

# Bulletin

MARCH 2021



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# Cash Demand during COVID-19

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## Abstract

Since the onset of the COVID-19 pandemic, the value of banknotes in circulation has risen sharply. This was despite cash being used much less for everyday transactions. Much of the strong demand for banknotes can be attributed to people's desire to hold cash for precautionary or store-of-wealth purposes. This behaviour is common during periods of significant economic uncertainty and stress, and many other countries saw similar patterns of cash demand.

## Trends in banknote demand

The COVID-19 pandemic significantly affected cash demand in Australia. Demand for banknotes was extraordinarily high over 2020, despite a sharp decline in the use of cash in day-to-day transactions. The pandemic has accelerated trends in banknote demand that had already been occurring for many years. Namely, the use of physical currency as a means of payment has continued to decline, while demand for cash as a store of wealth has grown (Caddy, Delaney and Fisher 2020; Finlay, Staib and Wakefield 2019). This article explores how banknote issuance evolved during the pandemic so far, what factors drove the increase in demand for cash and how this compares to historical and international experiences.

The sharp rise in the demand for currency began in mid March 2020, around the time that the federal and state governments began imposing containment measures – such as travel restrictions and social distancing rules. The value of banknotes in circulation grew by 17.1 per cent over the year to February 2021 reaching \$97.3 billion (Graph 1). This compares with average annual growth in banknotes outstanding of around 5 per cent over the previous decade. As a result, the value of banknotes in circulation, measured as a percentage of GDP, has reached a historic high of 4.9 per cent.

The bulk of the increase in banknotes issued by the Reserve Bank of Australia (RBA) occurred over the first 6 months of the pandemic (\$13.1 billion in gross issuance from March to August). The large spike in demand in mid March coincided with a period of acute uncertainty during the early stage

of the pandemic. Cash demand grew at a more moderate pace in April as strict pandemic containment measures limited economic activity. Demand for cash picked up again between May and August as government restrictions were gradually eased, giving households more opportunities to use cash. Since then, the value of banknotes in circulation has continued to grow at around its average pace.

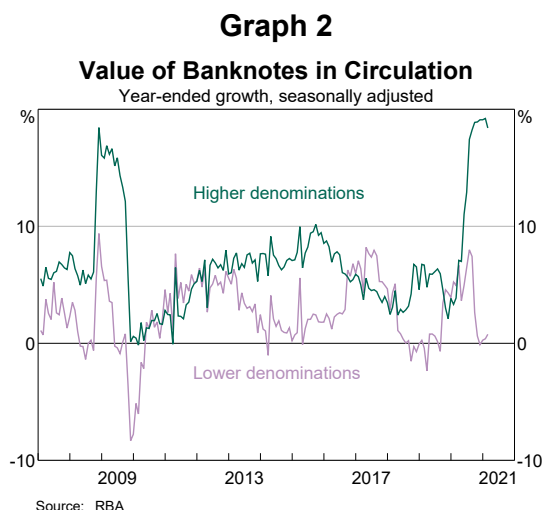
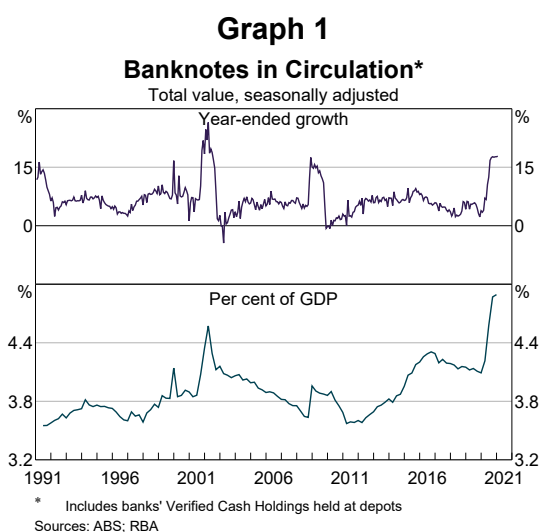
The strong growth in banknotes in circulation was driven by demand for the higher denominations (\$50 and \$100 banknotes) (Graph 2). Around 70 per cent of the volume of banknotes issued since mid March 2020 were \$50 banknotes and almost 20 per cent were \$100 banknotes. At the same time, returns of poor quality or old series banknotes to the RBA were lower than usual throughout 2020, but have picked up in early 2021. Further, banks stopped returning banknotes that were surplus to their requirements after the onset of the pandemic. This is likely due to the sharp drop in economic activity leading to a slowing in the movement of cash around the economy, as well as some precautionary holdings by banks. The increase in high-denomination banknotes in circulation, coupled with reduced transactional cash use, suggests an increased desire in the community to hold banknotes as a precaution or store of wealth.

## Drivers of cash demand during COVID-19

### Transactional demand for cash

The use of cash for day-to-day payments has been in trend decline. The share of total retail payments made in cash has fallen from 69 per cent in 2007 to 27 per cent in 2019 (Caddy, Delaney and Fisher 2020). For in-person transactions, the share of payments made with cash was a little higher before the onset of the pandemic, at 32 per cent in 2019 (Delaney, McClure and Finlay 2020). COVID-19 has accelerated this trend; the decline in transactional cash use was most apparent at the times when lockdown restrictions were acute (and there was less opportunity for in-person spending), but survey data suggest that the shift away from day-to-day cash use may become permanent for many consumers. There is a range of data sources that point to weak demand for cash for transactional purposes, including: subdued issuance of low-value banknotes (\$5, \$10 and \$20); declines in cash lodgements at cash depots; lower ATM withdrawals; a sustained shift to online spending; and survey data on banknote use during the pandemic.

There has been little issuance of low-value banknotes during the pandemic (Graph 3). These denominations are typically used for in-person transactions and for merchants to provide change, so subdued demand for these banknotes reflects reduced use of cash for consumer spending. This is particularly the case for the \$5 and \$10 denominations. There was no issuance of these



denominations in the first half of 2020 and subdued issuance over the remainder of the year.

The value of cash that is moved from a retailer to a bank via a commercial cash depot provides an indication of cash spending in the economy. These lodgements at cash depots fell sharply at the onset of the pandemic as businesses received fewer cash payments and took longer to deposit their cash floats into commercial banks. The value of cash lodged at depots fell by around a third between February and May, and remains well below pre-pandemic levels.

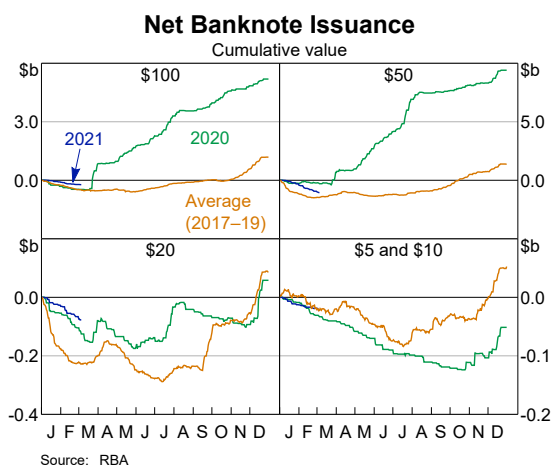
Lower transactional demand for cash is also evident from the sharp decline in the number and value of cash withdrawals, particularly at ATMs and in the early stages of the pandemic (Graph 4). The number of ATM withdrawals fell by around 50 per cent in the first 2 months of the pandemic in Australia. By the end of the year, withdrawals were still 20 per cent lower than before the pandemic in February 2020. The average withdrawal size increased at a slightly faster pace than its trend increase, which points to some demand for cash as a store of wealth. Access to cash also declined due to closures of ATMs and bank branches. This decline in access was mostly temporary, with venues being inaccessible due to lockdown restrictions and banks adjusting their operations through reduced trading hours.

While aggregate retail spending has remained resilient throughout most of the pandemic, it does not appear to have translated into the usual level of cash transactions. Households have adapted to

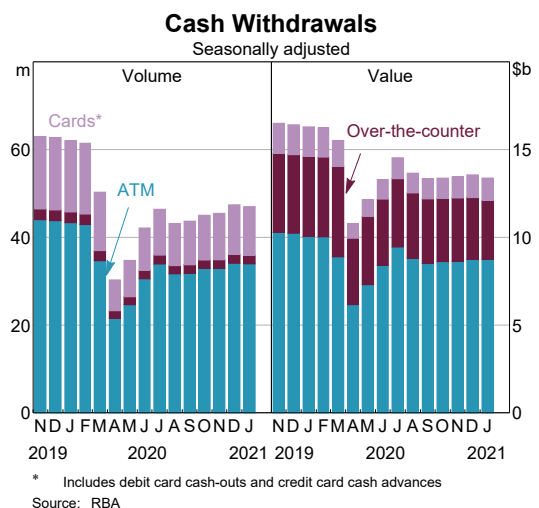
restrictions by making more of their purchases online, with one-third of Australians preferring to shop more online now than before the pandemic (ABS 2020). The share of retail sales conducted online has sharply increased from an average of 6½ per cent in the second half of 2019 to an average of 10 per cent since March 2020 (Graph 5). It has remained elevated even after physical-distancing restrictions eased, which suggests that consumers' change in shopping habits will endure. The shift towards online transactions is also clear from data on debit and credit card use. Both in-person and remote card transactions declined sharply during March and April, reflecting lower household spending. But the number of in-person transactions fell 3 times more than remote transactions in percentage terms in the early part of the pandemic. In-person transactions returned to pre-COVID-19 levels in late 2020, while the volume of remote card transactions recovered more quickly.

A survey commissioned by the RBA – the RBA Online Banknotes Survey – identified the broader shift away from transactional cash use over 2020. (See 'Box A: Consumer Cash Use during COVID-19: Evidence from the Online Banknotes Survey' for more details on the survey of individuals' attitudes towards cash.) Cash was used for 23 per cent of respondents' most recent in-person transactions. Although not directly comparable, this is lower than the 32 per cent of in-person payments made in cash in 2019 from the Consumer Payment Survey (CPS) (Delaney, McClure and Finlay 2020). Forty-four

**Graph 3**



**Graph 4**



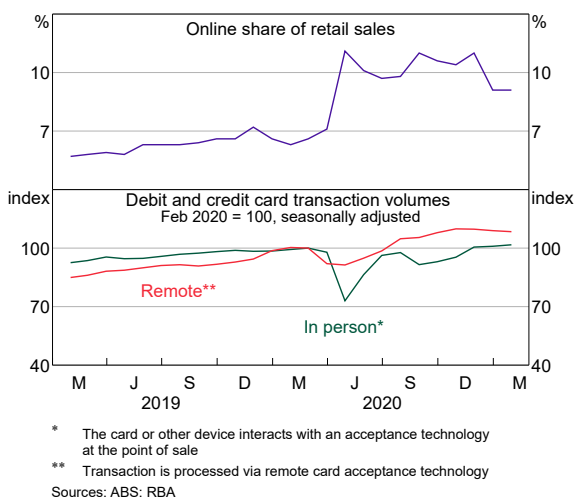
per cent of individuals reported using less cash since the start of the pandemic, compared with only 12 per cent using more cash (Graph 6). Two-thirds of individuals said this change in payment behaviour was likely to continue even after the pandemic was over.

One reason for this dramatic shift in payment preferences and behaviour is community concern about transmission of the virus via banknotes. Of those people who preferred not to use banknotes in transactions, 28 per cent said one reason was because they thought of cash as being unhygienic. The RBA also responded to a small number of public enquiries about the potential health risks of using cash, recommending that banknotes be treated like any other surface and to follow good

hand hygiene (RBA 2020a). Concern over cleanliness also drove some businesses to discourage cash use. The consumer survey found that 45 per cent of respondents had encountered a business that did not accept cash in the month of September 2020, a substantial increase from 23 per cent in 2019. Furthermore, almost a quarter of respondents cited concerns about cash acceptance as a reason for preferring not to use cash, compared with just 7 per cent in 2019.

An RBA survey of retail businesses during September 2020 identified a small but statistically significant decline in cash acceptance (See 'Box B: Merchant Acceptance of Cash and Cards' for more details on the survey methodology and results). Although the vast majority of retail businesses continued to accept cash during the pandemic, the acceptance rate decreased by 3.6 percentage points to 95.8 per cent, compared with near-universal cash acceptance in February 2020. As such, the merchant and consumer surveys both highlight a decline in cash acceptance. Note that a small decline in cash acceptance by a few merchants could potentially lead to a larger decline in the ability for people to use cash.

**Graph 5**  
**Online and In-Person Spending**

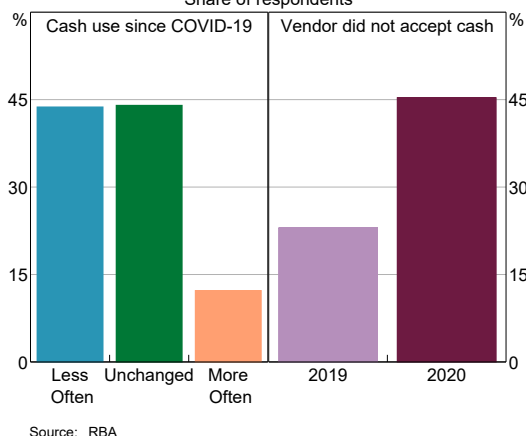


**Precautionary holding of cash and store-of-wealth motives**

The significant increase in outstanding banknotes in the economy against the backdrop of reduced cash payments implies that the demand for cash during the pandemic has likely been driven by hoarding behaviour. The relatively strong demand for high-value banknotes suggests a significant precautionary savings or store-of-wealth motive by households and businesses.<sup>[1]</sup> Since mid March 2020, almost 90 per cent of the volume of banknotes issued were \$50 and \$100 banknotes.

Both cash held by the community (outside banks) and bank deposits increased strongly over 2020, but growth in cash holdings outpaced that of deposits. As such, the currency-to-deposits ratio is around its highest point in a decade (Graph 7). The strong growth in deposits suggests that confidence in the banking sector as a whole was sustained, but it is possible that some people held more cash because of a general sense of uncertainty or because they

**Graph 6**  
**Effect of COVID-19 on Cash Use**  
Share of respondents



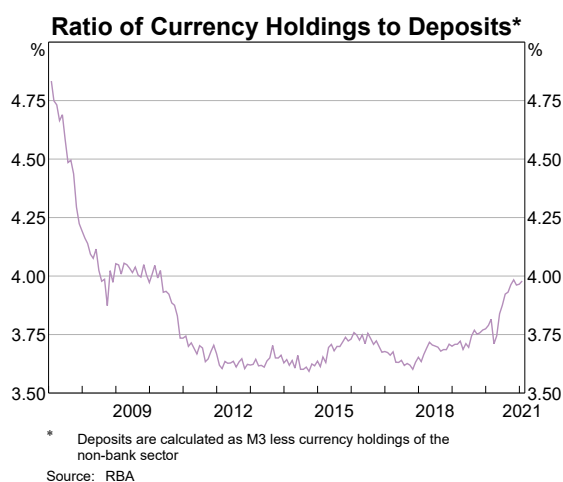


were concerned about possible disruptions to electronic payment systems during the pandemic. For example, in March, the average value of over-the-counter cash withdrawals from banks spiked, although the amount of withdrawals were lower. This points to a precautionary motive by a subset of the community during the initial stage of the pandemic.

Holding cash also became relatively more attractive as interest rates declined, because this lowered the opportunity cost of holding cash, which pays no interest.<sup>[2]</sup> However, the scale of the response in March was much larger than lowered opportunity costs can explain, so other factors must have been at play.

Aggregate household disposable income has increased substantially, largely because of government income support policies, while loan repayment deferrals and early withdrawal of superannuation have also supported household cash flow more generally (RBA 2020b). Government income support has also assisted businesses to build considerable liquidity buffers. Given that household consumption declined significantly in 2020, it is likely that some of the higher cash flows of households and businesses have been retained in the form of physical currency, thereby contributing to the strong increase in currency held by the private non-bank sector. In addition, those earning their income in cash would have had less opportunity to spend or deposit it in their usual way.<sup>[3]</sup>

**Graph 7**



The role of precautionary cash holding in banknote demand is supported by the findings from the RBA's 2020 Online Banknotes Survey, which found that 56 per cent of respondents stored cash outside of a bank. This is higher than the almost 40 per cent of CPS participants storing cash outside of a wallet in 2019. Although the 2 surveys are not directly comparable, it suggests that precautionary demand for banknotes remains a factor in banknote demand. Of the respondents who were storing banknotes, the majority kept around the same amount of cash compared with the previous year, while 18 per cent kept more and 23 per cent kept less. This means that around 10 per cent of households held more cash, while 13 per cent reduced their cash holdings, although we do not know by how much. Nonetheless, Finlay, Staib and Wakefield (2019) argue that surveys are likely to understate cash hoarding for a range of reasons. Finally, almost one-fifth of those who stored cash outside a bank said that the pandemic – and related factors such as potential lockdowns – was one of their reasons for doing so.

The banking sector may also want to build up currency holdings to manage risks related to meeting the demands of their depositors. With strong demand for physical cash and logistical challenges in moving money around Australia, the wholesale banknote distribution system experienced increased pressure at times during the pandemic (see 'Box C: The Impact of COVID-19 on the Cash Distribution System' for more detail). Commercial banks' currency holdings were quickly run down with the sudden strong increase in demand for banknotes at the onset of the pandemic, coupled with fewer banknote deposits flowing into the banking sector. In response, the RBA opened its banknote distribution contingency site to help the banks replenish their banknote holdings. This saw cash holdings of the banking sector peak in March and again in July/August (Graph 8). Apart from these brief spikes, cash holdings at banks have mostly remained around pre-pandemic levels. This suggests that the precautionary behaviour of banks was temporary and related to banks managing their stocks to meet customer demand. Overall, cash holdings at

**Table 1: Growth in Banknote Circulation during Periods of Economic Stress**<sup>(a)</sup>

Event	Time Period	Peak Year-Ended Growth in Nominal Circulation (%)	Peak Year-Ended Growth in Real Circulation (%)
Dot-com bubble <sup>(b)</sup>	2000–02	26.5	22.6
COVID-19 pandemic	2020–Present	17.7	16.7
Early 1990s recession	1990–91	16.4	11.7
Global financial crisis	2007–09	15.1	8.5
1970s recession	1974–75	22.5	5.2
1980s recession	1982–83	14.6	2.7
1960s recession	1960–61	5.9	2.9
<i>Memo item:</i>			
1960–2019 average annualised growth		8.0	3.0

(a) Banknote data pre-1984 are at annual frequency and are quarterly and seasonally adjusted after that; real series uses the GDP deflator

(b) Changes in the banknote distribution arrangements with commercial banks also contributed to the peak growth in banknote demand during this period

Sources: ABS; RBA

commercial banks account for a relatively small share of the extra cash in circulation since March.

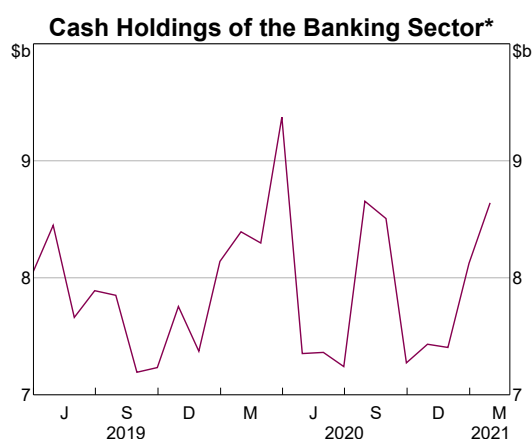
A sizeable share of Australian banknotes is estimated to be held overseas, perhaps as much as 15 per cent (Finlay, Staib and Wakefield 2019). Restrictions on international travel have disrupted cash spending from tourism, so any overseas demand for banknotes since early 2020 would be mostly to hoard. Information from liaison suggests that overseas banknote demand has not been a factor in driving cash demand during the pandemic. Overseas wholesale currency shipments in March and April were not out of the ordinary, even

allowing for the initial depreciation in the exchange rate. And since May there has been almost no overseas demand for Australian banknotes. As such, the usual strong relationship between \$100 banknotes outstanding and the exchange rate has not held up (Flannigan and Parsons 2018).

### Historical and international comparisons

Demand for cash has historically been strong during periods in which Australia has experienced economic or financial stress, such as during a recession (Cusbert and Rohling 2013). In real terms (that is, after allowing for inflation) year-ended growth in banknote demand peaked at 12 per cent during the recession in the early 1990s, and 9 per cent during the global financial crisis. This compares with growth of 3 per cent on average over 1960 to 2019. Banknote demand also increased in earlier recessions, but to a lesser extent.

