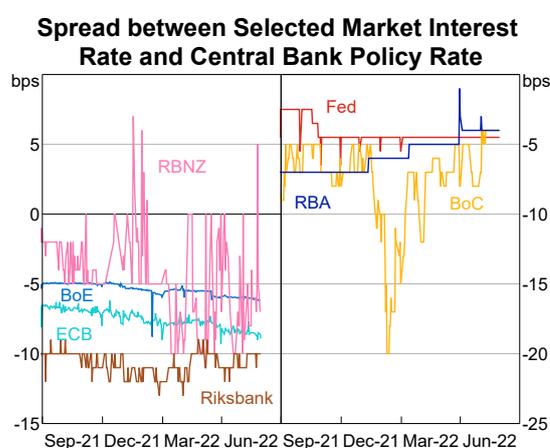
Irrespective of how a central bank defines the policy rate, at present key short-term market rates tend to trade below the policy rate (which, in many cases, equals the deposit rate) (Graph 4). The negative spread between market rates and policy rates in part reflects that the market rates consider bank borrowing costs from non-bank entities that do not have access to central bank deposit facilities. In Australia, the cash rate sits below the RBA's cash rate target but above the deposit rate because: the cash rate is based on unsecured overnight loans between banks, and so there is no incentive to lend below the deposit rate; and these banks require compensation for lending to a commercial bank rather than depositing money at the RBA.

The implications of choosing a floor system

There are a range of implications of choosing to operate a floor system, including:

- **Balance sheet flexibility.** Under a floor system, a central bank can implement balance sheet policies, and so expand its supply of reserves, without affecting the rest of its operational framework. In economies where the effective lower bound for central bank policy rates may be binding with some frequency, such policies may be required more often. Consequently, it

Graph 4



* The selected market interest rates for each central bank are in brackets: ECB (Euro Area Short Term Rate); BoE (Sterling Overnight Index Average); RBNZ (Overnight Interbank Cash Rate); Riksbank (Swedish krona Short Term Rate); Fed (Effective Federal Funds Rate); BoC (CORRA); RBA (Cash Rate).

** For the Riksbank, the observation from the last banking day of 2021 has been omitted because the Swedish krona Short Term Rate falls very heavily on this day.

Source: Central banks

Table 1: Central Bank Policy Rates in Selected Advanced Economies

	Policy rate	Rate type	Rate description
ECB	Deposit facility rate	Administered rate	Interest rate on excess bank reserves ^(a)
BoE	Bank rate	Administered rate	Interest rate on bank reserves ^(b)
RBNZ	Official cash rate	Administered rate	Interest rate on bank reserves
Sveriges Riksbank	Policy rate	Administered rate	Interest rate at which banks can borrow or deposit funds at the Riksbank for a period of seven days
Fed	Target range for federal funds rate	Market rate target	Targets interest rate on unsecured overnight loans between banks and certain other entities, primarily government sponsored enterprises
BoC	Target for overnight rate, which is proxied by multiple indicator rates; one key indicator rate is the CORRA	Market rate target	Targets interest rate at which major participants in the money market borrow and lend overnight funds among themselves; CORRA measures the cost of overnight general collateral funding in Canadian dollars using Government of Canada securities as collateral for repo transactions
RBA	Cash rate target ^(c)	Market rate target	Targets interest rate on unsecured overnight loans between banks

(a) The ECB requires credit institutions established in the euro area to hold a minimum level of reserves that are remunerated at an interest rate equivalent to the MRO rate (ECB 2016). Reserves in excess of the minimum requirement are referred to as excess bank reserves. Since September 2019, the ECB has used a two-tier system to remunerate banks' excess reserves (ECB 2019).

(b) For most participants in the payments system, all reserves are remunerated at the policy rate as there is currently no maximum or minimum reserve balance. The exception is for central counterparties and International Central Securities Depositories, which the BoE requires maintain a pre-specified average target balance for each maintenance period (BoE 2022b).

(c) At present, reflecting the current environment of abundant reserves, the RBA also specifies its remuneration rate on banks' deposits with the central bank, which it refers to as the interest rate on Exchange Settlement balances, in each monetary policy decision (RBA 2022d).

Sources: Federal Reserve Bank of New York (2022); ECB (2022); BoE (2022a); BoC (2022c); BoC (2022d); RBA (2022a); RBNZ (2020); Sveriges Riksbank (2022b)

could be valuable for central banks to adopt an approach that functions consistently throughout the cycle. Recent experience suggests that central banks can shift from a corridor system to a floor system without difficulty. However, transitioning from a floor system to a corridor system could be more difficult if overnight interbank market function is poor (see below) or market participants do not have familiarity with central bank operations or the operational capacity to obtain reserves under OMOs (see above).

- **Simplicity and automation.** Regular discretionary OMOs are generally unnecessary under a floor system because day-to-day disturbances to the demand for or supply of reserves can generally be absorbed without materially affecting overnight lending rates between banks. However, the significant volatility in money market rates experienced in the United States as the Fed reduced its balance sheet in 2018–2019 highlighted that it is challenging to determine an adequate supply of

reserves (Anbil, Anderson and Senyuz 2020; Logan 2019); it also highlighted the importance of having facilities or tools, such as OMOs, available to maintain good control of overnight rates.

- **Financial stability.** A high level of reserves can help to improve the efficiency of the payments system as system liquidity plays a role in the timely settlement of transactions. Plentiful reserves for all participants can also support financial stability by reducing the need for central bank intervention in financial markets in times of stress.
- **Financial neutrality.** There is a risk that a central bank unintentionally influences financial asset prices or impedes market functioning by buying and holding assets that back the additional reserves required under a floor system.^[6] Very large holdings of assets, particularly government bonds, may also create a heightened risk of fiscal dominance (a scenario in which a fiscal authority cannot finance itself entirely by new bond sales and so

the monetary authority is forced to buy bonds and tolerate additional inflation (Wallace and Sargent 1981)) and the perception that the central bank is financing the government, which in turn may compromise a central bank's ability to deliver its core mandate (Hauser 2021).

- **Risks and resources of implementing monetary policy.** A central bank holds more assets when operating a floor system compared with a corridor system. Depending on the types of assets held, larger holdings of assets can expose a central bank to more market risk, credit risk and, for parts of the economic cycle, the potential for negative net interest income (i.e. paying more on interest on reserves than is received through holding assets). A permanently expanded balance sheet can also be more costly to operate and to manage the risks involved.
- **Reduced trading volumes in overnight interbank markets.** In an environment of high reserves, banks are more likely to hold a level of reserves sufficient to meet their day-to-day liquidity needs. As a result, they are less likely to need to borrow from each other in the overnight interbank market and so trading volumes in that market will fall. This could potentially reduce the health of the market, reduce the ability of market participants to deal with disruptions by themselves, and impede monetary policy transmission. However, evidence suggests that short-term interest rates have remained well anchored under floor systems over recent years (Aziz *et al* 2022; Logan 2019; Hauser 2019).