These past episodes highlight that banknote demand is strong during times of economic uncertainty. Greater demand for high-denomination banknotes suggests that individuals hoard cash for precautionary and store-of-value purposes. For example, as the global financial crisis intensified, demand for high-denomination banknotes increased by around 16 per cent over

**Graph 8**

\* Includes authorised deposit-taking institutions

Sources: APRA; RBA

the year to March 2009, compared with 4 per cent for the lower denominations. Similarly, demand for high-denomination banknotes was strong during the 1990s recession, while the amount of low denomination banknotes in circulation fell.

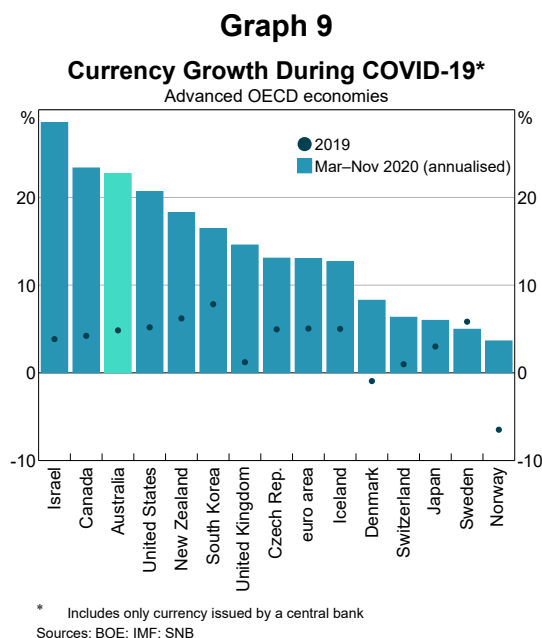
While strong cash demand is typical of periods of economic stress, the strength of demand during COVID-19 has been unprecedented. Not only has the growth in banknotes in circulation exceeded that encountered in the past, it has been the most sustained period of strong growth.

The experience of strong cash demand during the pandemic is not unique to Australia, with currency in circulation rising sharply across many economies during the pandemic (Graph 9). Across most advanced economies, currency growth has been significantly higher over 2020 than in 2019. The Anglosphere countries, including Australia, experienced particularly strong demand. Some Nordic economies that have experienced falling cash demand in the recent past saw positive growth in 2020.

Like Australia, strong precautionary demand coupled with weak transactional cash demand have been a common experience across many economies. Reports from the central banks of Canada, the euro area, the UK, and the US all highlight a sharp decline in transactional cash use during the pandemic, with a noticeable shift towards contactless payment methods (Chen *et al* 2021; European Central Bank 2020; Caswell *et al* 2020; Kim, Raynil and O'Brien 2020). For many countries, demand for high-denomination banknotes has outstripped that for lower denominations. And there has been some survey evidence of greater cash holdings during the pandemic. There is also some evidence that lower banknote deposits have led to commercial banks maintaining an elevated level of cash holdings during the pandemic to meet consumer demand and protect against further disruptions to the cash distribution system.

## Conclusion

Demand for cash has increased substantially during the COVID-19 pandemic. The value of banknotes in circulation rose 17 per cent since mid March 2020, around the start of the pandemic uncertainty in Australia. Transactional cash demand has fallen due to lockdowns and other restrictions, a shift towards online spending, and concerns over transmission of the virus via banknotes. Against the backdrop of lower cash use for everyday transactions, the strong demand for banknotes can largely be attributed to precautionary or store-of-wealth motives. A disproportionate increase in demand for high-denomination banknotes, as well as RBA survey findings, support this. Historical experience suggests that precautionary motives tend to come to the fore during periods of economic and financial stress. Australia was also not alone in seeing a substantial increase in demand for banknotes, with many other countries experiencing similar patterns of cash demand. ✎

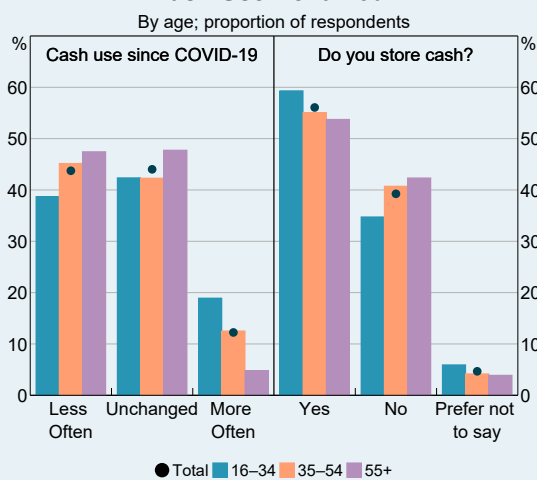


### Box A: Consumer Cash Use during COVID-19: Evidence from the Online Banknotes Survey

The RBA has conducted a biennial Online Banknotes Survey since 2010. The survey aims to gauge community perceptions and understanding of Australia’s banknotes, experiences with counterfeit banknotes and cash use preferences. To obtain timely insight on the impacts of the pandemic on cash use, the latest survey was brought forward by 6 months to October 2020. It also included some additional questions about the effect of the COVID-19 pandemic. In total, 1,070 people participated in the survey, providing a representative sample of Australians.

The survey results reveal the dual trends of a shift away from cash use for payments and its greater use for precautionary purposes, although the results are less clear for the latter. Over 40 per cent of respondents have been using less cash since the start of the pandemic, while a significant share of them were also holding more cash for precautionary reasons. It is also of interest to look into the demographic breakdown. As might be expected, younger people (16–34-year-olds) were less likely to prefer using cash in day-to-day transactions and also less likely to use it in their most recent transaction.<sup>[4]</sup> Nonetheless, the decline in cash use during COVID-19 was more pronounced for the older age group, with 47 per cent of those aged 55 and over using less cash since the start of the pandemic, compared with 39 per cent of those aged between 16 and 34 (Graph 10). Almost one-fifth of the younger cohort were more likely to use cash.

**Graph 10**  
**Cash Use Behaviour**



Source: RBA

Younger people were also a little more likely to store cash outside of banks, at 59 per cent, compared with 54 per cent for those aged above 55. Older respondents were more likely to store cash for emergency purposes and day-to-day transactions, while younger respondents reported they were more likely to store cash to keep their savings private. Young people experienced the largest declines in employment in the early part of the pandemic. As such, the change in their income source and attitude to financial security may have prompted a change in the way they stored and used cash.

Less than one-third of respondents cited cash as their preferred payment method, and this was consistent across all age groups. Nonetheless, those living in regional and non-metropolitan areas had a significantly greater preference for cash relative to those in metropolitan areas and were more likely to have used cash

in their most recent transaction. Despite the differing prevalence of cash use across regions, cash acceptance was similar across metropolitan and regional areas.

### Box B: Merchant Acceptance of Cash and Cards

The RBA conducted a survey in February 2020 to investigate cash and card acceptance by retail merchants (Delaney, McClure and Finlay 2020). The survey found that the vast majority of consumer-facing businesses that had a physical presence accepted both forms of payment, with 99.4 per cent and 98.3 per cent of businesses accepting cash and card, respectively.

The survey was run again in September to investigate the impact that the pandemic had on merchants' cash acceptance, given media and anecdotal reports of businesses discouraging cash use because of concerns about virus transmission. Businesses that had participated in the initial survey were asked if they were currently accepting cash and/ or card. The survey found that the vast majority of these businesses have continued to accept both forms of payment. Out of the businesses that responded, cash and card acceptance were at 95.8 and 98.8 per cent, respectively. However, the share of businesses accepting cash fell by 3.6 percentage points between February and September, a statistically significant decline in cash acceptance. In contrast, card acceptance increased slightly by (a statistically insignificant) 0.5 percentage points.

**Table 2: Share of Merchants Accepting Cash and Cards**

	September 2020		February 2020	
	Accept cash?	Accept card?	Accept cash?	Accept card?
Number answering 'yes'	323	333	467	462
Total number surveyed	337	337	470	470
Estimate of share (per cent)	95.8	98.8	99.4	98.3
95 per cent confidence interval (per cent)	(93.1, 97.7)	(97.0, 99.7)	(98.1, 99.9)	(96.7, 99.3)

Sources: RBA

A caveat is that the sample may no longer be representative of all Australian retail businesses. A number of businesses have closed either temporarily or permanently during the pandemic, especially in Victoria as the survey was conducted during its lockdown period. As such, the results present a snapshot of cash acceptance among a sample of businesses that have remained open during the pandemic. Nevertheless, similar results were obtained when businesses in Victoria were excluded from the sample or when we considered only those businesses who responded in both samples.

This survey and the Online Banknotes Survey of households both point to a decline in cash acceptance during the pandemic. However, the figures are not directly comparable due to differences in survey design and methodology.

### Box C: The Impact of COVID-19 on the Cash Distribution System

The COVID-19 pandemic has caused significant challenges for cash distribution and processing. The RBA operates as a wholesaler of banknotes, issuing banknotes to the 4 largest commercial banks, which, in turn, have arrangements in place to distribute banknotes around the country to meet the demands of their customers. The RBA, commercial banks and their cash-in-transit companies have worked closely throughout the pandemic to meet record demand for banknotes, despite difficulties arising from the disruption to domestic travel and from physical distancing requirements.

Banknotes are typically issued from the RBA's primary distribution site – the National Banknote Site (NBS) – in Melbourne. The Bank also stands ready to distribute banknotes from Sydney as part of its contingency arrangements. The Sydney contingency distribution site has been opened twice during the COVID-19 period to assist the industry with meeting the heightened demand for banknotes in the face of domestic transport restrictions and limitations. In each instance, the Sydney distribution site was opened for a period of about 2 weeks and operated in association with the RBA's distribution activities at the NBS. It first opened in mid-to-late March to alleviate challenges arising from the sudden increase in demand for banknotes alongside transportation difficulties due to domestic travel restrictions. It opened again in July as the second wave of infections in Victoria led to renewed transportation disruptions (RBA 2020c).

The RBA has experienced some disruptions to processes as a result of lockdown restrictions and social distancing requirements, particularly as the Bank's banknote processing operations are located in Melbourne. These include: minor delays to banknote production and quality assurance testing of new banknotes; reduced banknote processing activities due to the introduction of split team arrangements, social distancing measures and government restrictions preventing non-essential work; and the temporary suspension of banknote sampling at cash-in-transit depots to measure the quality of banknotes in circulation. However, this has not impacted the RBA's ability to meet banknote demand, which has been its primary focus.

### Footnotes

- [\*] The authors are from Note Issue Department. Thank you to the team at the National Banknote Site in Melbourne who assisted in conducting the merchant cash and card acceptance survey, and Matthew Tsirikas for organising the Online Banknotes Survey.
- [1] High denominations are also used for transactions, with the \$100 note increasingly so (Flannigan and Parsons 2018). But their use as a store of value is an important driver of their growth, especially relative to low denominations.
- [2] Cusbert and Rohling (2013) found that 20 per cent of the sharp increase in currency demand during the global financial crisis could be attributed to the fall in interest rates and federal government stimulus payments.
- [3] If unreported for tax purposes, these payments would be part of the shadow economy. Illegal production (such as illicit drug sales) also forms part of the shadow economy; this activity was likely disrupted due to COVID-19 but it is difficult to say whether this would have increased or decreased aggregate cash holdings. Finlay, Staib and Wakefield (2019) attribute 4–8 per cent of banknotes in circulation to be part of the shadow economy.
- [4] Teenagers (16–19 years old) are an exception, as they had high cash use. This could be because some of them are paid cash for casual work. However, the sample size is small, so we focus on broader age groups to draw conclusions.

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# Property Settlement in RITS

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Photo: the\_burtons – Getty Images

## Abstract

Property transactions are among the largest and most significant financial undertakings that many Australians enter into. As with other aspects of Australia's economy, innovation and technological change have led to the introduction of electronic solutions for property conveyancing, replacing the traditional paper-based process. To support the shift to electronic conveyancing, in 2014 the Reserve Bank of Australia introduced new functionality in the Reserve Bank Information and Transfer System to enable near real-time settlement of interbank obligations relating to property transactions. This functionality minimises settlement risk for the transfer of property ownership, while also ensuring that the property settlement process remains secure, reliable and efficient.

## Introduction

The Reserve Bank of Australia (RBA) owns and operates the Reserve Bank Information and Transfer System (RITS), Australia's interbank settlement system. All non-cash payments in Australia that involve a transfer of funds between banks and other payments service providers are ultimately settled in RITS. This occurs through the debiting and crediting of RITS members' Exchange Settlement Accounts (ESAs) at the RBA. High-value transactions, such as wholesale debt securities transactions, interbank borrowing and lending, and the Australian dollar

leg of foreign exchange transactions, are settled finally and irrevocably in RITS on a payment-by-payment basis. RITS also includes the Fast Settlement Service, which extends real-time settlement to a broad range of retail payments processed through the New Payments Platform. Some other lower-value transactions, such as the cash leg of share market transactions, card payments and pay-anyone bank transfers, are settled periodically throughout the day in batches in RITS.



In 2014, the RBA introduced new RITS functionality to support the near real-time settlement of property transactions. This allows for ESA funds to be 'reserved' for the transaction while the property title transfer is lodged with the relevant state or territory land registry office. Lodgement is then immediately followed by financial settlement, thereby minimising settlement risk. This article describes electronic property conveyancing (e-conveyancing) and how RITS supports this process in Australia. It also analyses property settlement activity in RITS and discusses future developments in e-conveyancing.

### The development of e-conveyancing in Australia

Property conveyancing covers a range of property-related transaction types. The 2 most common types are property sales, where ownership of a property transfers from a seller to a buyer, and refinancing transactions, where a borrower chooses to change loan provider (or lender). Other transaction types include the lodgement of caveats, withdrawals, discharges and mortgages. Property transactions can involve a range of parties, including buyers, sellers, lawyers, conveyancers, financial institutions, as well as state- and territory-based land titles and revenue offices. The conveyancing process involves the preparation and exchange of contracts for the property transaction, followed by completion of financial settlement and change of title to deliver on the contract obligations. Historically, property transaction processing has involved time-consuming manual preparation of documents, in-person meetings and the need for coordination of the exchange of title and transfer documents with financial settlement involving the physical exchange of cheques.

Recognising the potential efficiency benefits of an electronic lodgement and settlement system, in 2008 the Council of Australian Governments introduced e-conveyancing as part of the Seamless National Economy deregulation priorities (Prime Minister of Australia 2008). This ultimately led to the creation of National E-Conveyancing Development Ltd (NECDL) in 2010, to develop a national e-conveyancing system.<sup>[1]</sup> In 2011, the Australian

Registrars' National Electronic Conveyancing Council (ARNECC) was formed under the Intergovernmental Agreement for an Electronic Conveyancing National Law, to coordinate a national legal and regulatory framework for e-conveyancing operators (ARNECC 2020a). ARNECC also assesses network operators, formally known as Electronic Lodgement Network Operators, ahead of the operators being approved by each registrar to operate in a particular state or territory.

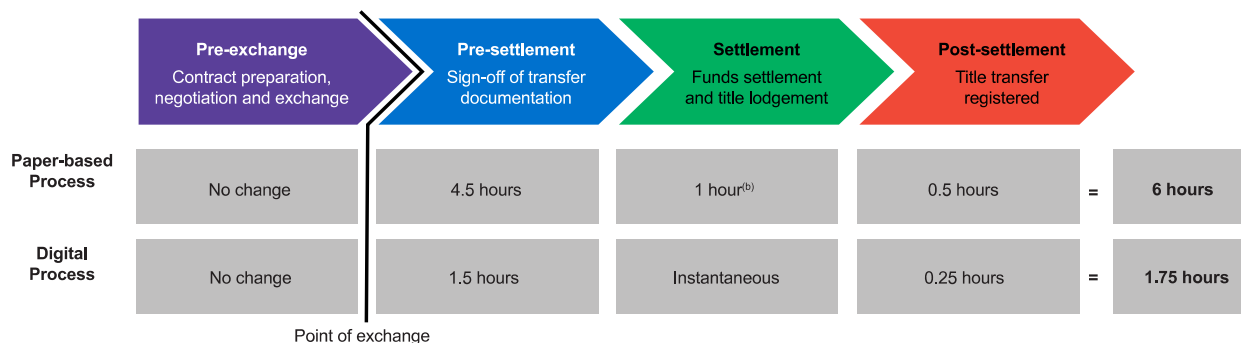
In 2014, NECDL rebranded as Property Exchange Australia Ltd (PEXA), and became the first network operator to provide a digital platform for settlement and lodgement of conveyancing transactions. In 2018, Sympli Australia Pty Ltd (Sympli), a collaboration between InfoTrack and ASX Limited, was assessed by ARNECC and approved as a network operator in some jurisdictions. Sympli is currently undertaking a soft launch in New South Wales, Queensland and South Australia (Sympli 2020). In the future, other entities may also be approved by ARNECC to provide e-conveyancing services.

### Benefits of e-conveyancing

The steps in the e-conveyancing process are similar to the traditional paper-based process, but with all key settlement processing occurring electronically in the network operator's system. This makes the settlement of property transactions faster and more efficient as it avoids, for example, preparation and exchange of manual paperwork, in-person meetings and the need to issue and redeem cheques for settlement. However, there is now some additional time spent on pre-settlement data verification processes, which, in addition to the use of data sharing, minimises the risk of failed or delayed settlements. This provides greater certainty around the date of settlement, while having the documentation accessible electronically to all parties also provides greater transparency. Completion of the process digitally, after the exchange of a contract, has been estimated to take around one-third of the time spent on a standard paper-based transaction (Figure 1).

There are also potentially significant cost savings for financial institutions, practitioners and consumers

**Figure 1: Comparison of Time Spent on paper and Digital Settlements**  
**Average time of the purchaser's lawyer or conveyancer<sup>(a)</sup>**



(a) The vendor's lawyer or conveyancer is estimated to save 3.25 hours by completing the digital process compared with a paper-based process

(b) The settlement time for the paper-based process is estimated to be 2 hours on average in regional areas

Source: KPMG (2018)

from the shift to e-conveyancing. The process eliminates the fees associated with the use of cheques, in addition to reduced travel, courier and administrative costs. One study has estimated that the industry would likely realise around \$89 million per annum in net benefits if all property transactions were settled digitally in New South Wales, Victoria, Queensland, Western Australia and South Australia in 2021/22, compared to if no property transactions were settled digitally (Deloitte Access Economics 2018). This study also recognised that there are significant costs to practitioners if they need to revert to the paper process, which may occur if at least one other party cannot use the network operator's system.

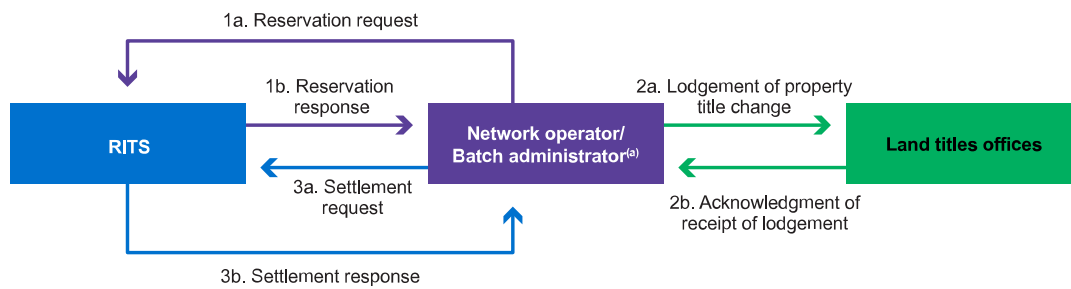
### Property settlement in RITS

The functionality in RITS that enables near real-time settlement of interbank obligations relating to property transactions uses a 'reservation of funds' model. A key objective of this model is to integrate lodgement of the title transfer with the financial settlement process to get as close as possible to 'delivery-versus-payment'. Delivery-versus-payment is a settlement model whereby delivery of title occurs if and only if the corresponding payment also occurs. It is aimed at removing principal risk, which is the risk that a party to the settlement does not meet its settlement obligations; either the buyer provides funds but does not receive the title,

or the seller provides the title but does not receive funds.

Network operators connect to RITS via a 'batch administrator', which coordinates the cash leg of financial settlement. The arrangements can differ slightly between network operators; PEXA performs the role of both network operator and batch administrator, while Symplici connects to RITS via a separate batch administrator, ASX Financial Settlements Pty Ltd. The first step in the reservation of funds model is that the batch administrator sends a reservation request with the details of all interbank obligations related to a property transaction to RITS as a batch (Figure 2). If all banks that have paying positions in the settlement have sufficient funds in their ESAs, the funds required for the settlement are reserved within their ESAs. The seller does not have any rights to the funds while they are reserved and the funds can only be used to settle that particular property transaction. The network operator will then electronically lodge the property title transfer with the relevant land titles office. Once receipt of the lodgement is acknowledged, the batch administrator sends a settlement request to RITS. The settlement of funds happens immediately after this settlement request is received, using the funds that were reserved by the earlier reservation request.