Retaining a floor system in the long term

As economic recoveries have progressed and inflation has risen further and more persistently above central bank targets than previously expected, central banks in advanced economies have begun to withdraw elements of the extraordinary monetary policy support they provided in the wake of the outbreak of COVID-19. Some have already started to reduce their holdings

of government bonds by allowing purchased assets to mature; at the same time, amounts borrowed by banks under lending schemes are due to be repaid in coming years. Market participants expect this process to continue in the years ahead. As balance sheet policies roll off at each central bank, reserves will decrease from previously abundant levels and eventually reach a point where they are scarce.

Ahead of reserves reaching scarcity, central banks may re-evaluate their preferred choice of monetary policy implementation system. Some may decide to continue using a floor system and so maintain a higher level of reserves, while others may allow reserves to decline and return to a system where the policy rate trades closer to the middle of a corridor. Central banks will weight differently the implications of a floor system as described above, taking into account the structure of their markets and how the monetary policy transmission mechanism works in their respective economies. The BoE, the Fed, the BoC and the RBNZ have indicated that they expect to continue using a floor system in the long term (Hauser 2019; Logan 2019; BoC 2022a; RBNZ 2022).

Conclusion

Following the introduction of balance sheet policies either during the GFC or the COVID-19 pandemic, most central banks in advanced economies made significant changes to their monetary policy implementation systems. The use of balance sheet policies led to a large increase in the amount of central bank reserves in the financial system. In response to abundant reserves, most central banks transitioned to a floor system over this time. There are a range of implications to choosing a floor system, such as flexibility to accommodate balance sheet policies, and the contribution of abundant reserves to the operation of payments systems and to financial stability. While this transition may prove to be temporary for some central banks, others have signalled that they expect to continue using a floor system in the long term. ✎

Endnotes

- [*] Nick Baker is from International Department and Sally Rafter completed this work in International Department.
- [1] See RBA (2022b) for more detail on these five aspects in the Australian context.
- [2] An example of an OMO where the central bank injects reserves into the payments system is a repurchase (repo) agreement. Under a repo, the central bank provides reserves to a bank and the bank provides eligible debt securities as collateral to the central bank. See Domestic Markets Department (2019) for more information in the Australian context.
- [3] Banks may choose to borrow funds in the interbank market at a rate above the lending rate if use of the central bank's lending facility is believed to send a negative signal about banks' financial condition to regulators, counterparties and the public.
- [4] Asset purchases involve the central bank purchasing assets such as government bonds from the private sector by creating central bank reserves, while lending schemes involve central banks providing low-cost, long-term funding to financial institutions by creating central bank reserves. See RBA (2022c) for more information about balance sheet policies in the Australian context.
- [5] Prior to the COVID-19 crisis, the RBNZ used a 'hybrid' implementation system that combined elements of corridor and floor systems (Hawkesby 2020).
- [6] This is in contrast to quantitative easing, under which financial market prices are intentionally influenced by monetary policy.

References

- Anbil S, A Anderson and Z Senyuz (2020), 'What Happened in Money Markets in September 2019', *FEDS Notes*, 27 February.
- Aziz A, C de Roure, P Hutchinson and S Nightingale (2022), 'Australian Money Markets through the COVID-19 Pandemic', *RBA Bulletin*, March.
- BoC (Bank of Canada) (2022a), 'Bank of Canada Provides Operational Details for Quantitative Tightening and Announces that It Will Continue to Implement Monetary Policy Using a Floor System', Market Notice, 13 April.
- BoC (2022b), 'Framework for Market Operations and Liquidity Provision'. Available at <<https://www.bankofcanada.ca/markets/market-operations-liquidity-provision/framework-market-operations-liquidity-provision/>>.
- BoC (2022c), 'Methodology for Calculating the Canadian Overnight Repo Rate Average (CORRA)'. Available at <<https://www.bankofcanada.ca/rates/interest-rates/corra/methodology-calculating-corra/>>.
- BoC (2022d), 'Policy Instrument'. Available at <<https://www.bankofcanada.ca/rates/indicators/key-variables/policy-instrument/#over>>.
- BoE (Bank of England) (2021), 'Bank of England Balance Sheet and Weekly Report', 5 October. Available at <<https://www.bankofengland.co.uk/weekly-report/balance-sheet-and-weekly-report>>.
- BoE (2022a), 'Bank of England Market Operations Guide: Our Objectives', Bank of England Market Operations Guide, 7 April.
- BoE (2022b), 'Bank of England Market Operations Guide: Our Tools', Bank of England Market Operations Guide, 7 April.
- Cerclé E, M Monot and H Le Bihan (2021), 'Understanding the Expansion of Central Banks' Balance Sheets', Banque de France Eco Notepad, Post No 209, 25 March.
- Debelle G (2021), 'Monetary Policy During COVID', Shann Memorial Lecture, Online, 6 May.
- Domestic Markets Department (2019), 'The Framework for Monetary Policy Implementation in Australia', *RBA Bulletin*, June.
- ECB (European Central Bank) (2016), 'What Are Minimum Reserve Requirements?', Explainer, 11 August.

ECB (2019), 'ECB Introduces Two-tier System for Remunerating Excess Liquidity Holdings', Press Release, 12 September.

ECB (2022), 'Key ECB Interest Rates'. Available at <https://www.ecb.europa.eu/stats/policy_and_exchange_rates/key_ecb_interest_rates/html/index.en.html>.

Federal Reserve Bank of New York (2022), 'Effective Federal Funds Rate'. Available at <<https://www.newyorkfed.org/markets/reference-rates/effr>>.

Hauser A (2019), 'Waiting for the Exit: QT and the Bank of England's Long-term Balance Sheet', Speech to the European Bank for Reconstruction and Development, London, 17 July.

Hauser A (2021), 'Bigger, Broader, Faster, Stronger? How Much Should Tomorrow's Central Bank Balance Sheets Do – and What Should We Leave to Financial Markets? Some Principles for Good Parenting', Speech to the International Finance and Banking Society's Conference on 'The Financial System(s) of Tomorrow', Oxford, 13 September.

Hawkesby C (2020), 'COVID-19 and the Reserve Bank's Balance Sheet', Speech to KangaNews New Zealand Capital Markets Forum, Wellington, 20 August.

Logan L (2019), 'Observations on Implementing Monetary Policy in an Ample-Reserves Regime', Remarks to the Money Marketeters of New York University, New York City, 17 April.

Ng M and D Wessel (2019), 'The Fed's Bigger Balance Sheet in an Era of 'Ample Reserves'', Brookings, 17 May.

RBA (Reserve Bank of Australia) (2022a), 'Cash Rate Target'. Available at <<https://www.rba.gov.au/statistics/cash-rate/>>.

RBA (2022b), 'How the Reserve Bank Implements Monetary Policy', Explainer.

RBA (2022c), 'Unconventional Monetary Policy', Explainer.

RBA (2022d), 'Minutes of the Monetary Policy Meeting of the Reserve Bank Board', Hybrid, 5 April.

RBNZ (Reserve Bank of New Zealand) (2020), 'Reserve Bank Announces New Facility and Removal of Credit Tiers', Media Release, 20 March.

RBNZ (2022), 'Reserve Bank Optimising New Zealand's Monetary Policy Implementation Framework for the Future', Media Release, 6 May.

Schrimpf A, M Drehmann and A Cap (2020), 'Changes in Monetary Policy Operating Procedures Over the Last Decade: Insights from a New Database', *BIS Quarterly Review*, 7 December.