Strictly speaking, this is not pure delivery-versus-payment, as lodgement of the title transfer is not the same as successful registration of the

**Figure 2: Steps in the ‘Reservation of Funds’ Settlement Model**

(a) The network operator can also perform the role of batch administrator, or can connect to RITS via a separate batch administrator

Source: RBA

lodgement. However, lodgement is only made when all documentation is ready and all checks have been performed, meaning that successful completion of title transfer is almost certain.

### Batches in RITS

The reservation of funds model allows for simultaneous settlement of a group of payments that have been multilaterally netted externally to RITS, known as a ‘batch’. It is most common for a batch to represent a single property transaction, but it can represent multiple property transactions. Netting of payments might occur because a financial institution in the batch may have a number of roles in the property transaction, for example as both banker to the seller and banker to the buyer, in which case the obligations are netted to a single batch position. The batch administrator sends to RITS the net position (credit or debit) for each bank (or other financial institution) taking part in the property settlement.

Figure 3 shows how a stylised property transaction is converted to a batch for settlement in RITS. In this example, the buyer has funded their purchase using a mortgage with Bank A and savings contributed through their lawyer’s trust account with Bank B. A small part of the buyer’s funds may be used to pay fees such as stamp duty, land title office lodgement fees and council rates. In this example these fees are paid into the bank accounts of the revenue authority, the network operator and council, all held with Bank C. The rest of the funds are deposited into the account of the seller at Bank B. Both Bank B and

Bank C fulfil multiple roles in the batch and their activity is netted to one position each. The net value of each property batch is always zero, as all credits have a corresponding debit, and the total value of each batch is calculated as the absolute sum of debits and credits in the batch.

In 2020, around 6 per cent of PEXA property settlements had only one financial institution in the batch, i.e. the same financial institution was used by the buyer, seller and network operator, and therefore all payments in the property settlement schedule were netted into one zero-value position in the batch. The network operator still sends these batches with a net and total value of zero to RITS for settlement to avoid the need for separate legal rules and operational processes for the particular scenario where there is no interbank cash settlement.

### Property settlement activity in RITS

The following analysis of property settlement activity focuses on the activity of PEXA, given the relatively recent launch and limited transactions of Sympli. Since the launch of property settlement in RITS in late 2014 there has been a strong shift to e-conveyancing, with more than 75 per cent of property transfers in Australia being settled electronically in November 2020 (PEXA 2020). Between December 2014 and December 2020, the value of financial institution cheques, which are typically used for relatively large purchases such as property transactions, declined by around 75 per cent (Graph 1).

**Figure 3: Netting of Property Settlement Batches**

Property Settlement Schedule			Batch in RITS		
Institution	Payment type	Value \$'000	Institution	Netting calculation \$'000	Net positions \$'000
Bank A	Buyer's mortgage	400 DR	Bank A		400 DR
Bank B	Buyer's equity	50 DR	Bank B	445-50	395 CR
Bank C	Stamp duty	3 CR	Bank C	3+1+1	5 CR
Bank C	Lodgement fee	1 CR	Batch net value		0
Bank C	Council rates	1 CR	Batch total value		800
Bank B	Seller's equity	445 CR			

Source: RBA

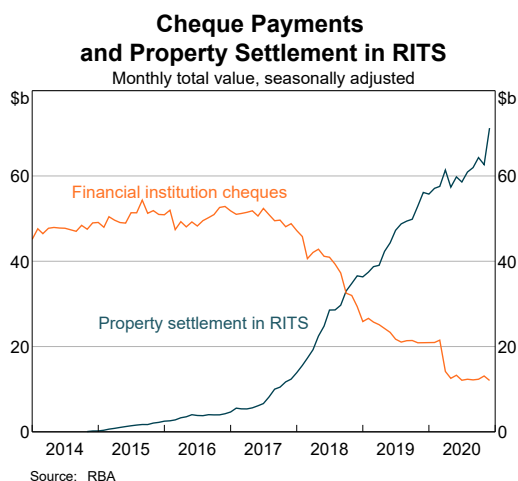
Growth in the number and value of property settlements in RITS was particularly strong from mid 2017 onwards, which coincides with the introduction of mandates to convert to e-conveyancing in New South Wales, Victoria and Western Australia. Since mid 2018, fewer new mandates for e-conveyancing have come into effect and the migration of property settlements to e-conveyancing platforms in most states now nears completion. Accordingly, growth in the number and value of property batches in RITS has moderated from the initial very high growth rates to around 25 per cent over the year to December 2020 (Graph 2).

Growth of property settlements in RITS has continued through 2020, despite the impact of the COVID-19 pandemic on housing market activity. A reduction in property settlements in March, due to the suspension of real estate auctions and open

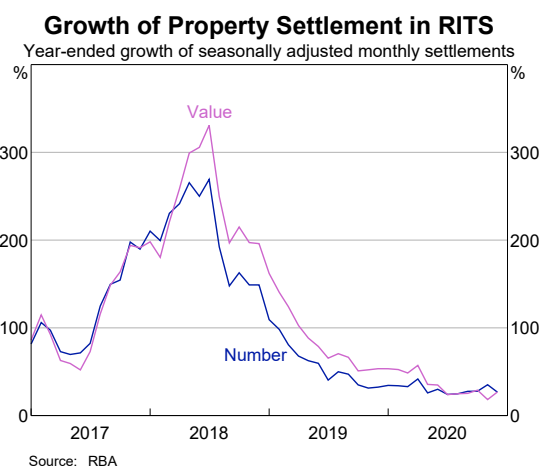
house inspections as the first lockdown started, appears to have been offset by pandemic restrictions accelerating the transition to e-conveyancing in some states. Since face-to-face settlement meetings were limited, some solicitors chose to move online to complete transactions. In addition, South Australia mandated e-conveyancing for most transaction types in August, resulting in the number of electronic transfers in the state in December 2020 growing to more than 4 times the number in December 2019 (Graph 3).

Patterns in settlement activity are not only driven by mandates for migration to e-conveyancing, but also seasonal patterns in housing market activity. Typically, a large spike in settlement value in December has been followed by a drop-off of up to 25 per cent of value settled in January. After factoring in the typical settlement period of between 30 to 90 days, this is consistent with strong

**Graph 1**



**Graph 2**



housing market activity in November followed by a slowdown over the Christmas period. A pick-up in activity is also observed before other national public holidays, such as the Easter long weekend, as well as towards the end of the financial year.

**Value of property batches**

In 2020, the median batch value was around \$640,000 (Graph 4). Due to batch netting effects and the range of transaction types that property batches represent, including mortgage refinancing, this is not a direct reflection of the median value of Australian property. The highest property batch value settled in RITS to date was over \$1 billion.

The average batch value has grown strongly over recent years, up from around \$660,000 in early 2018 to a peak of nearly \$1 million in late 2019. This

is consistent with a change in the composition of e-conveyancing settlements from predominantly residential transactions in the early years of operation, to a mix of residential and commercial transactions, as mandates for the electronic processing of commercial property transactions came into effect

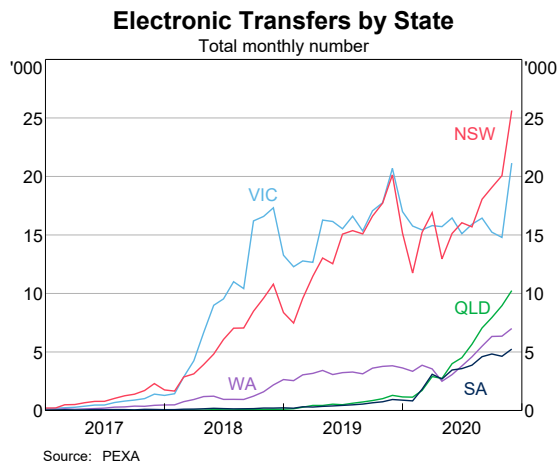
(Graph 5). A dip in the average batch value is noticeable during 2020, potentially reflecting a reduction in commercial property transactions and an increase in refinancing transactions during the pandemic, but has since returned to levels similar to late 2019.

**Settlement patterns**

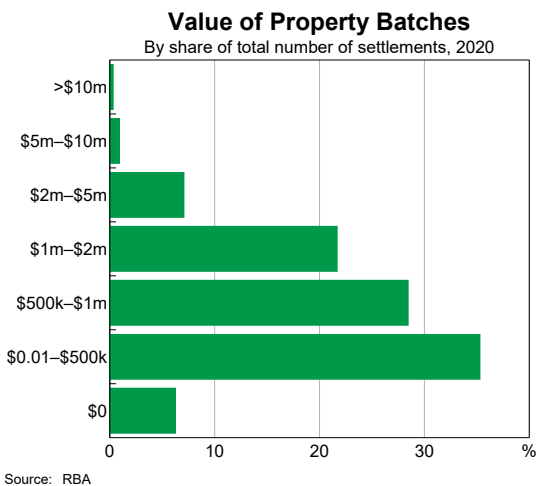
Property batches are able to settle in RITS during the period set aside for general daily processing, from 9.15 am to 6.30 pm AEST (or 8.30 pm AEDT). The distribution of settlements over the day has remained fairly consistent over the history of the property batch. The peak typically occurs between 2.00 pm and 3.00 pm, with this period accounting for around 30 per cent of daily settlements (Graph 6). There is a drop in the number of settlements between 1.00 pm and 2.00 pm, which may be due to solicitors and property conveyancers choosing to schedule settlements when they are available to monitor them and notify their clients on completion.

The profile of property settlements through the week shows a strong peak on Fridays, which accounts for around one-quarter of the number

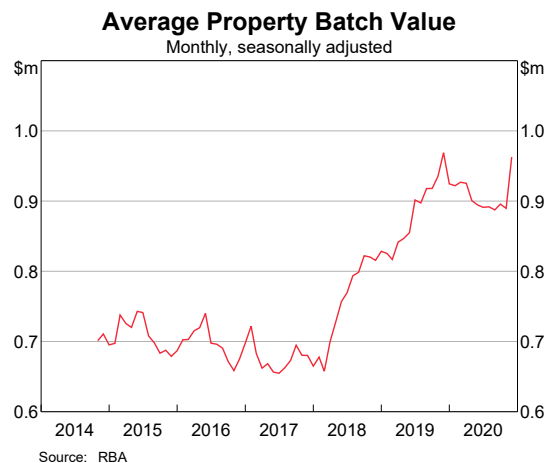
**Graph 3**



**Graph 4**



**Graph 5**



and value of all batches (Graph 7). In part, this could be driven by consumer behaviour, with some property purchasers aiming to finalise settlement towards the end of the week in order to pick up keys and move in over the weekend.

**Liquidity management**

The RBA monitors settlement of property batches in RITS to ensure that the system is operating efficiently and not introducing risks to other settlements in RITS. If liquidity is reserved for property settlements for long periods, this could potentially delay settlement of other transactions in RITS and might also be relevant for the RBA’s open market operations, which are used to manage the total amount of liquidity in the system. While liquidity concerns have not been an issue recently,

as ESA balances have risen to record levels during the COVID-19 pandemic, this is something that the RBA will continue to monitor as patterns in system liquidity evolve.

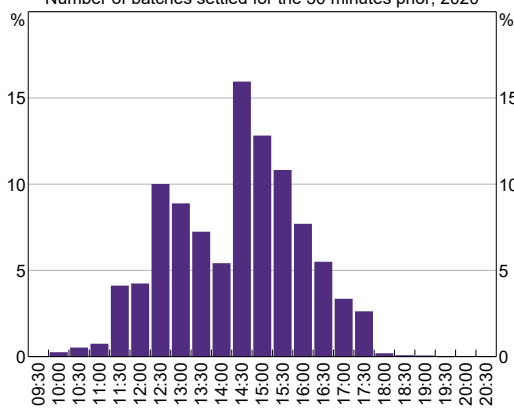
To mitigate potential liquidity risks, ESA holders need to ensure that adequate funds are available for both the expected property batches and other RITS settlements. To assist ESA holders in managing their funds, the network operators provide them with access to reports on each day’s expected settlements. In most cases, settlement values and times are known well in advance, but late changes can occur, requiring monitoring and adjustment of funding needs. The network operators also aim to minimise the amount of time that funds are reserved by only sending the reservation request when all documentation is ready for settlement, and by monitoring for delays in lodgement. The network operator will cancel the settlement if there is a problem that is preventing timely completion.

An analysis of the reservation times in RITS suggests that the system has generally run smoothly and liquidity risks have been well managed. The average reservation duration in 2020 was around 6½ minutes, and less than 1 per cent of transactions had a reservation duration over 15 minutes (Graph 8, top panel). In addition, the time that funds were in reservation was not impacted by the value of the batch, with less than 1 per cent of PEXA batch value tied up in reservation for longer than 15 minutes (Graph 8, bottom panel).

**Graph 6**

**Distribution of Daily Property Settlements**

Number of batches settled for the 30 minutes prior, 2020

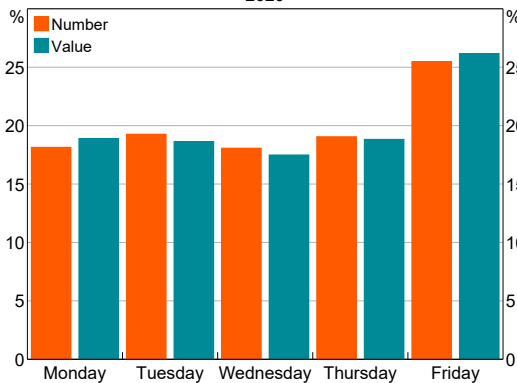


Source: RBA

**Graph 7**

**Distribution of Weekly Property Settlements**

2020

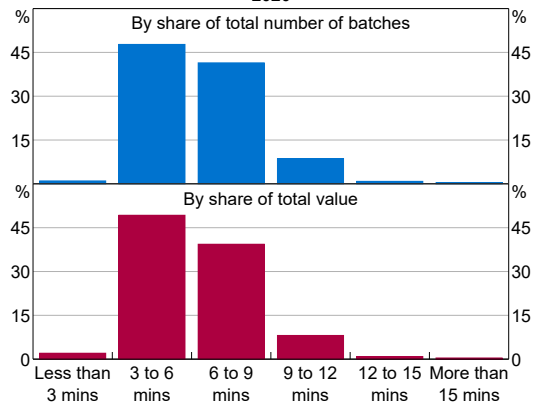


Source: RBA

**Graph 8**

**Reservation Duration of Property Settlements**

2020



Source: RBA

## Future developments

The Australian states and territories are likely to continue the transition to e-conveyancing and add to the list of transaction types that can be processed digitally. While New South Wales, Victoria and Western Australia have largely adopted e-conveyancing for all common property transaction types, mandates for settling property transactions electronically have only recently come into effect in South Australia, and Queensland is taking a more gradual approach. Electronic lodgements are expected to start in the Australian Capital Territory in 2021, with the Northern Territory and Tasmania expected to follow in subsequent years.

E-conveyancing markets, similar to payments systems, tend to exhibit network effects, as the value of a network operator's services provided to any one user increases as more solicitors/conveyancers and financial institutions use that service. This means that larger and more established network operators may have a competitive advantage over smaller new entrants, since their users can connect with a larger number of other users to complete transactions (IPART 2019). To facilitate competition, the states and territories have recently agreed to mandate interoperability between network operators in the Electronic Conveyancing National Law (ARNECC 2020b). Interoperability would enable a user (conveyancer,

lawyer or financial institution) to be a subscriber to one network operator and transact with a user of another network operator, without having to subscribe to both. In practice, this occurs by delegating one of the network operators to complete lodgement and settlement of the property transaction. Interoperability is expected to reduce the barriers for market entrants as it would become more viable for network operators with smaller user bases to compete.

## Conclusion

Property transactions are significant financial undertakings for many Australians, and the systems and processes that have been developed for settlement reflect this importance. The conversion of paper-based processes into electronic methods is consistent with the digitalisation of the economy more generally, but through this transition the RBA has sought to ensure the security and reliability of the settlement process, while enabling improvements in efficiency and reduction in paper handling and manual processes. As systems and practices evolve, it will be important to ensure that the property settlement process remains secure, reliable and efficient, as well as being open to innovation and competition. ✎

## Footnotes

[\*] The authors are from the Payments Settlements Department. The authors would like to thank ASX Limited, Property Exchange Australia Ltd and Sympli Australia Pty Ltd for their contributions to this article.

[1] NECDL was established in January 2010 by the New South Wales, Victorian and Queensland governments, with the Western Australian Government, large Australian banks and other investment companies later joining as key shareholders (Council of Australian Governments 2011).

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# From the Archives: The London Letters

Jacqui Dwyer and Virginia MacDonald<sup>[\*]</sup>



Photo: Reserve Bank of Australia Archives PN-000271

## Abstract

The Reserve Bank has a rich and unique archives that captures almost 2 centuries of primary source material about Australia's economic, financial and social history. To enhance public access to these records, we have launched a digital platform, Unreserved. Unreserved enables users to browse information about our archival collection and directly access our digitised records. Unreserved will be regularly populated with new records as the digitisation of the Bank's archives progresses. The first release of records is a 'sampler' of the diversity of information in our archives. This article introduces Unreserved and highlights a particular series – the London Letters – which comprises the information exchanged between the Bank's head office and its London Office from 1912 to 1975. The London Letters provide insights into the development of Australia's central bank, along with its role and experiences during some of the most significant events of the 20<sup>th</sup> century.

## A new digital archive

The Reserve Bank is custodian of a rich and unique archives of records about Australia's economic, financial and social history over almost 200 years. The extensive time span and scope of the records reflects the Bank's lineage. They predate the Reserve Bank as it is known today because the organisation actually originated in 1911 as the Commonwealth Bank of Australia (CBA), which developed a central banking function and, at the time of its creation,

had absorbed other banks with a colonial history. It was later, in 1960, that the central banking and commercial functions were separated, the organisation was renamed the Reserve Bank of Australia, and a new Commonwealth Banking Corporation was created (which would later be known as the CBA). Consequently, when we refer to the 'Bank', we mean the continuous central bank entity.<sup>[1]</sup>

The significance of the Bank's archival collection was described in an earlier *Bulletin* article, *Being Unreserved: About the Reserve Bank Archives*, which also foreshadowed plans to make our archives more accessible to the public. In March of this year, we released a digital archive, *Unreserved*. *Unreserved* enables users to independently research and download digital versions of key archival records, learn about the nature and scope of the Bank's entire archival collection, and lodge requests for information or assistance from our archivists.

The process of digitising the Bank's large archival collection is a major undertaking that has been underway for some years and will continue in the years ahead. The initial release of digitised records will include entire series for which there is sufficient metadata to accompany the records and support independent research by users.<sup>[2]</sup> These series will also be diverse, in terms of subject matter and medium, so that they can be relevant to a wide range of users. The first tranche of digitised records to be released includes:

- colonial banking records – a set of records relating to 6 colonial banks operating in Australia during the nineteenth century.<sup>[3]</sup> These records are from 1824 to 1935 and include convict banking records;
- the London Letters – a series of information sent between the Bank's head office and its London Office from 1912 to 1975;
- the New York Agency records – a series of correspondence, banking records and financial vouchers for the Bank's original New York Agency over its short period of existence from 1927 to 1929;
- the Papua New Guinea series – a series covering the creation of a financial system and central bank in Papua New Guinea, financial education, economic and financial surveys, and preparations for the transfer of activities to the Bank of Papua New Guinea ahead of the nation's political independence;
- audio visual collections – various series of film, photographs and glass plate negatives covering the Bank's buildings and staff during the First

World War, the early built environment of Sydney and other locations in which there are Bank buildings, and the Bank's activities in Papua New Guinea.

Together these digitised series provide a 'sampler' of the content of the Bank's archives. They are accompanied by information about the Bank's entire archival collection and key metadata for those series that are yet to be digitised.

*Unreserved* enables the release of some of our most fragile records along with items that people might find surprising for us to have in our collection. It also enables the wider public release of records about which the Bank has received requests in the past. Most importantly, *Unreserved* provides a vehicle for sharing unique primary source information about the nation's economic, financial and social history – as seen by the central bank – and will ensure the preservation of this important archival collection.

In this article, we focus on the London Letters – a series that is unusual in its scale and continuity and which provides a detailed account of the central bank's experience of some of the most significant events of the 20th century. We also describe how *Unreserved* can be used and the plans for future information releases.

### The London Letters

The London Letters are quaintly called 'Letters' but include correspondence, briefings, reports, cables and data that were part of the regular exchange of information between the Bank's head office and its London Office – which had been established to manage the Bank's affairs in Britain (particularly government banking business)<sup>[4]</sup> and provide safe transit of funds between Australia and Britain.

The regular exchanges of Letters 'to and from' London commenced during the planning of the Bank's London Office building in 1912. The records form a continuous numbered series until 1975 (after which they form part of other series). As they cover the period 1912–1975, the London Letters include important records about the First World War and the consequent emergence of central banking in Australia, the Great Depression of the 1930s, the Second World War, development of post-war

arrangements such as the Bretton Woods system, through to the exchange rate developments and commodity price shocks of the 1970s.

In addition to the episodes of economic history that can be explored in the London Letters, threads can be traced about individuals – the role that they played in particular events and their insights about prevailing issues. These include the Bank's governors, prime ministers, treasurers and other politicians, public servants, academics and economists of the day. (They also contain staffing matters and in these records personal information has been redacted to enable the release of entire files of Letters 'to and from' London.)

There are some well-known individuals about whom there are substantive sets of records. Among the most well-known economists is Sir Otto Niemeyer of the Bank of England, who visited Australia in the 1930s to offer advice on the response to the crisis in Australia's external finances that accompanied the Great Depression (with his contentious prescriptions contributing to the political crisis that resulted in the Australian Labor Party split of 1931). The London Letters also include records about Leslie Melville (later Sir), the eminent economist, academic and public servant who played a key role in the development of Australia's central banking system and, over a lengthy period, represented Australia in many international forums, including at the Bretton Woods Conference.<sup>[5]</sup> Furthermore, the Letters include reports by Thomas Balogh, a controversial and unconventional British economist from Hungary. Balogh rose to prominence at Oxford and would become an advisor to Britain's Cabinet in 1964 and ultimately a senior minister and member of the House of Lords. His fulsome reports for the Bank on the British and European economies were invaluable in keeping the Bank up to date on world economic and political developments.

In addition, the London Letters contain correspondence relating to other people of note who were involved in important economic and financial events. With the Letters spanning 2 world wars and a depression, prominent people who are referenced, and about whom opinions were often given, include Winston Churchill, Franklin Roosevelt,

Harry Truman, Lord Beaverbrook, Herbert Hoover, de Gaulle, Franco, Stalin, Hitler and Rommel.

This article provides examples of the type of content that can be found in the London Letters so that users of Unreserved can conduct their own searches.

### The London Office

The London Letters reflect the development of the Bank's London Office physically as well as its functions. The London Office opened for business on 20 January 1913 in rooms leased in Egypt House, New Broad Street – in the heart of the City of London. It was established when banks in London were the principal source of overseas funds for Australian borrowers, the principal intermediary for transactions with other nations, and when Britain was both Australia's main export destination and source of foreign investment. The London Office initially kept Commonwealth Government accounts and conducted general banking business. Its functions grew rapidly and after only 5 months it opened a Savings Bank Department for use by emigrants, Australians, and later Australian soldiers. It also managed sterling reserves, exchange controls, forward exchange contracts, and government loans, along with assessing economic conditions. By 1915, the scale of its operations required leasing of additional space in the adjoining Friars House and, by 1917, a branch was opened in The Strand (in the recently completed Australia House). From 1929 the London Office operated out of Old Jewry (though in a full circle of history, the Bank's current London premises are once again in New Broad Street).



Commonwealth Bank of Australia London Office, 36–38 New Broad Street, London, 1913, RBA Archives PN-000285

In addition to the economic insights afforded by records about the functions of the London Office, records about its physical development provide insights into business life in the City of London. They provide social and political perspectives, with the Manager of the London Office acting as the Bank's ambassador in the City. And they give us a window into changes in technology and information security, as records take different forms and have different measures of safe handling as information traversed the globe during times of war through to the advent of mass air travel.

### The First World War

The first and arguably greatest test for the Bank was the First World War. Only a few years after the original Commonwealth Bank of Australia had opened, it was required to quickly take its first steps towards becoming the nation's central bank with the Australian Government calling on it to manage the financing of the war effort and establish its role as a national institution. At the same time, the Bank was contending with its own staff being sent to war.<sup>[6]</sup> As documented in the London Letters, the London Office was especially affected, given the conscription of all men (aged 18–41 years) who had been resident in Britain since August 1914. By the end of 1916, all male staff in the London Office had

been conscripted and at some stage served, with the exception of the manager, Mr Charles Champion.<sup>[7]</sup> (Remarkably, all 5 of his sons served at Gallipoli and then on the Western Front – and all survived the war.)



Manager Charles Champion (foreground with top hat) in front of the London Office with staff and Australian military personnel, RBA Archives PN-000293

A critical function of the London Office was to ensure that Australian military personnel could be paid while serving overseas. At the outset of the First World War, the Bank made savings bank facilities available to the Australian Expeditionary Force. These facilities allowed servicemen to draw part of their pay with the rest deposited into a savings account by the Pay Corps master, which they could access while overseas or their relatives could access in Australia. The Bank also made arrangements for servicemen to access their money where there weren't existing Bank branches, including through the establishment of special branches in air force and naval facilities. In fact, by 1915 all warships were attached to agencies of the Bank so that money could be cabled to the paymasters on board. The London Letters include reports about these arrangements (which were significantly expanded in the Second World War, particularly with respect to warships).

In addition to banking arrangements for service personnel, the Bank was required to assume the role of banker to the government – its first step towards being a central bank – as it assisted the Commonwealth Government raise and manage loans from Britain in support of the war effort. The London Letters document these developments and include regular reports for head office on aspects of war finance.

More generally, the London Office was critical in ensuring that the Bank's head office in Sydney was

kept up to date with developments in Europe, and that the overseas borrowings and investments, which helped fund Australia's involvement in the war were appropriately managed. As well as the London managers' reports and observations, the London Letters contain correspondence with other institutions and economists in Britain and together they form a near real-time account of the war and the Bank's contribution to it.

Governor Denison Miller visited London towards the end of the First World War, at a time of still considerable danger and entailing a lengthy voyage by sea. The London Letters document his visit to the London Office and other key financial institutions. They also contain briefings for senior staff about the design and implementation of post-war reparations.

### The Great Depression of the 1930s

The Great Depression of the 1930s was another period of significant challenge for the Bank, which saw further development of its central banking functions – in particular its role as lender of last resort and its management of the nation's gold and foreign exchange, with the latter being extensively covered in the London Letters.<sup>[8]</sup>

The London Letters include regular reports that were designed to keep the Governor abreast of economic and financial issues in Britain and other major economies, and on Australian investments there. These Letters were of particular importance during the Great Depression, with the proximity of the London Office to sources of intelligence about economies in the northern hemisphere enabling informed and timely assessments. In addition, the Governor received regular reports on the production and prices of commodities relevant to Australia, with these capturing the major falls in the world prices of commodities that had such a dramatic impact on the value of Australia's exports.

With management of sterling reserves and gold a central function of the London Office, the London Letters also give insights into the impact of the Australian pound being pegged to the pound sterling (something put in place in 1931). Being pegged to sterling was of consequence since, during the Great Depression, Britain operated under

the Gold Standard (where the value of currency is directly linked to gold).<sup>[9]</sup> Gold was convertible with sterling at a fixed rate that overvalued both sterling and the Australian pound, compounding the external imbalance that weighed on economic activity in Australia.<sup>[10]</sup>

The fall in export earnings made it increasingly difficult for Australian businesses to repay existing loans and to secure new loans, particularly loans issued overseas, which had traditionally been an important source of funding. With most of Australia's overseas borrowings being through London banks, the London Letters note the difficulties in accessing overseas loans. They shed light on the reduced lending activities of financial institutions more generally, and they document Commonwealth and state borrowings and balances in London.

The combination of large falls in Australia's export earnings and lack of access to overseas borrowings were the immediate external causes of the severe economic contraction and historic increase in unemployment. They also generated a crisis through exhaustion of the international reserves in Australia's banking system, which largely comprised gold and pound sterling (or London Funds). In addition to the reduced ability to pay for imports, the exhaustion of international reserves created the prospect of national insolvency, as interest payments could not be met on outstanding overseas loans and a large tranche of external debt (related to the First World War and 1920s infrastructure projects) was about to mature.<sup>[11]</sup> The London Letters contain records about this crisis and the efforts to address it. They cover developments in the holdings, sale and transport of gold, which came under the management of the Bank during this time. They also cover the Mobilisation Agreement for London Funds (intended to enable the Bank to oversee Australia's loan repayments to London banks). And they cover the unpegging of the Australian pound from sterling and the decision by Britain to abandon the Gold Standard.

Efforts to maintain national solvency included an invitation by the Australian Government for expert advice by Sir Otto Niemeyer of the Bank of England (who was a representative of Britain in the work of

the League of Nations). The visit was encouraged by the Chair of the Bank's Board, Sir Robert Gibson. Sir Otto visited to assess the feasibility of Australia deferring the repayment of the war debt it owed Britain. The London Letters contain details of the arrangements for his visit, references to Sir Otto's recommendations and reactions to his advice – both economic and political.<sup>[12]</sup>



Sir Otto Niemeyer (left) with the Chair of the Commonwealth Bank's Board, Sir Robert Gibson (centre), and the Bank's Governor Ernest Riddle (right), RBA Archives PN-002050

The magnitude of the Great Depression and the breadth of its consequences encouraged a new focus on economic policy. The London Letters include records relating to the British Empire Economic Conference (also known as the Ottawa Conference); it was held among British colonies and autonomous dominions of the Commonwealth in 1932 to discuss the Great Depression, and was attended by Governor Riddle and the Bank's economic advisor, Leslie Melville. These discussions included an admission of the failure of the Gold Standard, an agreement for preferential tariffs for British Empire countries to foster closer economic relations among them, and an adoption of Keynesian ideas to tackle economic recovery. Melville returned to Australia from the Ottawa Conference via London (where it is known from

other sources that Keynes invited him to attend one of his famous Monday night seminars in Cambridge and to a lunch with him and his wife).

In addition to the Ottawa Conference, the London Letters also include records about the World Economic Conference of 1933, which furthered efforts discussed at Ottawa to combat the Great Depression, revive international trade, and stabilise foreign exchange markets. Hosted in London and attended by representatives of 66 nations, it was opened by King George V, with Leslie Melville once again attending as an adviser to the Australian delegation, led by former prime minister Stanley Bruce. The London Letters contain reports of the conference, written by the Manager of the London office to Governor Riddle in Sydney, and also records about Melville's London visit, even including details of the new economic books he ordered to be sent to the Bank's head office. (In fact, identifying economic literature to be purchased for head office became a regular service of the London Office.)

During the Depression years, the Manager of the London Office reported on the political tensions between countries, particularly those that were causing nervousness in financial and product markets, and risked wider economic consequences. (These reports are not confined to countries in Europe and extend to tensions between Japan and China.) Given the hardships endured by citizens during the Great Depression, the London Letters include observations of discontent among populations of European countries (in particular Germany) and opinions about the potential consequences of such discontent.



Participants of the Ottawa Conference in 1932, RBA Archives PN-001290

## The Second World War

The Second World War necessitated a range of controls being given to the Bank indefinitely, significantly consolidating its central banking functions (in oversight of the banking system and foreign exchange control, with the latter remaining in place until the float of the Australian dollar in 1983).<sup>[13]</sup> The war broke out at a time of falling London Funds (which were at their lowest level since the crisis of the early 1930s) and an urgent need to safeguard the nation's international reserves, including non-sterling reserves. (Non-sterling reserves became important because the new type of warfare required greater imports of machinery and equipment from various allied countries to equip Australia's military forces and develop the domestic production capabilities of a war-time economy.) When the war began, the Commonwealth Government approved the Bank having immediate control of all transactions in foreign exchange. As detailed in the London Letters, the London Office remained central to the management of London Funds.

The London Letters contain staff views on bombing raids and attacks by the German and Japanese forces, and on the British response. The impact of the hostilities on sea-trade routes and supply of goods had significant implications for the balance of payments and the level and composition of international reserves, with this noted in the Letters.

A particularly rich vein of economic intelligence and analysis in the London Letters is the correspondence of the Hungarian-British economist Thomas Balogh – a supporter of Keynes and competitor of Nicholas Kaldor for both economic and political influence.<sup>[14]</sup> Balogh's exceptional talent as an economist, his knowledge of the German economy and war industry, along with his personal networks, made him well placed to write economic reports for the Bank's Board and senior officers. Engaged by the Bank in 1941, Balogh's association with the Bank was kept secret and the distribution of his reports was tightly controlled. On several occasions his contract was nearly discontinued because of his radical views, abrasiveness and fierce criticism of the Bank of England. But while he had many detractors, other

economists – including Leslie Melville, LF Giblin and HC Coombs<sup>[15]</sup> – were stimulated by his observations and analysis (RBA 2013, p16). In particular, he influenced discussions about how to maximise Australia's war effort without exacerbating inflation, while also providing insightful commentary about the war (sometimes with great poignancy, as Balogh was of Jewish heritage). The reports by Balogh are of particular value because detailed observations and assessments are made consistently in one voice from 1941 to 1964, when he became adviser to the Cabinet of British Prime Minister Harold Wilson and a senior government minister (sitting in the House of Lords).

The London Office was itself operating in a war zone that was subject to bombing raids. Consequently, the London Letters contain information about its air raid precautions, for the protection of both staff and Bank records. They also include details of bombings that affected their operations directly (such as the bomb damage to London Office at Old Jewry and the evacuation of its Bonds and Stock Department to Cobham) along with details of staff who had been personally affected by air raids.



London Office, Old Jewry, rooftop after bomb damage in 1944, RBA Archives PN-004234

Closer to home, the London Letters contain correspondence regarding the bombing of the Port of Darwin, along with the closure of the Bank's branch in Darwin and other private bank branches after the city was designated a military zone.

Concerns that mail could be lost or intercepted led to the London Letters being assigned additional categories of mail security that will be visible to users of the records. For example, Safe Hand Mail was for confidential information that had been

reviewed by the Commonwealth Government and sent to or from London by air. During the flight, the mail bag remained in the custody of the pilot who had instructions to destroy its contents rather than let information fall into enemy hands. For less confidential correspondence, typed Airgraph Letters were photographed on microfilm to conserve space and weight and the file sent to and from London by air (while towards the end of the war, very lightweight Airgraph Letters were developed).

### Bretton Woods

In 1944, with the outcome of the Second World War still far from certain, delegates from allied nations met at Bretton Woods, New Hampshire, to plan the international post-war monetary system. They sought to agree on a new economic order that would minimise the trade and foreign exchange restrictions that had previously impeded economic prosperity, and establish institutions to facilitate the new order (the International Monetary fund and World Bank). From this agreement also emerged a global system of pegged exchange rates, known as the Bretton Woods system, with the US dollar as the reserve currency to which other currencies would retain parity.<sup>[16]</sup>

The London Letters contain records about Australia's participation at the Bretton Woods conference, where Australia's representatives included the Bank's Leslie Melville. (The others were FH Wheeler of Treasury, Arthur Tange of the Department of External Affairs, and JB Brigden, advisor to the Australian Legion in Washington.) The Australian delegates are said to have caused 'quite a commotion' through their advocacy of full employment as a primary consideration for economic recovery while the United States – the lead nation – made removal of impediments to trade central to the Agreement that delegates were to sign (Cornish 2019).<sup>[17]</sup>

The London Letters include some reports by Melville (with others associated with different record series in the archives). The majority of the records about Bretton Woods are Balogh's comments about the issues debated at the conference, the subsequent agreements and the Bretton Woods Agreements Act that came from it.

He expresses views about the relationship between Britain and the United States during the negotiations. His assessments are detailed and frank, and he often comments on events as they unfold. Balogh expressed support for the Australian position regarding the need for a full employment goal to promote economic recovery, rather than placing the main emphasis on removal of impediments to trade. His reports on the outcomes of Bretton Woods continue through to the 1950s, often for context, comparison, or as a broader discussion regarding economic policy in the post-war period.

On the Bretton Woods system of exchange rates, there are regular reports and commentary in the London Letters on the management of the peg of the Australian pound (and subsequently Australian dollar) to sterling. In particular, they provide details of the significant events of November 1967 – the only occasion in the post-war period when the Australian pound peg to sterling was changed, because Australia did not devalue with sterling against the US dollar and other currencies.<sup>[18]</sup>

### Exchange rate and commodity price shocks of the 1970s

The 1970s were a turbulent period for central banking. The post-war Bretton Woods system of pegged exchange rates came under pressure when large current account imbalances revealed a fundamental disequilibrium among major economies. The system collapsed in 1971 when the United States suspended convertibility of its dollar with gold. Since convertibility of the US dollar with gold underpinned the Bretton Woods system, its suspension and the associated loss of market confidence ultimately forced most major advanced economies to float their exchange rates. Australia maintained a pegged exchange rate (partly because its financial system was not yet mature) but replaced its traditional peg to sterling with one to the US dollar, in line with its growing trade links to the United States and the shift in gravity towards New York as a financial centre.<sup>[19]</sup> These events and surrounding debates are documented in the London Letters. They cover observations about the Smithsonian Agreement that had attempted to salvage the Bretton Woods system, the pressures on



major economies (notably Germany and subsequently the United Kingdom) to float their currencies, through to the under-preparedness of Australia for a departure from the Bretton Woods system. The London Letters also include discussions about the appropriate parity for pegging the Australian dollar to the US dollar.

Another prominent theme of the London Letters is shocks to commodity prices. Australia experienced a significant upswing in its terms of trade in the early 1970s buoyed by rising prices for its exports of rural commodities, minerals and metals. This was followed by a sharp terms of trade fall in the mid-1970s when, as a net importer of oil, Australia was affected by the OPEC oil embargo of October 1973 that led to a quadrupling of oil prices. The London Letters contain reports about these commodity price developments, the impact of the oil price shock from the perspective of the northern hemisphere, and discussions of commodity price movements for the management of Australia's foreign exchange. Furthermore, the Letters include references to the shift to pegging the Australian dollar to a trade-weighted basket of currencies in an effort to help insulate the economy from swings in the terms of trade – the first step towards a flexible exchange rate regime.

The 1970s were a period of significant political developments and social change in Australia, with the London Letters containing observations on the Australian political landscape leading up to 1975 and the effects of developments in world markets on domestic economic activity, including the recession of 1974–1975. Of note in this period is the number of female Bank staff now representing the Bank at conferences and business trips overseas, including to the OPEC Conference in April 1974.

### Supporting users of Unreserved

To assist users of Unreserved, the archivists have prepared 2 types of guides to the collection: Series Guides and Research Guides.

The Series Guides describe the properties of the series that have been released so that users are aware of the date range of the records they include, the entity or person considered to be their creator,

the volume of records available, their medium and format, and the broad scope of topics they cover. Furthermore, the Series Guides contain a summary of the historical context of the series.

The Research Guides are designed to assist users to explore records about a topic that might be found in multiple series. They also direct users to related collections (for example, of digitised photographs and film) that complement the files and documents related to the research topic. The Research Guides reflect research interests of existing users of the Bank's archives as well as revealing the potential use of series that, to date, have had little if any public exposure.

While Unreserved has been designed for 'self-service' by the public, and researchers in particular, it also enables users to lodge requests for information with the archivists, contact them directly to better understand the records and request to examine physical records under the supervision of the archivists in the Bank's dedicated Research Room at its head office in Sydney. In this way, the personal assistance that has traditionally been provided by the Bank's archivists remains and complements the independent research that the public can pursue using a digital archive.

### Looking ahead

Major releases of digitised records are expected to occur twice-yearly, and be accompanied by corresponding Series and Research Guides. The next release is scheduled for September 2021 and is expected to include information about the activities of the Bank's early governors and senior personnel, along with outputs of the Bank's first department responsible for economic analysis and research.

As the Bank's digitisation program proceeds, it increases access to the wealth of information housed in the Bank's archives. For example, the digitised colonial banking records released with the launch of Unreserved provide a unique source of depositor-level data to assess depositor behaviour during the Depression of the 1890s and the Great Depression of the 1930s. They have been examined to obtain a better understanding of how depositors might behave in more contemporary periods of

severe recession or financial instability. (See La Cava and Price (2021), 'The Anatomy of a Banking Crisis: Household Depositors in the Australian Depressions', in this issue of the *Bulletin*.) Publishing this type of research will raise awareness of the scope and potential uses of the Bank's archival records to other researchers, in a range of disciplines, and increase the benefit of public access to them.