Sveriges Riksbank (2022a), 'The Riksbank is Making the Operational Framework More Flexible', Press Release, 22 March.

Sveriges Riksbank (2022b), 'Policy Rate, Deposit and Lending Rate', 14 June. Available at <<https://www.riksbank.se/en-gb/statistics/search-interest--exchange-rates/policy-rate-deposit-and-lending-rate/>>.

Wallace N and TJ Sargent (1981), 'Some Unpleasant Monetarist Arithmetic', *Federal Reserve Bank of Minneapolis Quarterly Review*, 5(3), pp 1–17,

Bank Fees in Australia

Karl Sparks and Rachael Fitzpatrick^[*]



Photo: Watchara Piriyauputtanapun – Getty Images

Abstract

This article updates previous Reserve Bank research on bank fees charged to Australian households, businesses and government. Since 2021, improved data on the fees charged by banks have been available from the new Economic and Financial Statistics collection, which replaced the survey on banks' fee income undertaken annually since 1997 by the Reserve Bank. The new data suggest that the overall fees charged by banks declined in 2021. This decline was broadly based across different categories, although total fees charged on loans (excluding personal lending) increased moderately, in part reflecting the higher volume of lending activity.

Introduction

Since 1997, the Reserve Bank has collected information on the fees banks charge households and businesses through their Australian operations. While this data was previously collected via the RBA Bank Fee Survey, in 2021 the survey was replaced with the Economic and Financial Statistics (EFS) collection.^[1] This change has increased the population of reporting institutions and the coverage of fees charged; it has also improved the detail and consistency of reported data. Consequently, there has been a material change to the reported level of bank fees in Australia (which are captured in terms of the dollar value of fees charged). To provide an indication of the underlying *growth* in fees, growth rates presented in this article

have been adjusted where possible for the effects of reporting changes. This adjustment uses information provided by reporting institutions, as well as a degree of judgement by the Reserve Bank. Where appropriate, growth rates have been rounded to reflect these adjustments. The changes to reporting are discussed in further detail in Appendix A.

Using the new EFS data, this article updates previous Reserve Bank research on bank fees and covers the year to June 2021. Accordingly, it primarily covers the period of recovery in economic activity after the initial effects of the COVID-19 pandemic and prior to the winter lockdowns later in 2021.

Table 1: Fees Charged by Banks

	Households		Institutions		Total	
	Level (\$ million)	Growth (per cent)	Level (\$ million)	Growth (per cent)	Level (\$ million)	Growth (per cent)
2018	4,200	-6.5	8,134	2.7	12,334	-0.6
2019	3,963	-5.6	8,305	2.1	12,269	-0.5
2020	3,559	-10.2	7,881	-5.1	11,439	-6.7
2021 ^(a)	3,301	-11	11,430	-3	14,731	-5

(a) There is a series break in the level of fees reported between 2020 and 2021, due to the change in data source. Growth rates for the year to the end of June 2021 have been break adjusted to account for series breaks and rounded.

Sources: APRA; RBA

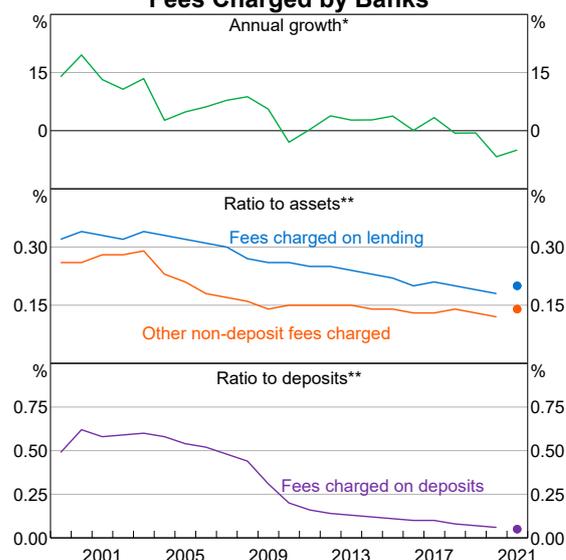
Total fees charged

Total fees charged by banks through their domestic operations are estimated to have declined in the year to June 2021, after also declining in the previous reporting period (Graph 1; Table 1). This reflected a decline in fees charged to households and institutions (which include businesses and governments). Fees charged on deposits as a share of total deposits edged lower again, continuing the declines seen for more than a decade. However, fees charged on loans and other non-deposit products as a share of total assets were higher than the prior reporting period. This is due to the expanded coverage of fees charged by banks in the new EFS collection. In particular, this expansion resulted in an increase in the reported level of fees charged on institutional lending products as banks were required to include fees otherwise treated as interest income in statutory accounts (see Appendix A). In the year, fees charged to households accounted for 23 per cent of total fees charged by banks, while fees charged to businesses and governments accounted for 76 per cent and 1 per cent of total fees, respectively.

Fees charged to households

Fees charged to households are estimated to have declined 11 per cent in the year to June 2021, after falling by 10 per cent in the prior reporting period (Graph 2; Table 2). The decline in fees charged in the year primarily reflected a decrease in fee income from credit cards, deposits and personal loans. The economic effects of the COVID-19 pandemic weighed on fees charged on credit cards – for example, border closures reduced international

travel and the associated fee income from credit card activity. In addition, fees charged on deposits declined again as there was a further removal and reduction of fees by banks on certain deposit accounts and dishonour fees. Fees charged on personal loans also declined, in line with a reduction in personal credit in the reporting period. By contrast, fees charged on housing loans increased once more, alongside high levels of refinancing and new lending activity in the year. By product, fees charged to households were largely made up of fees on housing loans (39 per cent), credit cards (32 per cent) and deposit accounts (18 per cent); these shares were similar to those in recent years under previous surveys.

Graph 1**Fees Charged by Banks**

* Adjusted for breaks in series.

** Average assets and deposits over reporting period have been used; series break between 2020 and 2021.

Sources: APRA; RBA

Table 2: Fees Charged to Households

	2019 (\$ million)	2020 (\$ million)	2021 ^(a) (\$ million)	Annual growth ^(b) (per cent)
Loans	3,149	2,898	2,668	-6
– Housing	1,160	1,188	1,279	13
– Personal	348	313	337	-31
– Credit cards	1,641	1,397	1,051	-15
Deposits	755	616	590	-27
Other fees	59	44	44	-21
Total	3,963	3,559	3,301	-11

(a) There is a series break between 2020 and 2021 for all series.

(b) Growth rates for the year to the end of June 2021 have been break adjusted to account for series breaks and rounded.