Unreserved provides a window for the public into the evolution of the nation's central bank – its responsibilities, operations, analysis and decision-

making. With the records spanning significant moments in history – including those that remain familiar to many citizens – it provides an insight into the central bank's place in the broader life of the nation. And Unreserved is a vehicle for the public to access information unrelated to central banking but of which we are custodian through the circumstances of our own history. It is launched in the spirit of public access to information and the preservation of a national collection. ✎

## Footnotes

- [\*] Jacqui Dwyer is the Head of the Bank's Information Department, which includes the Archives, and Virginia MacDonald is the Bank's Senior Archivist. The authors would like to thank the Bank's official historian Associate Professor Selwyn Cornish for his generous knowledge sharing and review, and Archivist Sarah Middleton-Jones for her assistance in preparing this article. They would also like to acknowledge all those involved in the Bank's digitisation project and implementation of Unreserved, in particular Mitya Antoncic, Bronwyn Nicholas, Ana Jong, Dave Phillips, Juraj Vidovenec, Jacob Peters, Anita Siu, Elisabeth Grace, Peta Moore and Carol Au.
- [1] For more information about how the Reserve Bank evolved from the Commonwealth Bank of Australia to become an independent central bank, see the Explainer: Origins of the Reserve Bank of Australia.
- [2] In some cases, where the record's condition or format did not allow for digitisation or where for other reasons publication of the digital copy of a record is not possible, metadata is included, so the scope of the series is still visible to the researcher.
- [3] Specifically, the Government Savings Bank of New South Wales, Savings Bank of New South Wales, State Savings Bank of Western Australia, State Savings Bank of Tasmania, Queensland Government Savings Bank, and Moreton Bay Savings Bank.
- [4] Prior to the establishment of the London Office, Australia's government banking business with entities in Britain was conducted by the Bank of England.
- [5] He is honoured by the annual Sir Leslie Melville Lecture at the Australian National University, which has been given by some of the Bank's former governors, the current Governor and the current Assistant Governor (Economic). For more about Sir Leslie Melville, see Cornish (1993).
- [6] For a comprehensive account of the Bank's challenges during the First World War, see our online Museum feature From Bank to Battlefield, which draws on our archives.
- [7] At this time, 150 female staff worked at the London Office, up from one female staff member when war broke out. The Bank's policy at the time was that women could only be employed to perform specialised tasks, not general banking business. Consequently, the Bank took on Australian soldiers who were temporarily unfit for service to handle general banking business.
- [8] See Schedvin (1970) for a detailed account of Australia during the Depression years. Records in the London Letters about the Bank's evolving central bank functions in the 1930s relate largely to the management of gold and foreign exchange. See Giblin (1951) for a comprehensive account of the development of the Bank's central bank functions from 1924 to 1945, and Fitz-Gibbon and Gizycki (2001) for a history of the Bank's role as lender of last resort.
- [9] The historical practice of convertibility of currency with gold became impractical at the outset of the First World War and was suspended, though there was an intention for it to be reinstated after the war with sterling and gold at its pre-war parity. Britain and Australia returned to the Gold Standard in 1925 to maintain relative price stability and return to 'normality', ahead of it being abolished in Britain in September 1931 (with Australia having already left by then). Australia instead pegged its currency to sterling in December 1931 (Giblin 1951; Cornish and Coleman 2014). The London Letters contain numerous records about these developments.
- [10] At this time, sterling could be converted to gold at the rate agreed in 1913. However, this resulted in sterling and the Australian pound being overvalued, and Australian (and British) exports became relatively expensive on world markets.
- [11] At the end of March 1931, New South Wales had defaulted on its interest obligations to British bondholders, but the Commonwealth Government made the payments to preserve Australia's credit standing overseas, with these developments documented in the London Letters.
- [12] They also contain details of agreements on Australia's loan repayments to London banks in 1920, while Sir Otto Niemeyer was still at His Majesty's Treasury, which show his views on loan repayments prior to his visit to Australia in 1931.
- [13] See Giblin (1951) for a detailed discussion of the development of the Bank's central bank functions during the Second World War, and how a range of controls were accepted by trading banks as being in both their own interest and the national interest.
- [14] Nicholas Kaldor, was a Hungarian-British economist who had a high-profile career, advised the government of Harold Wilson and was awarded a knighthood and peerage – like Balogh.
- [15] LF Giblin was a prominent economist who was the Tasmanian Government Statistician and subsequently a Professor of Economics at the University of Melbourne, where he was an expert in state and federal financial relations. HC Coombs was the first Governor of the Reserve Bank of Australia, having previously been appointed as the Governor of the Commonwealth Bank of Australia and prior to that the Director-General of the Department of Post War Reconstruction. He was also Pro-Chancellor of the Australian National University (which he had helped found) and later Chancellor.

- [16] In effect, the US dollar took over the role that gold had previously played, and to enhance confidence in this new system, it remained convertible with gold.
- [17] The full employment proposal was defeated and Australia's membership of the International Monetary Fund made contingent on acknowledging that its proposal was out of scope of the Bretton Woods Agreement. However, the Australian economists influenced a ruling for United Nations countries to take necessary steps to protect a member country from 'chronic or persistent unemployment from pressure on its balance of payments' and steered the goal of full employment into the new post-war order (Cornish 2019).
- Keynes was sympathetic to the Australian proposal but did not think it was necessary to include a full employment objective in the Bretton Woods Agreement (Cornish and Schuler 2019).
- [18] The fact that there was only one change in the peg to sterling in the post-war period is of note because there had been a history of sizeable swings in the value of sterling.
- [19] See Debelle and Plumb (2006) for a discussion of the evolution of exchange rate regimes in Australia and Schedvin (1992) for insights into Australia's decision to await the outcome of the currency turmoil in the early 1970s.

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# The Anatomy of a Banking Crisis: Household Depositors in the Australian Depressions

Gianni La Cava and Fiona Price<sup>[\*]</sup>



Photo: Keith Lance – Getty Images

## Abstract

Looking into archival material can provide a new lens through which to view historical events. With the launch of Unreserved, the RBA has released archival records to the public, including longitudinal data on individual bank depositors that uncovers new facts about the behaviour of Australian households during the economic depressions of the 1890s and 1930s. Depositors responded to both depressions by withdrawing more money, consistent with households drawing down on their saving buffers in the face of rising unemployment and falling incomes. The net withdrawal rate of depositors also increased when deposit interest rates fell and when public confidence in the banking system deteriorated, with clear evidence of a run on a savings bank in the 1930s. In more normal times, most saving deposits were 'sticky' with transactions being very rare. This high degree of deposit stickiness appears to be because most people held these bank accounts to save for significant life events. While it is difficult to draw policy implications from the historical analysis, some features of the depositor behaviour are likely to hold true today.

Australia has experienced 2 severe economic depressions over the past 150 years: the financial crisis in the 1890s and The Great Depression of the

1930s. In both cases, real economic activity fell sharply and unemployment rose, causing financial hardship for many people (Graphs 1 and 2) (Gruen

and Clark 2010; Withers, Endres and Perry 1985). As the depressions deepened, problems in the banking system were exposed, public confidence in the banks fell, and some banks experienced depositor runs. A significant share of the Australian financial system collapsed during the 1890s Depression (Merrett 2013). The disruption to the financial system in the 1930s was relatively mild by comparison (Kent 2011).

Despite the severity of these economic events, we know little about how people living in these difficult times adjusted to the events in terms of their banking behaviour. In this article, we explore how individual bank depositors behaved during the 1890s and 1930s using a unique dataset constructed from the depository ledgers available

at the RBA. See Dwyer and MacDonald (2021) for more information about the RBA data being released to the general public through the launch of Unreserved.

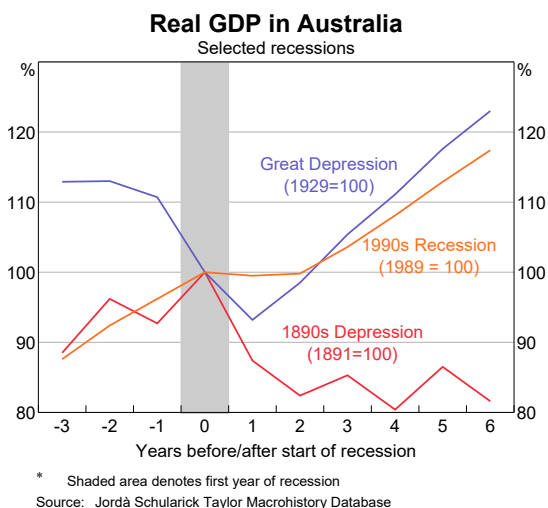
Bank runs hardly ever occur, even outside of Australia, and it is especially rare to see how individual depositors behave when their bank comes under financial stress. These granular data therefore provide economists and historians with a rare glimpse into household banking behaviour during a significant macroeconomic event.

Some highlights from the new historical ledger dataset include:

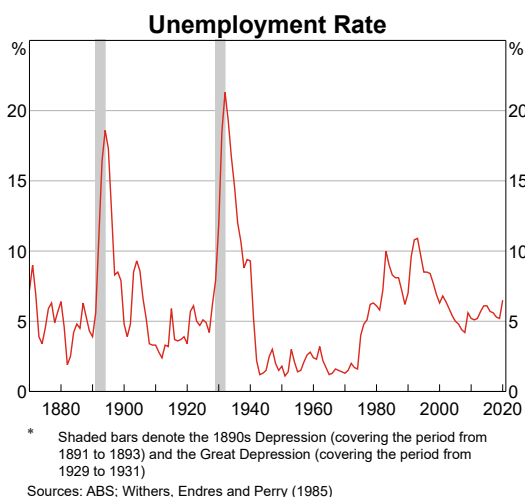
- Most depositors responded to the depressions by increasing their rate of net withdrawal (withdrawals less saving) in deposits. This suggests that many depositors drew down on their saving buffers in the face of rising unemployment and falling incomes.
- Depositors also increased the rate of net withdrawals when it became apparent that their own bank was under financial stress or when the interest rate on their deposits fell.
- Despite all this, deposits were typically very ‘sticky’ in that the account balances do not change much over time. The fact that many accounts have very few transactions appears to be because many people at the time maintained these deposits to save for significant life events, such as buying a home or getting married.

Despite these insights, it is difficult to draw policy implications from the historical analysis. It has been nearly a century since the Great Depression and there have been many changes to the institutional features of the Australian banking system since that time. For instance, changes in depositor protection laws were introduced in Australia just after the Second World War, and further strengthened after the global financial crisis (Turner 2011). These changes mean that depositors could behave differently in the future if the banking sector were to again come under stress. Still, it is noteworthy that there are many similarities in the way depositors behaved during the 1890s and the 1930s, despite a 40-year gap between the depressions, so some of

**Graph 1**



**Graph 2**



the behaviour we observe in the archival records could be relevant to the way people do their banking today.

### A new historical dataset

The RBA is the custodian for an extensive archive about Australia's central bank, the financial sector and the economy (MacDonald and Dwyer 2019). Within these archives are numerous bank depository ledgers – many of which have been digitised and some have also been transcribed to searchable text, with numerical observations exported for data manipulation. These ledgers hold very detailed records on individual deposits and withdrawals and cover more than a century of Australian history from the 1820s to the 1930s.

The information in the ledgers includes individual names and addresses, which allows us to track the banking behaviour of specific people over time. We can also see how they behave both before and after a big event like a severe recession or a bank run. This can give us unique granular insights into the behaviour of individuals during these types of events.

The transcribed datasets used in this article cover individual depositor transactions at 2 banks – the Savings Bank of NSW (SB of NSW) and the Government Savings Bank of New South Wales (GSB of NSW) – across 5 bank branches:<sup>[1]</sup>

- the Bathurst branch of the SB of NSW between 1874 and 1901
- the Scone branch of the SB of NSW between 1872 and 1932
- the Goulburn branch of the SB of NSW between 1876 and 1897
- the Dungog branch of the GSB of NSW between 1912 and 1932
- the Balmain branch of the GSB of NSW between 1927 and 1932.

In effect the sample period covers the years between 1872 and 1932, with a break between 1901 and 1912. The number of account holders, and hence the sample size, varies each year depending on how many bank branches are represented in the data. In general, there are about 800 observations

each year, though the sample size is twice as large in the Great Depression period. The data are available at a daily frequency, though for analysis in this article the data for each account holder has been aggregated to a monthly frequency.

All the ledgers include information on the name of the account holder, the account balance, interest received, period of interest and the date, type and size of the transaction (i.e. deposit or withdrawal). Some of the ledgers include additional information about the account holder, such as their address and occupation. The account name and title (e.g. Mr, Mrs, Miss) can be used to determine the sex of the main account holder and whether the account is a trust or joint account.

The bank ledgers span 2 significant events in Australian economic history – the 1890s financial crisis and the 1930s Great Depression, which will be hereafter referred to as the 'depressions'. The richness of the ledger information allows us to explore in great detail how Australian depositors behaved during the depressions.

While the ledgers provide new insights into the historical behaviour of Australian households, there are a few caveats associated with the historical records.

First, the transcribed ledgers are drawn from banks that are not necessarily representative of the whole banking system. Australian banks operating in the late 19th and early 20th centuries were classified as either savings banks or trading banks. Savings banks paid little interest to their depositors, their lending activities were restricted to providing mortgages, and many were owned by state governments. Trading banks were essentially merchant banks, which did not provide services to the general public. The 2 banks represented in the ledger dataset were savings banks that had branches in the state of New South Wales. Some of the ledgers cover people living in Sydney, but most cover people living in regional areas. Because of the specific type of bank, and the regional concentration of their depositor base, any insights drawn from the analysis may not be representative of all depositors and banks operating at the time.

Second, the ledgers are based on a sample of failed banks that were acquired by the Commonwealth Bank of Australia and eventually made their way to the RBA archives given the RBA was the successor to the original Commonwealth Bank.<sup>[2]</sup> There is no information in the ledgers on depositors at non-failed banks, which again makes it hard to tell if the depositors in the sample are representative of the broader population. However, many of the estimates drawn from the ledgers align closely with published estimates from other sources, including deposit withdrawal rates and interest rates. For example, the net withdrawal rate in the 1930s GSB of NSW bank sample aligns closely with the broader population of depositors at the GSB and the savings banks more generally (Graph 3).

### New historical insights on Australian banking

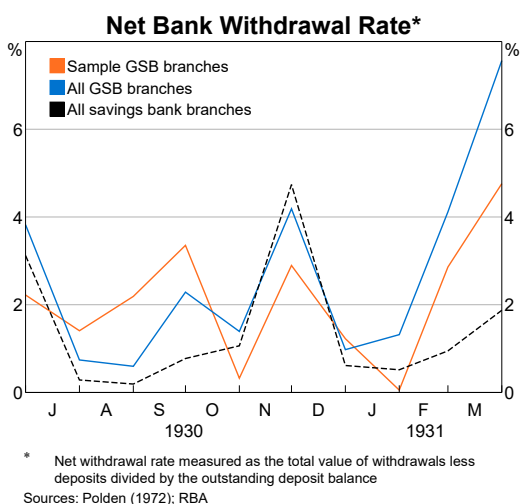
This article examines depositor behaviour across a number of dimensions, which is possible because of the richness of the underlying data. For the most part, the article focuses on measures of the growth in account balances for each depositor in each period, as well as its decomposition into saving (inflows) and withdrawals (outflows).

One of the more striking features of the ledger data is the share of bank accounts held by women. During the late 19th century, nearly half of the accounts have a female name as the primary account holder, with the share rising to more than one-half in the early 20th century (Graph 4).

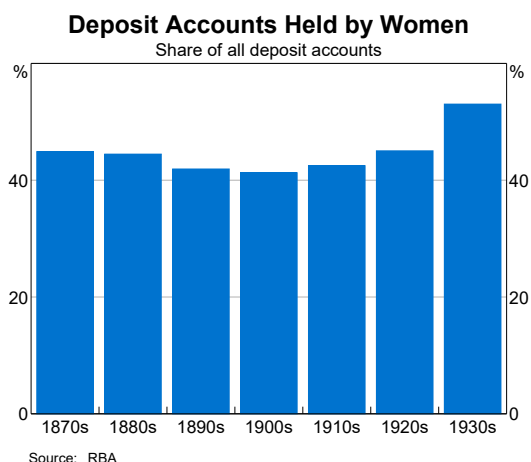
This is consistent with previous research that argues that women were direct contributors to the economy during the late 19th and early 20th centuries (Curthoys 1998). The high female share of account holders may be explained by the savings bank accepting small deposits, making it a useable institution for people on low incomes, of which women would have been disproportionately represented. Accounts could be opened with the bank, regardless of occupation or status, and account holders did not need to be approved by a board of directors, making it an institution that was particularly accessible to women with some surplus cash. Further, men had other options for managing their finances that may have been less available to women, such as investing in the stock market.

Another notable feature of the ledger data is the number of deposit accounts that record no activity for long spans of time. For about 90 per cent of deposit accounts in the late 19th century there is at most one annual transaction (Graph 5). This high degree of 'deposit stickiness' suggests that people maintained these bank deposits to save for significant life events, such as buying a home or getting married. The level of stickiness declined a bit in the 20<sup>th</sup> century, with a bit under half of all the accounts recording no transactions.<sup>[3]</sup> Despite this high degree of stickiness, there is still evidence that some depositors used their accounts more often during large-scale macroeconomic events, such as the depressions.

**Graph 3**



**Graph 4**





### How did household depositors respond during the depressions?

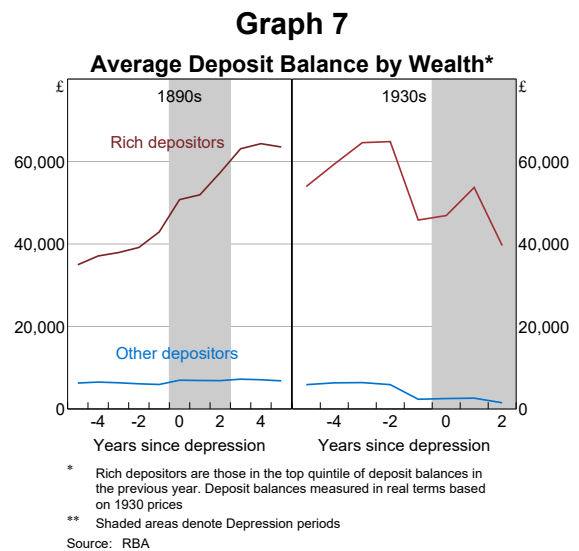
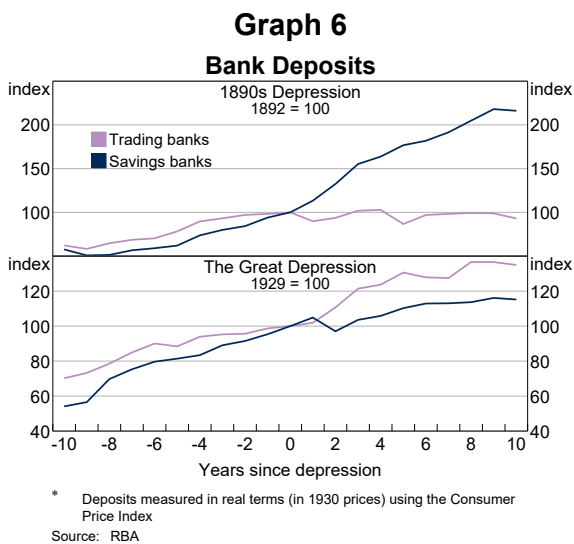
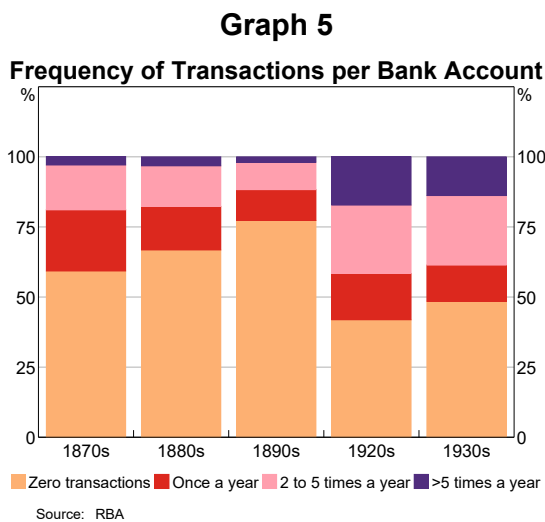
Both depressions had a significant effect on the Australian financial system. However, the depressions had different effects on different types of banks and therefore different types of depositors (Kent and Fisher 1999). Unlike the trading banks, the savings banks did not suffer deposit outflows in the 1890s, but experienced larger deposit outflows in the 1930s (Graph 6).