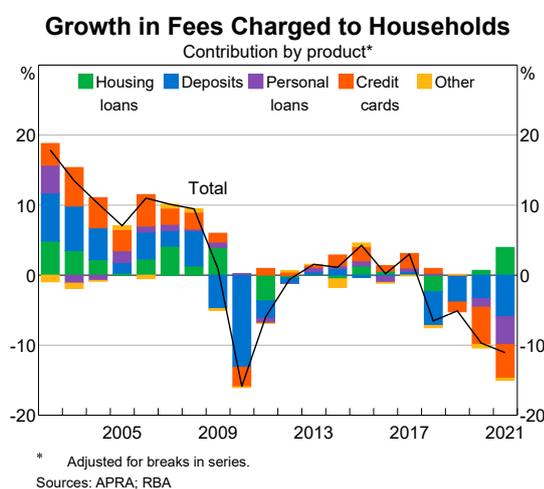
Sources: APRA; RBA

Fees charged on deposits are estimated to have fallen by 27 per cent in the year to June 2021, partly reflecting the removal and reduction of fees by some banks on certain deposits products and dishonour fees. Some banks also noted that COVID-19 affected deposits fees by reducing fee income from ATM withdrawals – which have declined notably since the onset of the pandemic – and foreign currency conversion fees (Lowe 2021). A reduction in exception fees from deposits also contributed as banks noted fewer instances of accounts being overdrawn in the year.

Fees charged on housing loans are estimated to have risen by 13 per cent, after increasing moderately in the prior reporting period. This increase partly reflected the high volume of new lending in the year. Demand for housing credit was

supported by low interest rates, strong activity in housing markets and government policy measures targeted at first home buyers. In addition, high levels of refinancing are likely to have contributed to the increase in fee income from housing loans. This is because borrowers who refinance their mortgage with another lender generally pay fees to both the new and previous lenders; switching costs can include an application or establishment fee for the new loan and a fee to discharge the old loan. That said, these costs were often offset (in part or in full) by cashback offers from new lenders, which were widely available over the year. As part of the transition to the EFS collection, banks now report fee income from housing loans net of cashback offers (see Appendix A).

Fees charged on personal loans are estimated to have fallen by 31 per cent in the year to June 2021, continuing the declines seen in recent years. Fees on personal loans include fees associated with term loans, margin loans to households and home-equity loans where the predominant purpose is not known. The decrease in fees charged on personal loans is in line with a decrease in the stock of personal loans since the onset of the pandemic, as borrowers repaid this debt. Borrowers' capacity to repay debt was boosted by superannuation withdrawals and government assistance payments. Fees charged on credit cards declined by 15 per cent in the year, after declining in the prior reporting period. This partly reflected a further decline in the amount of credit card debt

Graph 2

outstanding; since the onset of the pandemic, households have reduced their reliance on this source of debt. In addition, ongoing international border closures, limited opportunities for overseas travel – and the associated credit card fees on overseas transactions. Finally, the total number of credit card facilities decreased by around 6 per cent over the year, which led to a reduction in account servicing fees on credit cards. The average account servicing fee paid by households was \$73 per credit card account.^[2]

Total exception fees and break fees charged to households are estimated to have declined further in the year to June 2021 (Graph 3). Exception fees are imposed in the event of a breach of contract; break fees are charged when a customer terminates a contract early. Exception fees on credit cards and deposit accounts declined, partly because some banks removed these fees. Some banks also noted fewer instances of deposit accounts being overdrawn, which resulted in a reduction in overdrawn and dishonour fees charged to households. This was consistent with higher deposit balances and the suspension of direct debit arrangements by some businesses during lockdowns. Exception fees have trended down in recent years, as banks have removed or reduced informal overdraft fees following the Royal Commission into Misconduct in the Banking, Superannuation and Financial Services Industry in 2018. By contrast, break fees charged on housing loans rose, in part owing to increased early repayment fees reflecting high mortgage refinancing activity. As discussed above, these fees would have been offset for some borrowers by cashback offers from the new lender.

Fees charged to businesses and government

Total fees charged to institutional customers – businesses and government – are estimated to have declined in the year to the end of June 2021, after declining in the previous reporting period (Graph 4; Table 3). Fees charged to medium and large businesses made up one-third and one-half of fees charged to institutional customers, respectively (Table 4). By comparison, fees charged to small

businesses accounted for 13 per cent of institutional fees; fees charged to governments made up only 2 per cent. In the past, fees charged to governments were sometimes reported under fee income from businesses in the RBA Bank Fee Survey, but they are now separately identified in the EFS collection. As a result, the series referred to as ‘business’ in previous bulletin articles has now been relabelled as ‘institutional’, although fees from governments are likely to have made up only a small share of these series. In addition, businesses are now split into three size categories (small/medium/large) instead of two sizes (small/large), and fees on corporate credit cards are now separately identified (see Appendix A for more detail on these changes and business size definitions). By product type, fees charged to institutions continued to largely consist of fees on loans (45 per cent) and merchant service fees (26 per cent).

Fees charged on loans (including credit cards) to institutions are estimated to have increased by 2 per cent in the year to the end of June 2021, after decreasing slightly in the previous reporting period. Fees charged to governments made up less than 1 per cent of fees on loans to institutional customers. The rise in fees charged on loans to institutional customers is consistent with the increase in the volume of business credit seen in the reporting year, reflecting the recovery in economic conditions after the initial economic impact of the pandemic. The increase in business

Graph 3

Growth in Exception and Break Fees Charged to Households

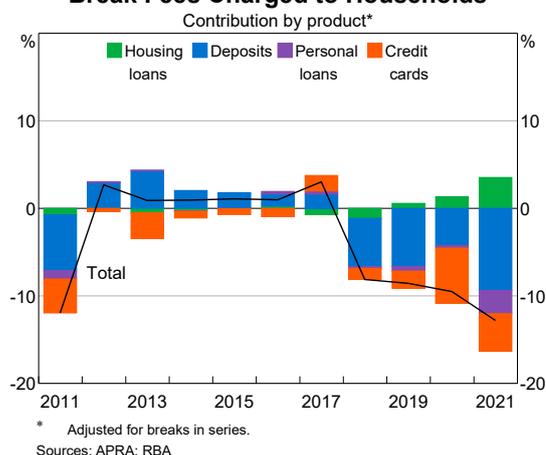


Table 3: Fees Charged to Institutions

	2019 (\$ million)	2020 (\$ million)	2021 ^(a) (\$ million)	Annual growth ^(b) (per cent)
Deposit accounts	572	532	537	-6
– of which: exception and break fees ^(c)	69	53	42	–
Loans	3,310	3,321	5,166	2
– of which: corporate credit cards	N/A	N/A	93	N/A
– of which: exception and break fees ^(c)	47	51	105	–
Merchant service fees	3,190	2,909	2,985	-1
Other ^(d)	1,227	1,117	2,742	-13
Total	8,298	7,881	11,430	-3
– of which: exception and break fees ^(c)	116	104	147	–

(a) There is a series break between 2020 and 2021 for all series.

(b) Growth rates for the year to the end of June 2021 have been adjusted to account for series breaks, where sufficient information is available. This has resulted in a negative break adjusted growth rate for some series despite an increase in the reported levels of fees charged. This reflects increased coverage in fees charged under the EFS collection. See Appendix A for more details. These growth rates have been rounded to the nearest whole number.

(c) Excludes fees charged to governments from 2021.

(d) Includes bills of exchange.

Sources: APRA; RBA

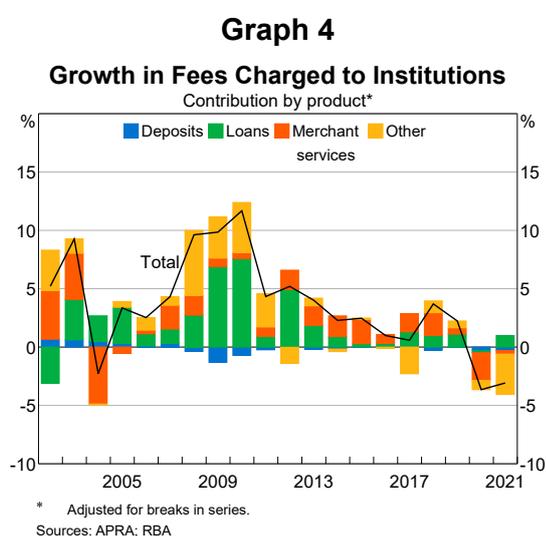
Table 4: Fees Charged to Institutions

By institution size; share of fees charged

	2019 (per cent)	2020 (per cent)	2021 ^(a) (per cent)
Small businesses	51	49	13
Medium businesses	–	–	32
Large businesses	49	51	53
Governments	–	–	2

(a) There is a series break between 2020 and 2021 for all series.

Sources: APRA; RBA



loans was particularly pronounced for larger firms and industries that were less exposed to the adverse economic effects of lockdowns and pandemic-related changes in customer behaviour. Fees charged on corporate credit cards made up around 14 per cent of the fees on business loans.

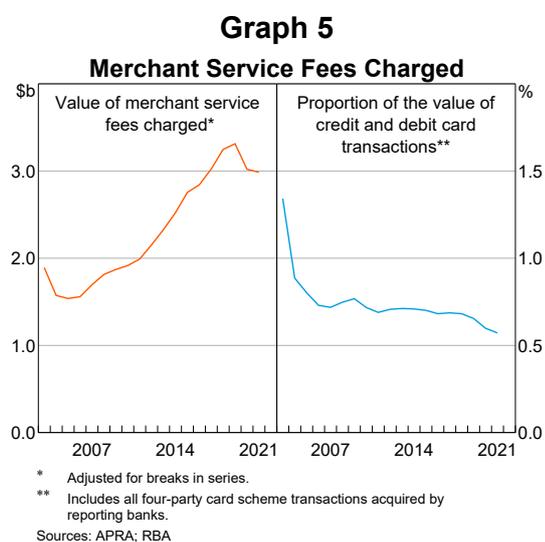
Merchant service fees – fees charged to businesses and governments for providing payment processing services – are estimated to have declined a little, following a notable fall in the previous reporting period (Graph 5, left hand panel). These often include a mix of fixed fees (such as for card payment terminals) and transaction fees for each card payment accepted by the business. While the total value of credit and debit card transactions

recovered over the year alongside the reopening of the domestic economy, ongoing international border closures continued to limit transactions in Australia associated with cards issued overseas; this contributed to the reduction in merchant service fees as international transactions generally incur a higher fee than the equivalent domestic transaction. A reduction in these higher fee cross-border transactions also contributed to a decline in the average fee charged per dollar transacted with credit and debit cards (Graph 5, right hand panel). This decline was further supported by the ongoing shift from credit to debit cards, as people reduced their use of credit cards during the pandemic (Lowe 2021). Because debit cards typically attract a lower fee per transaction than credit cards, this shift led to lower fees charged to merchants for the same number of transactions.

Fees charged to institutions on deposit accounts are estimated to have decreased by 6 per cent in the year to June 2021, after decreasing by a similar amount in the previous reporting period. Some

banks noted the reduction and removal of certain account and dishonour fees since the onset of the pandemic as a contributing factor. As with households, fewer instances of accounts being overdrawn also contributed. Around 45 per cent of fees charged to businesses on deposit accounts were collected from small businesses, while medium-sized businesses accounted for 21 per cent and large businesses made up 34 per cent. The majority of fees on deposits charged to small and medium businesses came from account servicing fees; by contrast, transaction fees made up the majority for large businesses.

Other fees charged to institutions are estimated to have fallen in this period. The reporting of 'other fees charged' (which is now presented inclusive of fees charged on bills of exchange) has been revised in the EFS collection. Banks are now required to report certain fees that were previously recorded as interest income for the purposes of the RBA Bank Fee Survey (see Appendix A). This definitional change has driven a sizable increase in the reported value of other fees charged.



Conclusion

Total fees charged by banks through their domestic operations are estimated to have declined in the year to June 2021. This largely reflected a decline in fees charged on deposit accounts and credit cards, in part due to the continued effects of the pandemic. By contrast, fees charged on loans (excluding personal lending) increased moderately, in part reflecting a higher volume of lending activity in the year.

Appendix A: The Economic and Financial Statistics (EFS) collection

As with the previous RBA Bank Fee Survey, the EFS collection gathers information on the fees charged by banks on the provision of loans, deposit services and payment services. The collection excludes fees from banks' funds management and insurance operations, and fees charged by operations outside of Australia. The revised reporting form and instructions can be found within Reporting Standard ARS 730.1 ABS/RBA Bank Fees Charged (ARS 730.1).^[3]

The transition from the RBA Bank Fee Survey to data collected via the EFS collection offers a number of improvements detailed in the sections below. It has also resulted in a number of breaks in reported series – for example, due to changes in the reporting methodology or the sample of banks filling out the report. To provide an indication of the underlying *growth* in fees, growth rates presented in this article have been adjusted where possible for the effects of breaks in series using information provided by reporting institutions on the impact of changes in methodology, along with expert judgement. Data for the *levels* of reported series are not adjusted for these series breaks and growth rates involving 2021 data should not be calculated from these unadjusted levels.

Reporting enhancements

More consistent data

Within the EFS collection, reporting periods and data collection definitions are now aligned across reporting institutions by requiring institutions to conform to common definitions and timelines per ARS 730.1. By contrast, the RBA Bank Fee Survey was collected on a best endeavours basis, which resulted in more variable data and depended to a greater degree on institutions' existing internal reporting practices and capabilities. For example, data were submitted according to individual institutions' financial years, which differ, ranging from year-ended March to year-ended December (Garner 2020). Under EFS reporting, all institutions report data for the year to the end of June.

EFS reporting standards also set out common definitions of counterparties (e.g. households, businesses, government) and finance purpose categories (e.g. whether the predominant use of the funds is for personal, commercial or housing purposes). This is in contrast to reporting under the RBA Bank Fee Survey, where some banks reported fees on the basis of banking product type instead of the purpose. This change most notably resulted in some banks' reclassifying fees charged from households to businesses, in particular small businesses. This reflected the fact that some financing via household retail products was in fact being used for business purposes (e.g. using a personal credit card for business purposes).

More comprehensive coverage

Data are now collected from institutions with total assets of \$10 billion or more (on a domestic books basis), more than doubling the number of banks covered compared with the RBA Bank Fee Survey for 2020.

Another important enhancement offered by EFS reporting is that banks are now required to adopt systems to report on *all* fees charged, including fees (such as establishment fees) that are recorded as interest income in statutory accounts. The intention of the collection is to quantify fees faced by customers. This perspective is distinct from the accounting treatment of some fees, which had been the basis of some banks' reporting in the RBA Bank Fee Survey, in line with a best endeavours approach. As a result, more fees are now captured in the new collection. This is most notable for institutional lending and other fees charged (including bills of exchange), for which a material change in the level of reported fees can be observed. On the other hand, cashback offers are now netted off the reported fees charged.