These aggregate trends mask how the depressions affected individual depositors. For instance, the ledger data reveal for the first time that during the 1890s crisis the growth in aggregate deposit balances was driven by ‘rich’ depositors (in the top quintile of deposit balances in the previous year) while poorer depositors experienced no real growth

in deposits (Graph 7, left panel). The Great Depression also had strong distributional effects, with deposit balances falling more sharply for the rich depositors (Graph 7, right panel).

Another useful feature of the ledger data is the ability to separate the growth in aggregate deposits into changes in saving (inflows) and withdrawal (outflows) at the depositor level. This accounting decomposition sheds further light on the experiences of households during both depressions. Specifically, the analysis examines trends in the withdrawal rate, which is measured as the total value of withdrawals each year divided by the deposit balance at the start of the year, and the deposit rate, which is measured as the total value of new deposits each year divided by the deposit balance at the start of the year.

For the 1890s, there is some evidence of an increased rate of withdrawal during the depression, compared with the periods before and after (Graph 8). This is consistent with some households drawing down saving buffers to smooth their spending in the face of declining income. At the same time some depositors may have increased their rate of precautionary saving because of uncertainty about their own finances and the potential to become unemployed in the future. In this case, we would expect to see an increase in the rate of deposit during the depression. However, there is limited evidence of an increased rate of deposit, which suggests that precautionary saving



motives were less important, at least at the aggregate level.

For the 1930s, there is a sharp increase in the average withdrawal rate during the depression (Graph 9). And the average rate of deposit also increased significantly. This suggests that both motives were at play – some households were drawing down on their buffers while others were looking to build them in expectation of difficult times ahead.

In both depressions, the net withdrawal rate rose as economic conditions deteriorated. This is consistent with higher unemployment and lower wages reducing the income available for deposits and making depositors more reliant on savings to finance spending. However, closer analysis of the

depositor ledgers reveals that the increased rate of net withdrawal in the 1930s was not just due to the deterioration in the economy but also due to falling public confidence about the viability of the GSB of NSW.

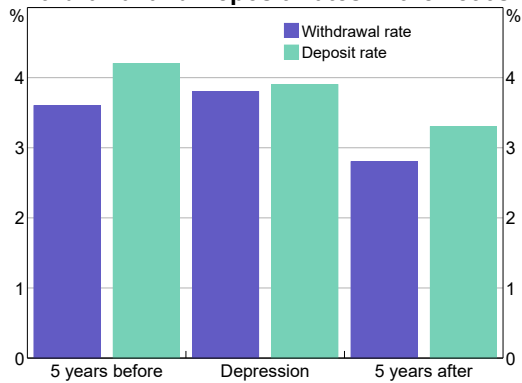
### The collapse of the Government Savings Bank of New South Wales: A natural experiment

During the Great Depression, all savings banks lost funds as unemployment and wage cuts compelled depositors to draw on their savings. In the case of the GSB of NSW, political uncertainty added to the economic depression, resulting in a run that forced the bank to close (Fitz-Gibbon and Gizycki 2001). The GSB was the largest of the 3 financial institutions that suspended payments in the 1930s depression (Kent and Fisher 1999). Notably, the GSB was forced to close because of state government influence and not because of the weakness in the economy or how the bank was managed or operated (Polden 1972). When combined with the granular ledger information, this event provides a ‘natural experiment’ to explore the behaviour of depositors during a bank run. Even by international standards, it is rare to get a glimpse into how individual depositors behave during a bank run (Iyer and Puri 2012).

The GSB ledger data reveals that depositors were quick to respond to news about an impending recession in Australia. In November 1929, soon after

**Graph 8**

**Withdrawal and Deposit Rates in the 1890s\***

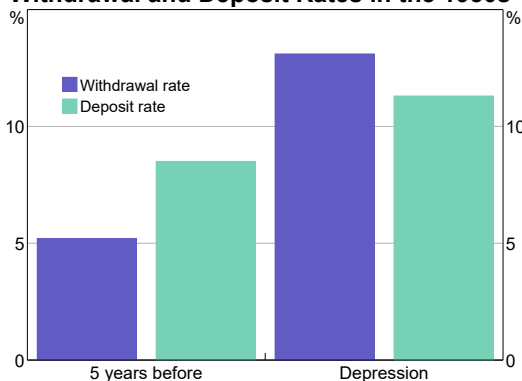


\* The withdrawal (deposit) rate is measured as the total value of withdrawals (new deposits) during the year divided by the deposit balance at the start of the year. Estimates based on an unweighted average at depositor level

Source: RBA

**Graph 9**

**Withdrawal and Deposit Rates in the 1930s\***

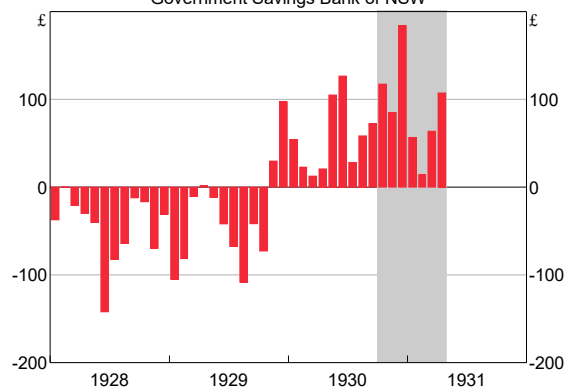


\* The withdrawal (deposit) rate is measured as the total value of withdrawals (new deposits) during the year divided by the deposit balance at the start of the year. Estimates based on an unweighted average at depositor level

Source: RBA

**Graph 10**

**Average Net Withdrawals\*  
Government Savings Bank of NSW**



\* Net withdrawals are measured as the difference between the value of withdrawals and deposits at 1930 prices and averaged across all bank accounts

\*\* Shaded area shows period since NSW election campaign

Source: RBA

the stock market crash in the United States, net withdrawals among depositors turned positive, so that withdrawals exceeded new deposits for the first time in years (Graph 10). Net withdrawals increased even more in late 1930, following the Labor party's win at the NSW state election, which acted as the 'trigger' for the run on the GSB.<sup>[4]</sup> More detailed econometric analysis confirms that both the onset of the depression and the bank run were important factors in driving the rise in net withdrawals. This increase in aggregate net withdrawals was mainly driven by changes in the behaviour of rich depositors, although it appears that most depositors ran at the same time.

### The distribution of household deposit interest rates

The ledgers also provide information to calculate each account's interest rate, providing a unique long-run history of interest rates. The estimates suggest that, in nominal terms, bank deposit rates were falling over the last 2 decades of the 19th century, with sharper declines during the depression (Graph 11). In the 1920s and 1930s, deposit rates were generally flat over time. The levels and trends in these interest rate estimates closely align with other historical estimates, such as those provided in the Jordà-Schularick-Taylor Macrohistory Database.

The ledgers allow researchers to construct the cross-sectional distribution of deposit interest rates and examine how the distribution has evolved over time. Interest rates clearly varied a lot across depositors, with this cross-sectional distribution being quite stable from year to year. The spread between deposits paying high interest rates (at the 90<sup>th</sup> percentile) and those paying low interest rates (at the 10<sup>th</sup> percentile) was about 3–4 percentage points for much of the sample period.<sup>[5]</sup>

### How did household depositors respond to changes in interest rates?

The distribution in deposit interest rates indicates that the experience of each depositor was unique and dependent on their own financial circumstances, even in normal times. From a research perspective, this distribution of deposit

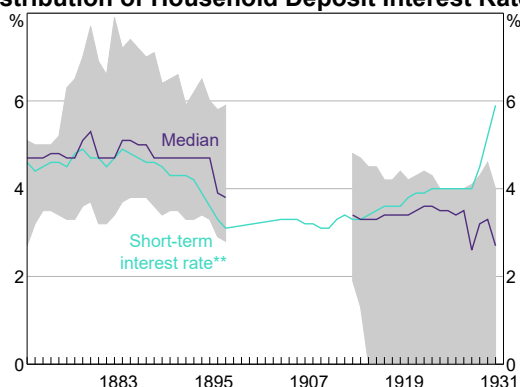
rates, along with depositor-level information on withdrawals and deposits, can be used to test the predictions of macroeconomic models. For instance, standard models predict that lower interest rates should encourage more spending and less saving in bank deposits (the 'intertemporal substitution effect' of an interest rate change).

The ledgers provide evidence that depositors respond to changes in deposit interest rates. Specifically, depositors are more likely to withdraw (and less likely to save) money when interest rates fall (Graph 12). This result is consistent with the predictions of the standard models, though it could also reflect depositors moving money between banks. The changes in net withdrawals are most apparent for relatively large increases and decreases in interest rates (shown by the bars for the lowest and highest quintiles of the interest rate distribution). Depositors respond less to small changes in interest rates (shown by the 'middle' bars). This suggests that depositors are sensitive to changes in their own economic situation, as well as changes in the broader economic environment.<sup>[6]</sup>

### Conclusion and directions for future research

The RBA's historical ledger data sheds new light on the lives of Australians through the late 19th and early 20th centuries. The unit record data reveal that Australian depositors typically withdrew more

**Graph 11**  
**Distribution of Household Deposit Interest Rates\***



\* The shaded area shows the distribution of interest rates between the 10th and 90th percentiles

\*\* The short-term interest rate is based on estimates from Pope, D. 1986. *Australian Money and Banking Statistics for 1870 to 1914*. For the remaining period it is based on the average of seven interest rates in Butlin, S. (1971). *Australian banking and monetary statistics 1817-1945*.

Sources: Jordà-Schularick-Taylor Macrohistory Database; RBA

money from their bank accounts during times of economic turmoil. This is consistent with some households drawing down their saving buffers in the face of deteriorating labour market conditions. Depositors also responded to changes in interest rates on their deposit accounts, typically increasing the rate of net withdrawal when the interest rate fell. This is consistent with the predictions of standard macroeconomic models. And yet, in normal times, deposits were typically very sticky, with very few transactions on most accounts. This high degree of deposit stickiness appears to be because most people maintained these deposits to

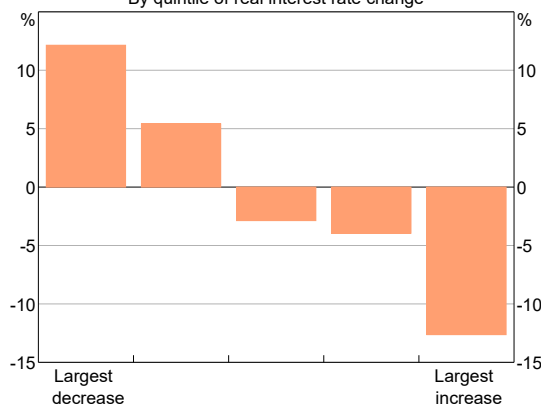
save for significant life events, such as buying a home or getting married.

The Australian economy is markedly different today than it was a century ago (Bishop 2020). Similarly, the banking sector has evolved significantly since the events of the Great Depression. So it is difficult to draw clear policy implications from this historical analysis of the depressions. Still, there are likely to be features of depositor behaviour that hold true today. For example, depositors appear to distinguish between a bank that is under financial stress and systemic banking stress when deciding whether to withdraw their money or not.

The RBA historical ledgers currently only include the accounts of depositors at failed banks. There are no banks that did not fail in the sample. To be able to properly identify the effect of a bank’s collapse on depositor behaviour, there would ideally be a ‘control’ group of depositors at a bank that did not fail. Future research may look to combine the RBA historical ledger data with similar historical data that seem to be available within the archives of other Australian commercial banks. The fact that depositors responded to changes in interest rates provides some early evidence that household spending and saving was sensitive to monetary policy during the late 19th and early 20th centuries. This may be another fruitful area of future research.

**Graph 12**

**The Effect of Interest Rates on Net Withdrawals\***  
By quintile of real interest rate change



\* The graph plots the average level of net withdrawals (i.e. withdrawals less new deposits) across the distribution of deposit rate changes. The estimates are based on an OLS regression of the change in net withdrawals on the change in the real deposit interest rate. The regression is estimated on monthly panel data and includes controls such as the deposit balance, year and month dummies, as well as depositor fixed effects.  
Sources: ABS; RBA

## Footnotes

- [\*] The authors are from Economic Group.
- [1] The Government Savings Bank of NSW absorbed the Savings Bank of NSW in 1914. So, in effect, the sample is based on a specific large financial institution between the 1870s and the 1930s.
- [2] The Reserve Bank descended from the original Commonwealth Bank of Australia, which had a central banking function and, at the time of its creation, had absorbed other banks with a colonial history. See Dwyer and MacDonald (2021) for more details.
- [3] The lower degree of deposit stickiness in the 1930s partly reflects a change in the underlying sample. The 1890s sample includes only regional branches, while the 1930s sample includes both city and regional bank branches. The degree of deposit stickiness was significantly lower in the city branches relative to the regional branches.
- [4] Prior to the NSW state election in October 1930, statements by the incumbent Nationalist Government predicted financial collapse if a Labor government was elected. This caused public alarm, which was further inflamed when the Labor party won the election and the public became aware that the government had defaulted on the payment of interest due to the GSB. On 1 April 1931, the NSW Government also defaulted on interest payments owed to British holders of government bonds and this triggered a run on deposits at the GSB, which led to the closure of the bank in April. The GSB eventually merged with the Commonwealth Bank of Australia in December 1931.
- [5] In the sample, deposit accounts paying zero interest appear to have become more common during the 1920s and 1930s. This seems to explain why the interest rate distribution widens towards the end of the sample period.
- [6] There also appears to be heterogeneity in the interest rate sensitivity, with rich depositors being much less sensitive to changes in interest rates than other depositors.

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# Australia's Economic Recovery and Access to Small Business Finance

Joel Bank and Michelle Lewis<sup>[\*]</sup>



Photo: Maskot Bildbyrå – Getty Images

## Abstract

Economic conditions for many small businesses in Australia began to improve in the second half of 2020 alongside the broader recovery from the severe economic disruption caused by the COVID-19 pandemic. While small businesses' access to finance from lenders tightened in the early stages of the pandemic, various policy measures were provided to help support the provision of credit. However, lending to small businesses remains little changed. Businesses have been reluctant to take on more debt in an uncertain environment and, at the same time, many have been able to make use of a range of temporary measures that have supported revenues or allowed for deferral of payments.

The COVID-19 pandemic has adversely affected the business sector. Small businesses have tended to have been disproportionately affected because they are more likely to be in industries that have been hardest hit by the pandemic. This article provides an update to Lewis and Liu (2020), summarising how small business finance has evolved over the course of the past year or so.

## Economic conditions for small businesses have improved to some extent

The economic recovery underway in Australia is flowing through to an improvement in conditions for businesses of all sizes. However, conditions are still somewhat uneven (Lowe 2021). Improvements in conditions have been more pronounced for larger businesses compared with smaller businesses. Small businesses have been disproportionately affected by the pandemic because they are more likely to be in industries that have been harder hit by the associated restrictions

on movement, such as cafes, restaurants, arts and recreation. Indeed, while larger retailers overall have seen strong growth in their sales throughout most of the pandemic, sales at small retailers picked up noticeably only in late 2020, returning to be around the level where they were leading up to the pandemic.

Small businesses grew more confident about their outlook in the second half of 2020, alongside the broader economic recovery (Graph 1). In an ABS survey conducted in February 2021, around a quarter of small businesses reported that economic uncertainty was a factor influencing their upcoming capital expenditure plans; in August 2020 the share was around two-thirds (Graph 2). Consistent with this, non-mining firms upgraded their investment plans for financial year 2020/21 according to the ABS capital expenditure survey in the second half of 2020. And the increases in job openings and employment growth observed in late 2020 were particularly pronounced in industries with a high share of small businesses. Nevertheless, the level of employment remains below pre-pandemic levels in the industries most affected by COVID-19 restrictions. In addition, while conditions have improved overall, some small businesses remain in a tenuous position and are vulnerable to any further economic disruptions (RBA 2020).

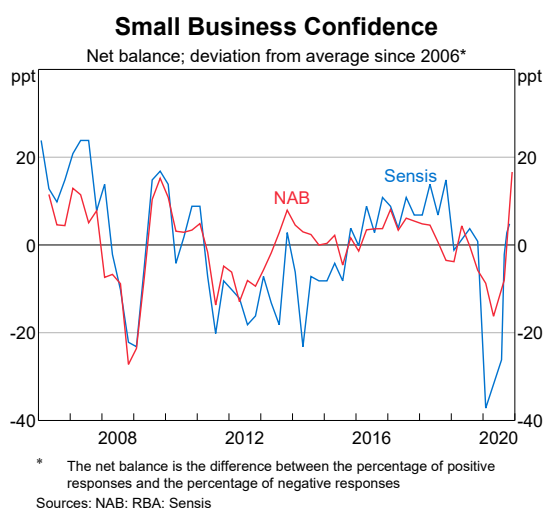
## Many small businesses have benefited from support measures, some of which are ongoing

### Policy responses to COVID-19

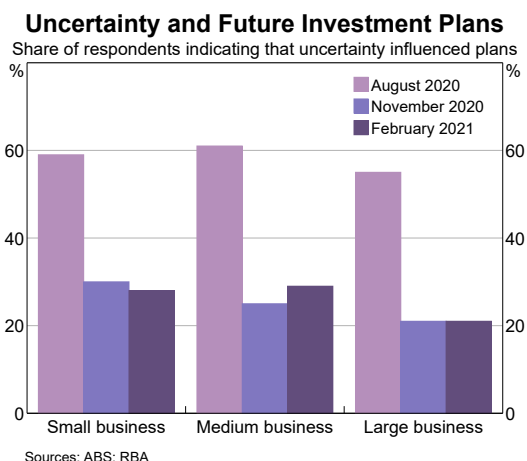
Temporary initiatives introduced by the Australian Government, lenders, and landlords have supported the cash flows and balance sheets of small and medium-sized enterprises (SMEs) during the pandemic. Government initiatives – such as JobKeeper, Boosting Cash Flow for Employers and temporary enhancements to the instant asset write-off scheme – reduced labour costs and provided direct cash subsidies. At the same time, lenders and landlords provided relief from loan and rental payments. Most of the temporary cash flow and balance sheet measures have begun to be phased out or will be phased out in the first half of 2021.

Other policy measures by the Reserve Bank and the Australian Government have supported the supply of credit to SMEs. The Reserve Bank announced a package of monetary policy measures in 2020 to lower funding costs for households, businesses and governments (Kent 2020, Lowe 2020). The Term Funding Facility (TFF) – which provides low-cost funding to banks for terms of 3 years – includes incentives for banks to increase their lending to non-financial businesses, especially SMEs (Alston *et al* 2020). The Australian Government established a \$15 billion Structured Finance Support Fund (SFSF) to supplement private sector investments in debt issued by smaller banks and non-banks. The Australian Government has also introduced an SME

**Graph 1**



**Graph 2**





loan guarantee scheme to enable participating lenders to issue cheaper loans to SMEs (Treasury Department 2020). These measures will continue to support lending to SMEs throughout at least to the end of 2021.

### Ongoing measures

Some other government initiatives will provide ongoing support to small businesses. Most of these initiatives focus on improving the operating environment for small businesses in Australia rather than providing direct financial support. Some were introduced or announced prior to the pandemic.

- **Permanent reforms to insolvency laws for small businesses** should help more small businesses survive insolvency proceedings. The reforms allow businesses with total debts of less than \$1 million to more easily restructure their debts and continue operating instead of winding up. The new framework commenced in January 2021, following the end of the temporary insolvency relief that was introduced in response to the pandemic.<sup>[1]</sup>
- **The compulsory Payment Times Reporting Scheme**, operational since January 2021, requires larger corporations to publically report how quickly they pay invoices issued by small businesses. The increased transparency and the prospect of greater scrutiny should help to improve payment times by large businesses. Small businesses have consistently reported that some large businesses require them to accept lengthy payment terms, disrupting their cash flow (Connolly and Bank 2018).
- **The proposed removal of responsible lending obligations to consumers** should help to simplify the loan application process for small businesses seeking finance. Although the Australian Securities and Investments Commission (ASIC) has stated that these specific lending obligations do not apply to lending for business purposes, many lenders have nonetheless applied the existing rules to small business customers. Banks have noted in liaison that this is because it is often difficult to distinguish between the personal and business

finances of small business owners. Legislation to enact removal of the rules is currently being considered by parliament.

- **Other initiatives announced before the pandemic should help support small business financing.** In October 2020 the \$540 million Australian Business Growth Fund was formally launched; the fund will provide longer-term equity funding to established small businesses looking to expand. The \$2 billion Australian Business Securitisation Fund (ABSF) was established in 2019 to invest in securitisations backed by SME loans and issued by smaller banks and non-bank lenders. The ABSF has invested \$250 million so far and recently invited lenders to submit proposals for further investments.
- Although not a measure targeted to SME's access to finance, **the Australian Prudential Regulatory Authority recently announced new capital rules** for some banks that, in part, will lower how much capital banks need to hold against unsecured SME loans. This will help to lower the costs for banks to fund SME loans, which should make small business lending more attractive at the margin. The new rules are currently scheduled to take effect in early 2023.