More detailed data

Businesses are now split into three size categories (small/medium/large) instead of two (small/large). Under the RBA Bank Fee Survey, businesses were split into size categories based on banks' internal methodology. Now, banks use the methodology outlined in Reporting Practice Guide 701.0 and

Reporting Standard ARS 701.0 to determine business size.^[4] Generally, businesses with a turnover greater than or equal to \$50 million are classified as large businesses. For businesses with turnover of less than \$50 million, the business is generally classified as medium when the reporting institution has an exposure of more than \$1 million. When the exposure is less than \$1 million, the

business is usually classified as small. Fees charged to government entities – previously reported under the business category in some cases – are now also separately identified.

In addition, break fees charged are now separately identified from exception fees. These were previously reported under exception fees by some reporting institutions, although not consistently. ✖

Endnotes

[*] The authors are from Domestic Markets Department.

[1] These data are published in the Reserve Bank's Statistical Table C9 and are subject to revisions. All series are affected by a series break between 2020 and 2021, which has resulted in a notable increase in the levels of fees charged to institutions. Historical survey results have been affected by mergers and acquisitions among participating reporting institutions and some changes in institutions' methodology (where possible, this has been reflected in revisions to data reported in previous years).

[2] This average fee includes all credit card accounts, including those with no annual fee.

[3] See Financial Sector (Collection of Data) (Reporting Standard) Determination No. 9 of 2021: Reporting Standard ARS 730.1 ABS/RBA Fees Charged. Available at <<https://www.legislation.gov.au/Details/F2021L00306>>.

[4] See APRA (2019) and Financial Sector (Collection of Data) (Reporting Standard) Determination No. 8 of 2022: Reporting Standard ARS 701.0 ABS/RBA Definitions for the EFS Collection. Available at <<https://www.legislation.gov.au/Details/F2022L00228>>.

References

APRA (Australian Prudential Regulatory Authority) (2019), 'Reporting Practice Guide: RPG 701.0 ABS/RBA Reporting Concepts for the EFS Collection', July.

Garner M (2020), 'Insights from the New Economic and Financial Statistics Collection', RBA *Bulletin*, September.

Lowe P (2021), 'Payments: The Future?', Address to the Australian Payments Network Summit 2021, Online, 9 December.

Fallbacks for BBSW Securities

Duke Cole and Lara Pendle^[*]



Photo: Visual Communications – Getty Images

Abstract

The bank bill swap rate (BBSW) is an important short-term benchmark interest rate for Australian financial markets across various maturities. It is a robust benchmark based on a liquid market. However, it is possible that, at some point in the future, BBSW might no longer be robust. Market participants need to be prepared for the possibility that BBSW, or at least some BBSW tenors, cease to be published. To do so, participants should include a ‘robust, reasonable and fair’ fallback to another interest rate in their financial contracts. To promote appropriate use of fallbacks, the Reserve Bank will only accept securities referencing BBSW issued after 1 December 2022 as collateral in its domestic market operations if those securities include such a fallback. The article explains this change and how participants can prepare for the contingency of BBSW ceasing to exist.

Introduction: The importance of BBSW

The bank bill swap rate (BBSW) is the key credit-based benchmark for the Australian dollar. It measures the rates at which banks in Australia can borrow funds in wholesale money markets. Specifically, it refers to a set of benchmarks for each monthly tenor between one and six months, based on the traded price of short-term bank bills and negotiable certificates of deposit (bank paper) issued by highly rated banks (Graph 1). It is administered by the Australian Securities Exchange (ASX).

The BBSW benchmarks are widely referenced in Australian financial contracts. By far the largest market is the derivatives market, where approximately \$20 trillion by notional value reference BBSW; these contracts are used by market participants to manage interest rate risk. BBSW is also used as a referenced rate in: floating-rate AUD-denominated corporate bonds; almost all asset-backed securities issued by Australian securitisation trusts; and some securities issued by the state and territory governments. BBSW is widely referenced in syndicated loans and corporate loan contracts. In addition, much of banks’ other wholesale debt

(including in foreign currencies) and deposits are linked to BBSW either directly or as part of their interest rate hedging practices (Black and Titkov 2019). In turn, this means that movements in BBSW can influence lending rates on household and business loans.

Historically, key global equivalents to BBSW rates are the London Interbank Offered Rates (LIBOR). However, unlike BBSW, the various LIBOR benchmarks were not considered robust, as they were not supported by a sufficient volume of transactions in wholesale short-term funding markets. As a result, LIBOR jurisdictions have transitioned (or are in the process of transitioning) to referencing overnight (near) risk-free rates. Most LIBOR benchmarks ceased at the end of 2021, with the notable exception of certain key USD LIBOR benchmarks, which will continue to 30 June 2023 to support legacy contracts. By contrast, BBSW has remained robust, in part because its methodology was strengthened in 2018, including by: widening the set of transactions that are eligible to be included in the calculation; and adding a robust waterfall, setting out alternative methods of determining the rate when transactions on a given day may be insufficient.^[1] Not all BBSW tenors are as liquid as others. In particular, the one-month BBSW is largely a buy-back market and so it is less liquid than other tenors. Accordingly, the Reserve Bank has suggested that users of one-month BBSW should consider alternative benchmarks given the lower liquidity in this market (Kent 2020).

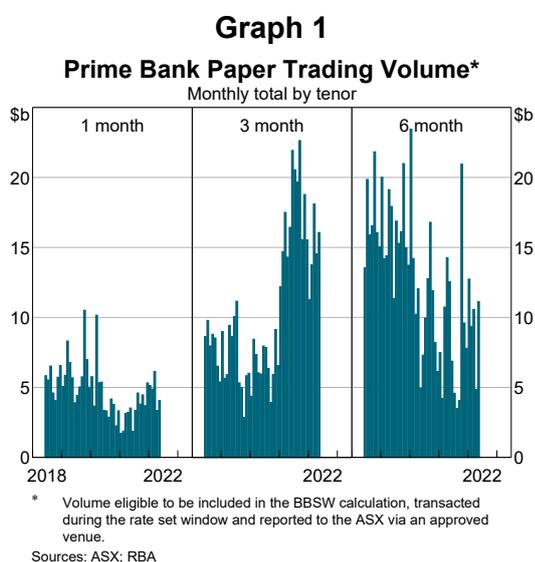
A feature of the Australian benchmark landscape is that it is a 'multiple-rate' jurisdiction, reflecting the fact that there is both a robust credit-based benchmark (BBSW) and a robust (near) risk-free rate (the cash rate, also known as the Australian Overnight Index Average Rate (AONIA)). In some LIBOR currencies (like the US dollar, British pound and Swiss franc), there are no sufficiently robust alternative credit-based benchmarks, so LIBOR cessation has resulted in a wholesale shift to risk-free rates for all contracts and securities that would otherwise reference LIBOR. By contrast, in Australia the multi-rate approach allows market participants to choose the reference rate that best suits each of their products and situations, taking into account their own and their clients' needs or hedging strategies.