### Lending activity has been little changed

New lending to SMEs has been little changed since the onset of the pandemic (Graph 3). This is despite interest rates declining to historically low levels in response to the package of measures introduced by the Reserve Bank, and the pick-up in economic activity in the second half of 2020. Lending to large businesses increased sharply in the early stages of the pandemic, as large businesses drew down lines of credit, but these funds were repaid over the rest of 2020.

Take-up of the Australian Government's \$40 billion SME loan guarantee scheme has been low. By mid February 2021, around \$3.4 billion of loans had been made to around 35,000 businesses under the scheme. The scheme was first enhanced in October 2020 by increasing the amounts that can be borrowed, allowing funds to be used for a wider

range of purposes, and introducing more flexible collateral arrangements and repayment terms.<sup>[2]</sup> In March 2021, the scheme was enhanced for SMEs that had received JobKeeper in the March quarter. Those SMEs can borrow up to \$5 million for up to 10 years (up from \$1 million and 5 years previously), and the funds can now also be used for refinancing of some existing loans. In addition, the Government is guaranteeing 80 per cent of the loan under the targeted scheme (up from 50 per cent). The original scheme will remain open for SMEs until the end of June 2021. Through the scheme, some SMEs can access unsecured loans at interest rates comparable to those charged on secured loans. Some lenders announced further reductions in interest rates on scheme-backed loans after the Reserve Bank provided further policy stimulus in November 2020 (RBA 2021).

### Many businesses have less appetite for taking on additional debt

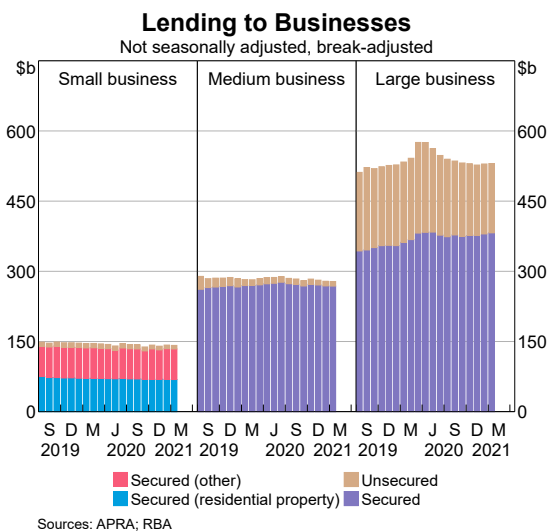
Survey data and liaison with businesses and banks suggest that many businesses, particularly SMEs, have little appetite for taking out new loans. In part this reflects ongoing uncertainty about the economic outlook. Many businesses have also had a reduced need for external finance because they have made use of support measures to help cover operating costs, and have built up cash buffers over the past year (RBA 2020). Consistent with this, an ABS survey in October 2020 found that three

quarters of businesses had not sought any additional funds in the months leading up to the survey; the same share in February 2021 was around 85 per cent. The most commonly cited reason for not seeking additional funds in both surveys was the business having sufficient funds at hand. Other survey data show that fewer businesses tried to access finance in late 2020; a key reason for this was that businesses indicated that they were more likely to draw on savings than take out a bank loan if they needed additional funds (Graph 4). More generally, businesses tended to prefer to use retained earnings to finance investment when possible because it is less costly (Connolly and Jackman 2017).

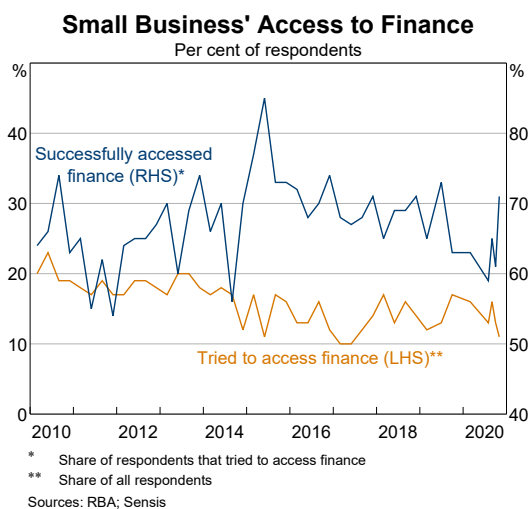
Although SME lending has been little changed for some time, there have been some pockets of increased activity. Commitments for new loans increased a little over the second half of 2020, to be around the average level observed over the 6 months preceding the pandemic. Most of this increase was driven by new loans for the purchase of property and for purchasing plant and equipment. Lending activity for plant and equipment has been supported by the Australian Government's enhancements to the instant asset tax write-off scheme. Lending to the agriculture sector picked up in 2020, consistent with improved conditions in the sector.

In addition, refinancing activity has been higher so far in the financial year 2020/21 compared to the

**Graph 3**



**Graph 4**



year prior, consistent with businesses looking to obtain lower interest rates on existing facilities (Graph 5). Moreover, large businesses and SMEs have increased the size of credit facilities available to them over 2020, suggesting that they are continuing their cautious approach to managing access to liquidity (Graph 6).

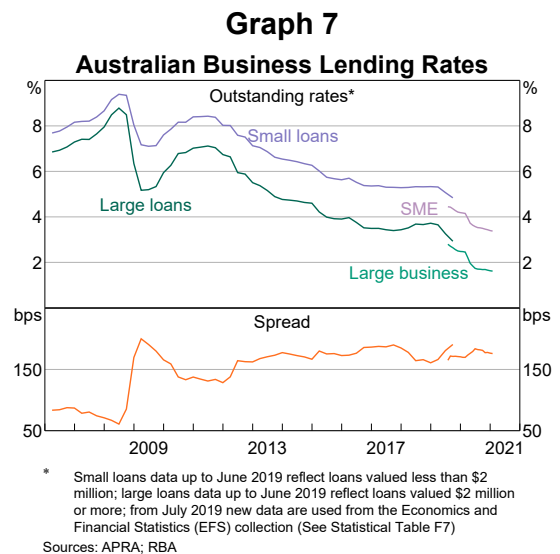
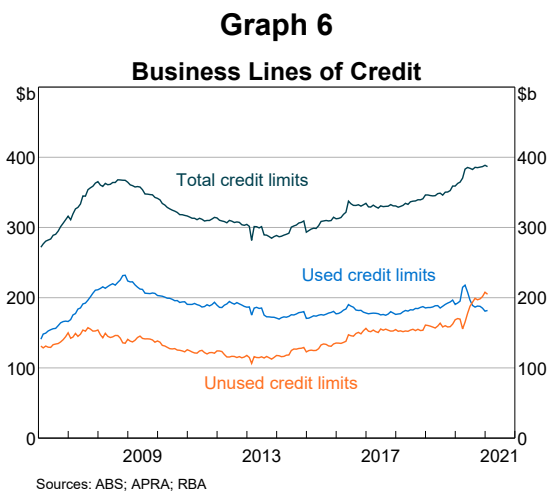
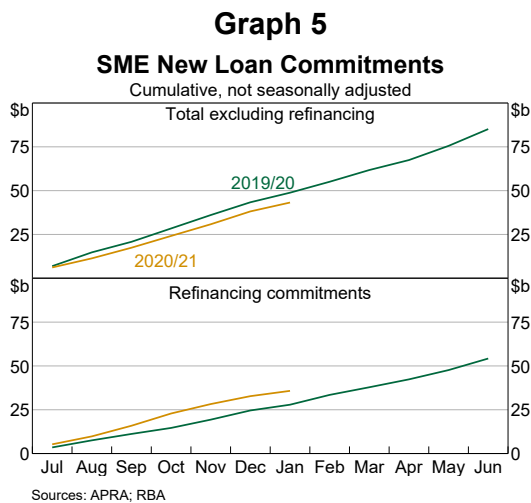
### Policy measures have cushioned a tightening in the supply of credit

Access to finance tightened for businesses in response to the pandemic, mostly for those that have been more affected by the economic conditions and for businesses approaching a given bank for the first time. Banks have reported in liaison that much of the tightening has reflected applying existing lending standards in a weaker economic environment. As the economic recovery has taken hold, some banks have indicated that they are

starting to seek out more opportunities to lend to SMEs. However, access to finance remains a little tighter than before the pandemic.

Policy measures introduced to support the flow of low-cost funds to the economy have helped to mitigate the tightening in access to finance for SMEs. In particular, over the year or so since the Reserve Bank implemented the package of measures announced in March 2020, the cash rate declined by around 75 basis points. Funding costs for banks have declined by a similar amount and lower funding costs flowed through to lower borrowing costs for households and businesses (Garner and Suthakar 2021). By early 2021, interest rates on variable-rate loans to SMEs had declined by around 85 basis points and rates for large businesses had declined by around 90 basis points since the end of February 2020.

The difference between interest rates on loans for smaller businesses and those for larger businesses has been little changed since the onset of the pandemic, which is in stark contrast to the significant widening seen during the global financial crisis (Graph 7). Indeed, the difference between small and large business interest rates has been broadly stable since the global financial crisis. Small businesses have generally noted in liaison that pricing has not been a significant barrier for obtaining bank loans during the pandemic or in recent years.

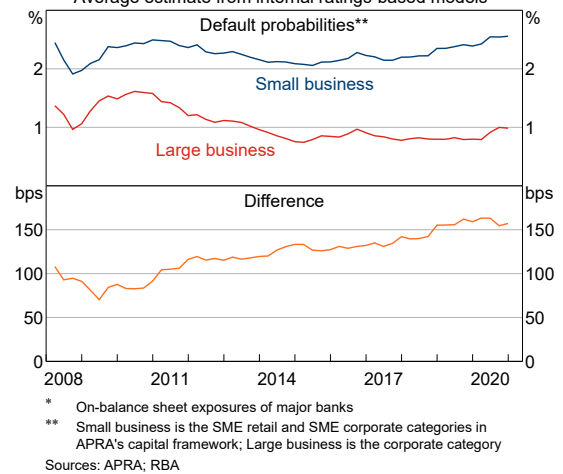


The estimated risk profiles for small and large businesses have increased a little since the onset of the pandemic (Graph 8). These estimates are constructed by the major banks, drawing on historical experience prior to the pandemic. It suggests that small businesses are around twice as likely to default on loans as large businesses. This is consistent with interest rates on loans to smaller businesses being notably higher than those to larger businesses. Although business failures were much lower in 2020 than in recent years because of the various support measures, failures are expected to rise as the temporary support measures end (Bullock 2020). This is not expected to affect bank balance sheets much, but it could further raise the assessed riskiness of some business loans. Even so, it is worth highlighting that the vast majority of SME borrowers that deferred loan repayments in 2020 have resumed payments. In early 2021, only around 1 per cent of all SME borrowers still had a deferral arrangement, down from a peak of 13 per cent in June 2020. Also, the share of business loans that are non-performing remained low over 2020.

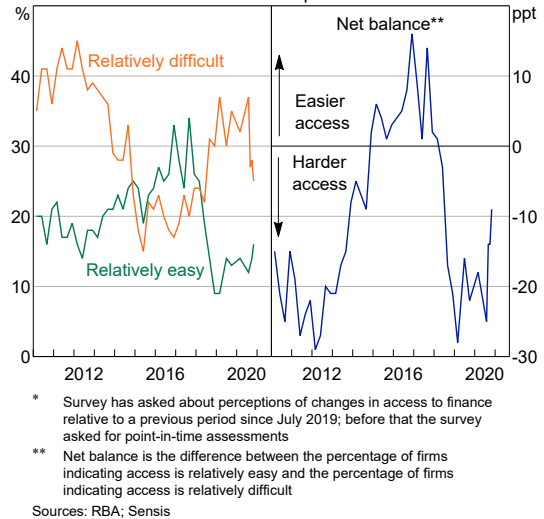
For a number of years, small businesses have reported that they have found it difficult to access finance with terms that suit their needs.<sup>[3]</sup> Surveys of small businesses indicate that access to finance remains difficult but improved towards the end of 2020 (Graph 9). This is consistent with the increase in the share of businesses that successfully applied for finance; however, this also comes at a time where fewer businesses are seeking funding from banks (Graph 4). Nevertheless, the recent improvement is consistent with both the economic recovery more broadly and the various initiatives aimed at supporting small businesses. These

initiatives will help to support the provision of finance as the demand for new loans pick up. ↗

**Graph 8**  
**Business Lending Default Probabilities**  
Average estimate from internal ratings-based models\*



**Graph 9**  
**Small Business Perception of Access to Finance\***  
Per cent of all respondents



## Footnotes

- [\*] The authors are from Domestic Markets Department <<https://treasury.gov.au/coronavirus/sme-guarantee-scheme>>.
- [1] Total business failures in Australia are concentrated among small businesses. According to the Australian Securities and Investments Commission (ASIC), over 75 per cent of the businesses that entered insolvency proceedings in 2018/19 would have been eligible to make use of the new insolvency framework.
- [2] For further details on the Australian Government's SME loan guarantee scheme, please see
- [3] Panellists at the Reserve Bank's annual Small Business Finance Advisory Panel have previously noted, for example, that access to finance for start-ups is very limited, banks are often reluctant to extend finance without real estate as collateral, and the process to obtain finance is lengthy and onerous. For summaries of key themes from Panels over recent years, see Connolly and Bank 2018 and Lewis and Liu 2020.

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# Developments in Banks' Funding Costs and Lending Rates

Megan Garner and Anirudh Suthakar<sup>[\*]</sup>



Photo: Busakorn Pongparnit – Getty Images

## Abstract

Banks' funding costs declined to historical lows over 2020, reflecting the monetary policy measures announced by the Reserve Bank. In aggregate, lending rates have fallen in line with banks' borrowing costs, such that the major banks' average interest spreads were little changed over the year.

## The Reserve Bank's policy measures led to lower funding costs and lending rates in 2020

In 2020, the Reserve Bank reduced the cash rate target to historically low levels and implemented other measures to lower the cost of funding for banks and support the supply of credit to households and businesses (Graph 1; Kent 2020a; Lowe 2020a; Lowe 2020b). The flow-through from the reductions in the cash rate and from other policy tools to interest rates was a key channel of monetary policy transmission. Consistent with this, banks' debt funding costs and lending rates declined substantially over the year. This article updates previous Reserve Bank analysis, focusing on developments in the major banks' funding costs

and lending rates over 2020 (Black, Titkov and Wang 2020).

The cash rate declined by about 70 basis points over 2020 and banks' funding costs declined by a similar amount. Wholesale debt costs and retail and wholesale deposit rates all declined to historical lows as a result of the Reserve Bank's policy measures (Graph 2). Bank Bill Swap (BBSW) rates fell substantially over the year, reflecting the reductions in the cash rate target and the high levels of liquidity provided by the Reserve Bank to the banking system since March (Kent 2020b). BBSW rates are important benchmark rates in the Australian financial system, and much of the major banks' wholesale debt and deposit costs are ultimately linked (either directly or via hedging) to these rates (Alim and Connolly 2018).

The Reserve Bank's Term Funding Facility (TFF) also reduced banks' funding costs through the provision of low-cost funding to support lending and by reducing banks' need to issue more expensive long-term wholesale debt. Banks also significantly reduced retail deposit rates over the year, initially in response to the March policy easing but also due to strong growth in the supply of funding, including deposits, over 2020. The decline in these costs continues to flow through to banks' overall cost of funding, as fixed-rate deposit and other term funding matures and is replaced by funding at lower interest rates.

Overall, aggregate lending rates are estimated to have declined by a similar extent to the major banks' funding costs over 2020. A large share of the

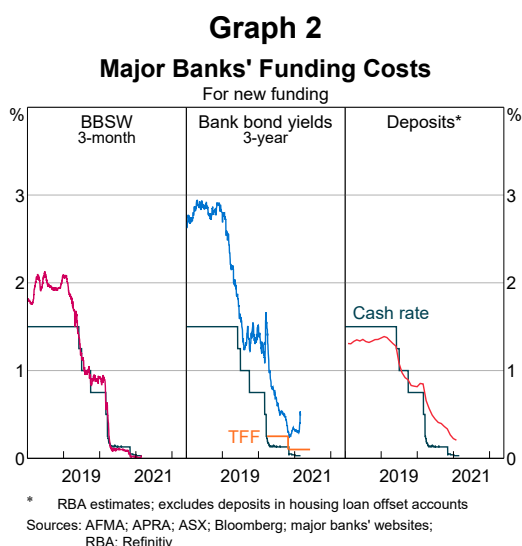
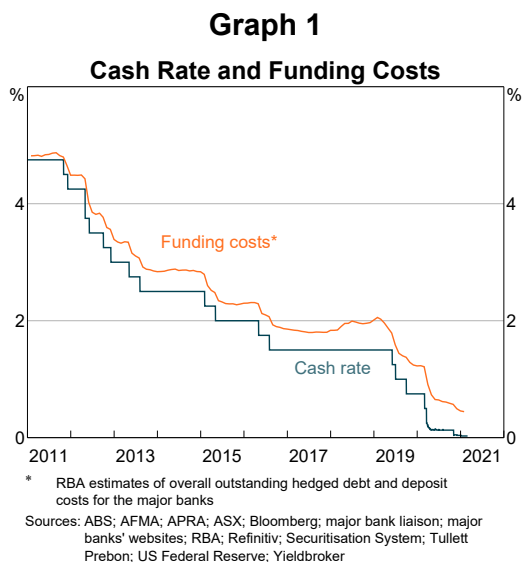
decline in funding costs over 2020 flowed through to the housing interest rates paid by borrowers, though the extent of the reductions differed across variable- and fixed-rate loans. Interest rates on existing variable-rate housing loans declined by around 50 basis points over the year, while those offered on new fixed-rate housing loans fell by around 90 basis points over the same period. Interest rates on outstanding business loans declined by a little more than the decline in banks' overall debt funding costs over 2020.

### Funding from deposits increased ...

Banks obtain funding from retail deposits, wholesale deposits, wholesale debt (including securitisation) and equity. The share of bank funding from deposits increased substantially over 2020 (Graph 3). Excluding equity, around two-thirds of the major banks' funding now comes from deposits.<sup>[1]</sup> In contrast, the share of bank funding drawn from wholesale debt markets declined over the year. Short- and long-term debt (including securitisation) now account for a little under one-third of the major banks' non-equity funding, in roughly equal shares. Banks can also obtain funding from the Reserve Bank's TFF, which was announced in March 2020 as part of a monetary policy package to reduce funding costs across the economy and to support lending (Alston *et al* 2020). Over 2020, the major banks took up almost all of their initial allowances, amounting to a little over half of the low-cost funding available to these banks under the TFF. TFF funding currently accounts for around 2 per cent of the major banks' non-equity funding.<sup>[2]</sup>

Deposit growth is typically driven by new lending by the banking sector. Lending creates deposits as the funds made available to a borrower find their way into a deposit somewhere in the banking system, either as a deposit in the borrower's account, or in another account when the borrower uses those funds to make a purchase (RBA 2020). While the provision of new credit to the economy added to deposits over the year, it was not the only driver of the increase in deposits.

Over 2020, growth in total deposits also reflected government bond purchases by the Reserve Bank



and by the banking sector, and a decline in banks' outstanding short-term and long-term debt. Both of these channels can add to the stock of deposits by converting the original asset (government or bank debt) held by private (non-bank) investors into deposits.<sup>[3]</sup> For instance, the major banks' holdings of Australian Government Securities (AGS) and semi-government securities issued by the central borrowing authorities of the states and territories (semis) increased over 2020 (Graph 4). Some of these bonds would have been purchased from non-bank investors, with the proceeds then credited to a deposit account.

New deposits mostly flowed into at-call accounts held by households and businesses, which tend to pay relatively low rates of interest (Graph 5). In addition, there was some switching by depositors

from term deposits to at-call deposits over the past year, supported by the decline in the spread between interest rates on term and at-call deposits. Both of these changes have contributed to lowering the average interest rates paid by the major banks on deposit funding (discussed further below).