However, while BBSW is currently robust, LIBOR has shown that existing benchmarks should not be taken for granted. If BBSW was to follow a similar path to LIBOR and cease to exist, then users of BBSW could face considerable disruption, with broader ramifications for financial markets given the importance of BBSW in Australia. Regardless of the reference rate used in a contract, it is prudent to include robust fallbacks. As part of global reforms to strengthen financial benchmarks, this is why the Reserve Bank is introducing a new eligibility requirement for 'robust, reasonable and fair' fallbacks for securities to be accepted as collateral in the Bank's market operations (as published on the Bank's website and provided below).

The Bank will not accept floating-rate bonds that reference BBSW as collateral under repo if they do not have effective fallbacks, where those bonds are issued after 1 December 2022. Therefore for bonds that reference BBSW that are issued after this date, issuers will need to include a fallback in their transaction documents that meets the Bank's criteria.^[2]

Why fallbacks matter

A fallback outlines how a given interest rate based on a benchmark such as BBSW would be calculated if it stopped being published. For floating-rate bonds, this is the coupon payment. Fallbacks are a key element in Australia's multiple-rate approach, by



preparing for the risk that BBSW ceases to exist at some point in the future (Kent 2021).

Fallbacks make it clear how issuers, investors and other market participants should proceed in the event that a benchmark such as BBSW ceases to exist or is unavailable. In many cases to date, the fallbacks in transaction documents for floating-rate bonds have fallen short. For example, they often call on the calculation agent to choose another 'suitable rate' in the event that BBSW is not available. This is not robust.

Effective fallbacks are necessary for robust risk management, and are a matter of good practice. They reduce the legal risks for both sides of the contract, including the possibility for disputes and litigation. More broadly, fallbacks support market resilience (FSB 2021), helping market participants plan for the potential cessation of a benchmark.

Fallbacks should be 'robust, reasonable and fair'

For repo eligibility, the Reserve Bank has not prescribed the specific interest rates that are to be used as fallback rates for BBSW-referencing securities, nor the legal text to incorporate those rates into transaction documents. This provides flexibility for market participants, allowing them to stipulate fallbacks that meet the needs of their specific markets. Instead, the Bank has set principles to ensure the fallbacks are effective (see below). Only BBSW-referencing securities with fallbacks that meet these principles will be eligible for repo in the Bank's domestic market operations. Fallbacks must be 'robust, reasonable and fair'. This ensures that fallbacks will be effective in a wide range of plausible contingencies, and will provide legal certainty and economic clarity for all parties.^[3]

A **robust** fallback is one that remains effective in many scenarios. It should facilitate the calculation of coupon payments under a wide range of contingencies, and be clear and easy to understand for all participants. It should include:

- how the fallback will be triggered
- the interest rate and calculation method for coupons.

The fallback rate itself should also be robust. This is more likely where the fallback rate is deemed to be a significant benchmark by the Australian Securities and Investments Commission (ASIC).^[4] This allows participants to plan – including to hedge exposures – and make decisions based on certain future outcomes. Discretion (such as over the successor rate) should be avoided as it does not provide clarity to both parties, and may be open to manipulation (FSB 2017). There is also the risk that, even if an independent third party is responsible for exercising discretion, this leads to a dispute over their decision, which could be disruptive.

A **reasonable and fair** fallback minimises the risk that value will be transferred between the issuer and the noteholder. This might occur if the fallback rate is fundamentally different to the original interest rate, so fallbacks should have similar economic and credit characteristics to the original interest rate. For example, fixing the rate at the last rate published when BBSW ceases is neither reasonable nor fair. This would effectively transform a floating-rate security into a fixed-rate security. Depending on the future path of interest rates, the cash flows might be markedly different.^[5]

Eligible securities – The Reserve Bank's fallback criteria^[6]

All floating rate notes (FRNs) and marketed asset-backed securities issued on or after 1 December 2022, where BBSW is the relevant interest rate for the purposes of calculating coupons, must meet the following criteria in order to be eligible for purchase by the Reserve Bank under repo:

- Include at least one 'robust' and 'reasonable and fair' fallback for BBSW in the event that it permanently ceases to exist.
- A 'robust' fallback is one that clearly specifies the method for the calculation of interest that would apply for the purposes of calculating coupon payments. The fallback must also specify a clear and unambiguous trigger event after which the fallback would apply. Acceptable fallbacks would include those that reference AONIA (including AONIA plus or minus a fixed spread). Fallbacks that reference another benchmark interest rate may also be

accepted at the Reserve Bank's discretion. A fallback waterfall may additionally include a fallback to a reference rate that might exist in the future, for example forward-looking term AONIA, subject to it being declared a significant financial benchmark by ASIC at the time the fallback is triggered.

- A 'reasonable and fair' fallback is one that reasonably mitigates the impact on the economic value of the security in the event the fallback is invoked. A fixed-rate fallback would not be considered reasonable nor fair for the purposes of these criteria.
- The robust and reasonable and fair fallback(s) must sit above any other fallbacks that rely on collecting dealer quotes, or on discretion – whether by the issuer, the calculation agent, or any other related or third party – in the fallback waterfall.
- Include a fallback to apply in the case that BBSW is not available, but where it has not permanently ceased. This fallback must: clearly specify the method for determining the interest that would apply for the purposes of calculating coupon payments; and specify a clear and unambiguous trigger event after which the fallback would apply. An example of an acceptable fallback structure is that provided for the 'No Index Cessation Effective Date with respect to BBSW' circumstance in the 2020 ISDA Interbank Offered Rates (IBOR) Fallbacks Supplement. A fallback relying on collecting dealer quotes, or on discretion by the issuer, the calculation agent, or any other party related to the security must not sit at the top of the fallback waterfall.

All self-securitisations, regardless of the date of issue, will also be required to include at least one robust and reasonable and fair fallback in order to be eligible. The Reserve Bank will engage with self-securitisation issuers and give at least 12 months' notice before enforcing this requirement.

FRNs and marketed asset-backed securities issued before 1 December 2022 will not be subject to this requirement for eligibility. Nevertheless, the inclusion of robust and reasonable and fair fallbacks

for such securities, depending on their length of time to maturity, is recommended as a matter of prudent risk management.

Fallbacks in practice

The Reserve Bank is adopting a principles-based approach to requiring fallbacks for repo eligibility. However, it is practical and more efficient for market participants to work together to develop market conventions that specify the specific fallback rates and language to be used in prospectuses and other legal documents. Industry groups –including the Australian Financial Markets Association and the Australian Securitisation Forum – are developing template fallback language for use in BBSW-linked securities (AFMA 2021; ASF 2021).

Indications are that this template language will apply a similar approach to ISDA's IBOR Fallbacks Supplement and Protocol, which sets out the equivalent fallbacks for derivatives, and is just one example of a 'robust, reasonable and fair' fallback that the Reserve Bank would accept under its eligibility criteria. However, issuers may use any fallback that meets the principles set out above. The choice of fallback may depend on a number of factors, including how it aligns with fallbacks for other instruments, such as derivatives or other exposures on their balance sheet. Participants might also consider having multiple fallback rates in their 'fallback waterfall'. The Reserve Bank expects the first fallback to be 'robust, reasonable and fair'.

Fallbacks have two key components:

1. the triggers for the fallback rate being used
2. the fallback rate itself.

Triggers

In fallback documentation, a trigger is an event that would activate the fallback provision. The trigger is defined as a public statement from either the administrator (ASX) or the administrator's supervisor (ASIC) stating that BBSW will permanently no longer be published. If this occurs, BBSW is deemed to permanently cease.^[7]

Fallback rate: AONIA compounded in arrears plus a spread

If the fallback is triggered, then the fallback rate would apply for the calculation of interest payments instead of the original reference rate (BBSW). In ISDA's IBOR Fallbacks Supplement and Protocol, the fallback rate is defined as AONIA – also known as the overnight cash rate – compounded in arrears plus a spread. As mentioned above, because BBSW is an unsecured term rate and AONIA is an overnight risk-free rate, AONIA must be adjusted to be sufficiently equivalent to BBSW. In particular, the fallback based on AONIA needs to be:

- **Adjusted for tenor** – by compounding interest in arrears. This takes a series of overnight rates and combines them so they represent a rate that matches the tenor (one, three or six months) of the equivalent BBSW. Although the tenor will match, BBSW is a forward-looking rate that captures interest rate expectations, while AONIA is calculated based on historical interest rates.
- **Adjusted for credit risk** – by adding a spread. BBSW reflects the borrowing costs for banks in the unsecured short-term money market. This is slightly riskier than borrowing cash overnight, so typically (although not always) BBSW has been slightly higher than AONIA to account for this risk. This spread is calculated as the median difference between AONIA and the relevant BBSW rate over a five-year period. The spread will be fixed on the date that BBSW ceases to exist.

To prepare for every contingency, the ISDA's IBOR Fallbacks Supplement and Protocol language also allows for a rate recommended by the Reserve Bank to replace the cash rate in the scenario that the cash rate itself ceases to exist.

These adjustments ensure that the fallback is reasonable and fair for both issuers and noteholders by minimising the economic impact of the fallback being triggered. Similar approaches have been

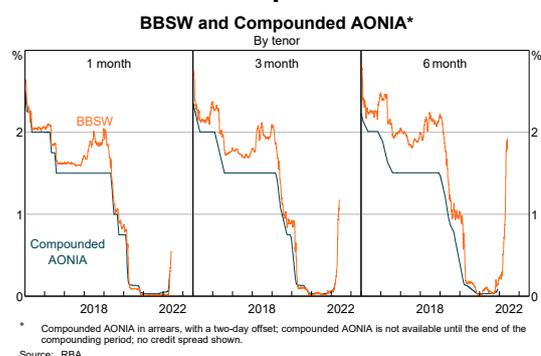
taken for fallbacks globally.^[8] AONIA compounded in arrears plus a spread is the primary fallback for derivatives. It is an example of one rate that would meet the Bank's principles for 'robust, reasonable and fair' fallbacks. The eligibility criteria also allow for the fallback waterfall to include other interest rates, including ones that might exist in the future – such as forward-looking term AONIA. However, such rates cannot be activated in the waterfall unless they meet the eligibility criteria and are declared a significant financial benchmark by ASIC.

Conclusion: Getting ready for 1 December 2022

Issuers of securities that reference BBSW and include fallbacks must ensure they are operationally ready to deploy those fallbacks in the event they are triggered. This includes updating systems to calculate the relevant interest rate, and to switch over if necessary. All market participants should understand how the fallbacks would work in practice.

The Reserve Bank's criteria were announced well in advance of them coming into effect to give market participants enough time to make the relevant system and documentation changes. However, issuers need not wait until 1 December 2022 to incorporate fallbacks for new issuance. It would be prudent to include 'robust, reasonable and fair' fallbacks as soon as practical, especially for longer-dated securities. ✎

Graph 2



Endnotes

- [*] The authors are from Risk and Compliance Department and Domestic Markets Department. This article draws on work completed with Andrea Brischetto, Sasha Kofanova, Jin Lim and Andrew Sewell. The authors would like to thank the Australian Financial Markets Association, the Australian Securitisation Forum and a number of market participants for their feedback on the fallback criteria for BBSW-linked securities.
- [1] See ASX, 'Benchmark Conventions and Calculation Methodologies'. Available at <<https://www2.asx.com.au/connectivity-and-data/information-services/benchmarks/benchmark-data/conventions-and-calculation-methodologies>>.
- [2] By contrast, over-the-counter derivatives fallbacks for BBSW (and other inter-bank rates) have been incorporated via the ISDA IBOR Fallbacks Supplement and Protocol (available at <<https://www.isda.org/protocol/isda-2020-ibor-fallbacks-protocol/>>). When both parties to a derivative contract adhere to the Protocol, the fallbacks are automatically incorporated into all over-the-counter derivative transactions between two counterparties that have both adhered to the Protocol. Although this is a very effective way to amend derivatives to allow for fallbacks, the Protocol mechanism is not available for floating-rate bonds.
- [3] IOSCO (2018) elaborates on a number of these issues.
- [4] ASIC may deem a benchmark to be significant if it is systematically important to the Australian financial system, or there is material risk of financial contagion or impact on investors if the availability of the benchmark were disrupted (ASIC 2018).
- [5] For example, if a BBSW-linked bond switched to a fixed rate based on the last rate published and interest rates were expected to increase in the future, then the coupons would be much lower than expected. This could substantially reduce the income noteholders might have expected to earn over the life of the bond to the benefit of the issuer.
- [6] As published at RBA (2021), 'Eligible Securities', 16 November.
- [7] If BBSW is temporarily unavailable, then either the ASX or ASIC will determine the rate that applies. The fallbacks described here would only apply if BBSW *permanently* ceases.
- [8] See, for example, ARRC (2021).

References

- AFMA (Australian Financial Markets Association) (2021), 'Reserve Bank Repo Eligibility Criteria Published & Screen Rates for Cross-currency Swaps', Media Release No 2021_05, 14 September.
- ARRC (Alternative Reference Rates Committee) (2021), 'Frequently Asked Questions', 27 August. Available at <<https://www.newyorkfed.org/medialibrary/Microsites/arrc/files/ARRC-faq.pdf>>.
- ASF (Australian Securitisation Forum) (2021), 'RBA Announces New Repo Eligibility Requirements for BBSW Securities', News, 13 September.
- ASIC (Australian Securities and Investments Commission) (2018), 'Explanatory Statement for ASIC Corporations (Significant Financial Benchmarks) Instrument 2018/420'. Available at <<https://www.legislation.gov.au/Details/F2018L00722/Explanatory%20Statement/Text>>.
- Black S and D Titkov (2019), 'Developments in Banks' Funding Costs and Lending Rates', RBA *Bulletin*, March.
- FSB (Financial Stability Board) (2017), 'Reforming Major Interest Rate Benchmarks', Progress Report on Implementation of the July 2014 FSB Recommendations, 10 October.
- FSB (2021), 'Interest Rate Benchmark Reform', 2 June. Available at <<https://www.fsb.org/wp-content/uploads/P020621-2.pdf>>.
- IOSCO (International Organization of Securities Commissions) (2018), 'Statement on Matters to Consider in the Use of Financial Benchmarks', IOSCO Statement, 5 January.
- Kent C (2020), 'Benchmark Reforms', Remarks to the Australian Securitisation Forum Virtual Symposium, Sydney, 17 November.
- Kent C (2021), 'The End of Libor and the Australian Market', Keynote Address to ISDA Benchmark Strategies Forum Asia Pacific, Online, 18 March.

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