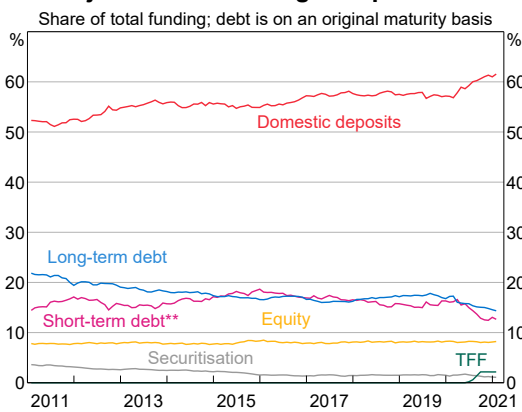
**... while the use of wholesale debt funding declined**

The share of funding sourced by the major banks from both short- and long-term wholesale debt markets declined substantially over 2020. Bank bonds account for the bulk of banks' long-term wholesale debt funding (banks can also obtain loans in wholesale funding markets). The stock of these bonds declined over 2020, largely reflecting maturities of bonds issued in offshore markets (Graph 6). This is because the major banks can access low-cost term funding from the TFF – \$63 billion of which had been drawn by these banks by the end of December – and because of an increase in deposit funding. Also, loan asset growth was low compared with earlier years, so banks have needed less funding than otherwise.

While new bond issuance has been low by historical standards, banks continued to source new long-term debt funding from Tier 2 hybrid securities (Graph 7). Hybrid securities have both equity- and debt-like features, and can be used to fulfil a part of banks' regulatory capital requirements (RBA 2012).

**Graph 3**

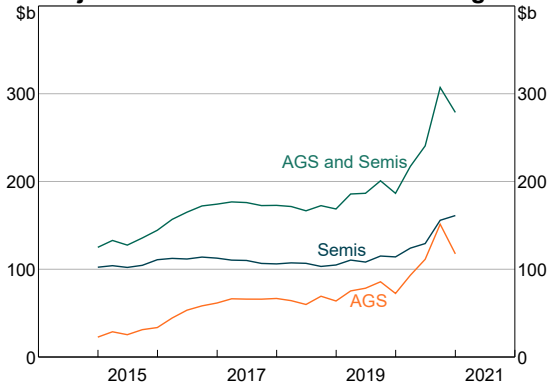
**Major Banks' Funding Composition\***



\* Adjusted for movements in foreign exchange rates  
 \*\* Includes deposits and intragroup funding from non-residents  
 Sources: ABS; APRA; Bloomberg; RBA; Refinitiv

**Graph 4**

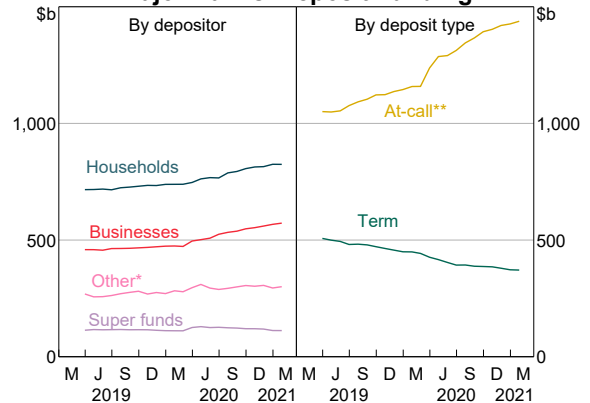
**Major Banks' AGS and Semis Holdings\***



\* This data is compiled on a consolidated balance sheet basis  
 Sources: APRA; RBA

**Graph 5**

**Major Banks' Deposit Funding**



\* Includes deposits from governments and financial institutions that are not superannuation funds  
 \*\* Includes deposits in housing loan offset accounts and non-interest bearing deposits  
 Sources: APRA; RBA



This issuance increased the major banks' total loss-absorbing capital ahead of a higher regulatory minimum capital requirement that will take effect at the beginning of 2024 (APRA 2019).

### Banks' share of equity funding was little changed

The amount of banks' equity funding (or 'equity capital') rose over 2020 in line with an expansion in banks' balance sheets, leaving the equity share of funding broadly stable. Banks increased their equity capital to absorb potential losses arising from the COVID-19 pandemic by retaining a greater share of their earnings, in line with APRA's guidance to ensure that banks maintained the capacity to lend and support the economy until the outlook was clearer (APRA 2020a). National Australia Bank raised

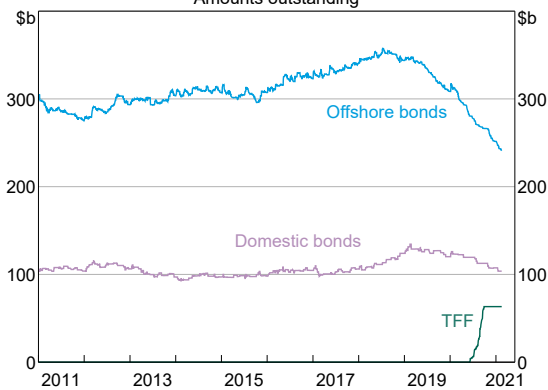
around \$4 billion in equity capital in the June quarter through new share issuance. All of the major banks also raised equity capital through ongoing dividend reinvestment plans, in line with the guidance from APRA. In addition, APRA accommodated banks drawing down on capital stocks to support lending by relaxing the expectation that banks maintain capital at or above 'unquestionably strong' levels (APRA 2020b). Despite this change, the major banks all maintained capital ratios above this benchmark level over the year.

### Banks' funding costs declined to historic lows

As discussed above, the major banks' (non-equity) funding costs are estimated to have declined to historically low levels in 2020 (Graphs 1 and 2). Historically, the cash rate has been a key determinant of the overall cost of banks' funding, as it is an anchor for other interest rates in the Australian financial system. Over 2020, the major banks' overall debt funding costs are estimated to have declined by a similar amount to the cash rate (Graph 8). As well as the effect of the reduction in the cash rate, funding costs declined in response to the Reserve Bank's other policy measures.

**Graph 6**

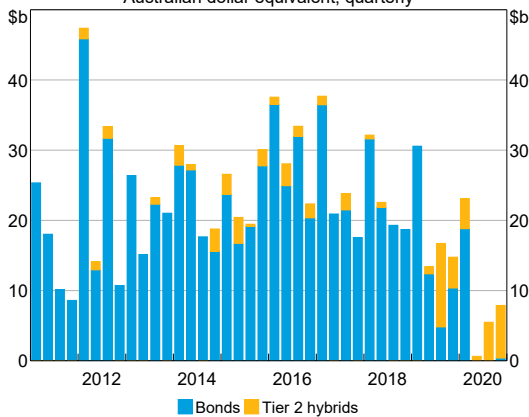
**Major Banks' Wholesale Funding**  
Amounts outstanding



Sources: Bloomberg; Private Placement Monitor; RBA

**Graph 7**

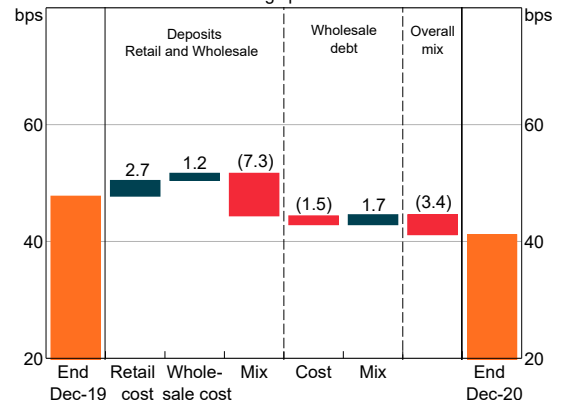
**Major Banks' Bond and Hybrid Issuance**  
Australian dollar equivalent; quarterly



Sources: Bloomberg; KangaNews; Private Placement Monitor; RBA

**Graph 8**

**Major Banks' Funding Costs**  
Estimated outstanding spread to the cash rate\*



\* RBA estimates; overall costs include the benefit/cost of interest rate hedges  
Sources: ABS; AFMA; APRA; ASX; Bloomberg; major bank liaison; major banks' websites; RBA; Refinitiv; Securitisation System; Tullett Prebon; US Federal Reserve; Yieldbroker

### The cost of wholesale funding declined

Banks' wholesale funding costs declined substantially over the year, primarily reflecting the decline in BBSW rates. Much of the major banks' wholesale debt and deposit costs are ultimately linked (either directly or via hedging) to BBSW rates, which declined by around 85–100 basis points over 2020. Much of the decline in BBSW rates occurred following the introduction of the March policy packages, as BBSW rates are heavily influenced by (actual and expected) reductions in the cash rate (Domestic Markets Department 2019; Graph 9). The supply of liquidity provided by the Reserve Bank to the banking system since March further contributed to lowering BBSW rates over the year.

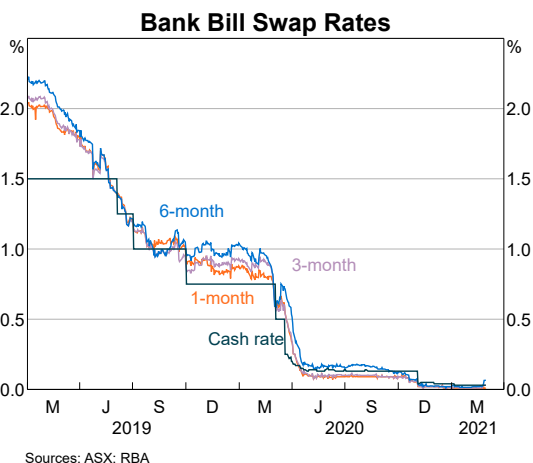
Access to the TFF helped to reduce banks' wholesale funding costs, since it is cheaper than alternative forms of wholesale term funding (Graph 10). The interest rate paid by banks on funding from the TFF is lower than the cost of existing market-based funding for the same term. The major banks therefore allowed relatively more expensive wholesale debt funding to mature and replaced this with cheaper funding from the TFF, which lowered banks' outstanding funding costs. The availability of the TFF since March last year has also added to downward pressure on marginal wholesale funding costs, as access to low-cost funds from the TFF, along with inflows of deposits and reduced lending growth, has reduced the need for banks to raise funds in wholesale debt markets. Consistent with this, bond yields and BBSW rates have declined to historically low levels.

### Household deposit rates declined to historic lows

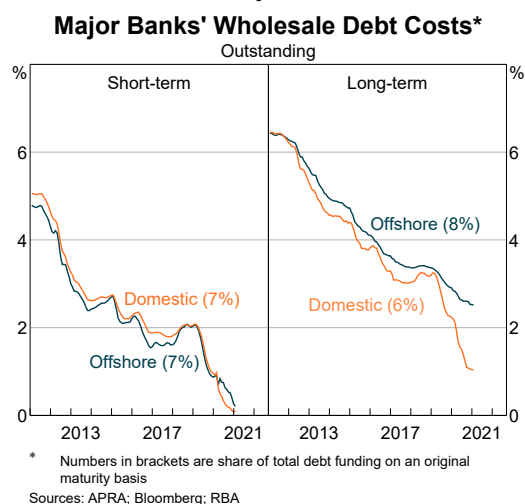
The major banks significantly reduced deposit rates over 2020, reflecting the substantial easing of monetary policy, access to low-cost funding from the Reserve Bank's TFF and continued inflows of deposit funding throughout the year. Interest rates for new term deposits from households declined by around 95 basis points, while rates for new at-call deposits declined by around 40 basis points over the same period (Graph 11). Much of the decline in deposit rates occurred immediately following the Reserve Bank's March policy announcements, though these rates have continued to drift lower since then. Banks reduced the rates paid on relatively costly term deposits by more than the rates on at-call deposits over the year, and the spread between term and at-call deposits narrowed as a result. This further supported the decline in banks' deposit costs; savers switched from term deposits to at-call deposits as the lower spread reduced the implicit cost to savers of having ready access to their savings. At-call deposits pay low interest and so are less expensive for banks.

The reductions in deposit rates over 2020 are expected to continue to flow through to banks' overall funding costs over 2021 as changes in new term deposit rates take time to flow through to the stock of banks' deposits. These deposits earn fixed rates of interest over a set term, such that reductions in new rates have a more gradual impact as existing, higher-cost term deposits mature. Most

**Graph 9**



**Graph 10**



outstanding term deposits have a term to maturity of less than one year. In contrast to term deposits, lower variable at-call rates tend to feed directly into the cost of outstanding deposits as changes in at-call rates affect both new and existing deposits. However, as is typical, the interest rates on many transaction accounts (which are usually close to zero) did not change following the easing of monetary policy over 2020. In addition, the decline in deposit rates and the growth in at-call deposits over the year meant that the share of bank deposits paying low interest rates (between zero and 25 basis points) rose. For the major banks, the share of debt funding from low-rate deposits was around one-quarter in late 2020, compared to around 15 per cent in late 2019 (Graph 12). Banks appear unlikely to reduce rates on some of these deposits further, as they are reluctant to reduce household deposit rates below zero. Despite the larger share of low-rate deposits, the bulk of the major banks' deposits were still paying rates greater than 25 basis points last year.

### Banks' lending spread was little changed over 2020

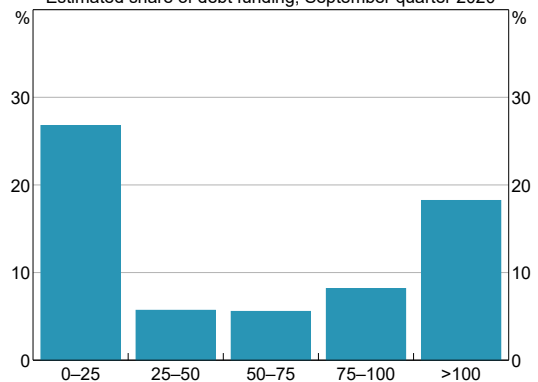
A bank's implied spread on its outstanding lending is the difference between its average lending rate and average cost of debt and deposit funding. We estimate that the implied lending spread for the major banks was little changed over 2020 (Graph 13). While the average lending rate declined

by roughly the same amount as funding costs, the extent of reductions in interest rates varied across housing and business loans (discussed below).

The implied lending spread differs from some other reported measures of bank profitability, such as net interest margins. For example, the implied lending spread excludes the effects of non-loan interest-earning assets, such as cash and other high-quality liquid assets. The major banks' interest earnings on the stock of non-loan assets declined over 2020 as the yields earned on these assets declined. The stock of non-loan assets also increased over 2020, which reduced average interest earnings on these assets. In part, this reflects an increase in the major banks' holdings of AGS and semis (discussed above). The monetary policy response to the COVID-19 pandemic also resulted in an increase in (low-yielding) balances held by the major banks in

**Graph 12**

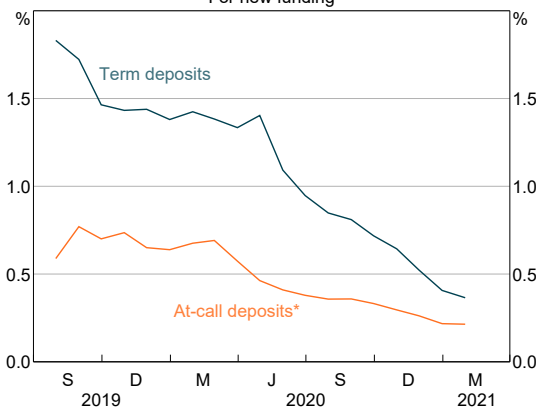
**Major Banks' Deposits by Interest Rate\***  
Estimated share of debt funding; September quarter 2020



\* Includes deposits in housing loan offset accounts  
Sources: APRA; Bloomberg; Major bank liaison; RBA; Refinitiv

**Graph 11**

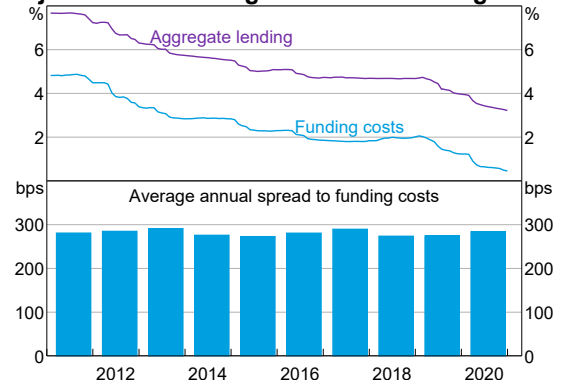
**Major Banks' Household Deposit Rates**  
For new funding



\* Excludes deposits in housing loan offset accounts; includes non-interest bearing deposits  
Sources: APRA; RBA

**Graph 13**

**Major Banks' Lending Rates and Funding Costs**



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

Exchange Settlement Accounts with the Reserve Bank.

### Housing and business lending interest rates have declined to historic lows

A large share of the decline in banks' overall debt funding costs over 2020 flowed through to the housing interest rates paid by borrowers, though the extent of the reductions was mixed across variable- and fixed-rate loans. Interest rates on outstanding variable-rate housing loans declined by around 50 basis points (Graph 14). Lenders lowered their standard variable rates (SVRs) on housing loans by close to 30 basis points, on average, in the months following the Reserve Bank's initial package of policy measures announced in March last year. Reductions in SVRs automatically flow through to all variable-rate loans. The decline in outstanding variable rates also reflects ongoing competition for high-quality borrowers, with lenders offering particularly low interest rates to new and refinancing borrowers.

Over the past year, rates for new fixed-rate loans also declined by around 90 basis points – slightly more than the estimated decline in banks' overall debt funding costs (Graph 15). This decline was broadly consistent with a decline in interest rate swap rates, which are often used as a benchmark for pricing fixed-rate loans given that they reflect expectations about the future path of monetary policy. Fixed-rate loans have become more popular, as these interest rates have generally declined to be

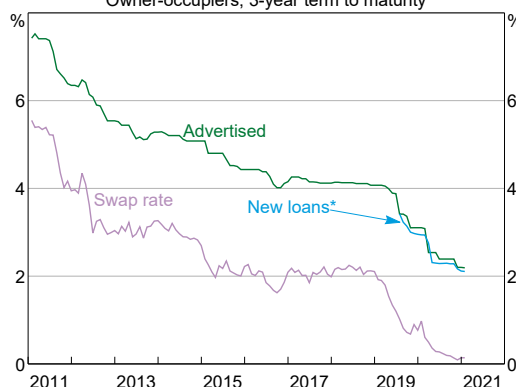
below the interest rates available on variable-rate loans. The stock of fixed-rate housing loans rose from 20 per cent to around 25 per cent of housing credit outstanding over the past year.

Interest rates on outstanding business loans also declined by more than the decline in banks' overall debt funding costs over 2020 (Graph 16). Interest rates on variable-rate loans to large businesses declined by 85 basis points over 2020, while interest rates on variable-rate loans to small and medium-sized businesses declined by around 80 basis points over the same period. The major banks substantially lowered the interest rates for loans offered under the Australian Government's Small and Medium Enterprises (SME) loan guarantee scheme (Bank and Lewis 2021).

**Graph 15**

#### Fixed Housing Interest Rates

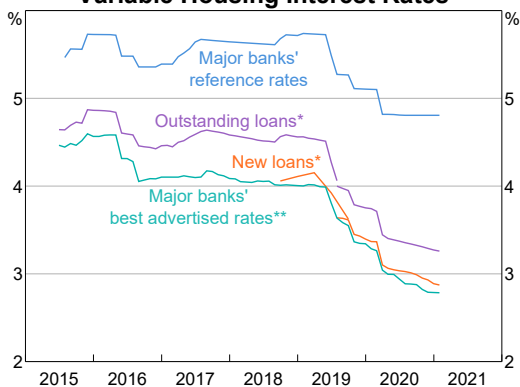
Owner-occupiers; 3-year term to maturity



\* Data based on the EFS collection  
Sources: APRA; Banks' websites; CANSTAR; RBA; Refinitiv

**Graph 14**

#### Variable Housing Interest Rates

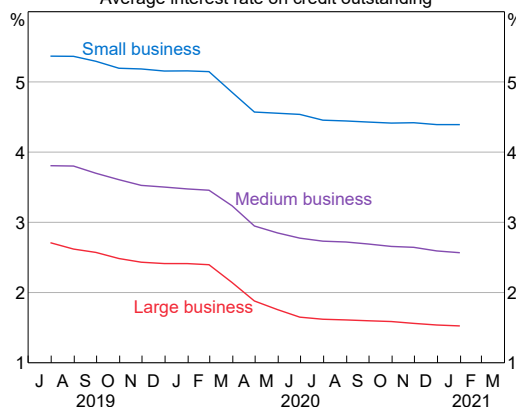


\* Series break in July 2019; thereafter, data based on EFS collection  
\*\* Including low-cost brands  
Sources: APRA; banks' websites; CANSTAR; RBA; Securitisation System

**Graph 16**

#### Business – Variable Lending Rates\*

Average interest rate on credit outstanding



\* Data cover financial institutions with \$2 billion or more in business credit  
Sources: APRA; RBA

## Conclusion

The monetary policy measures announced by the Reserve Bank in 2020 worked to lower funding costs across the economy and support the provision of credit. As a result, the cash rate and BBSW rates, which are important reference rates for banks'

overall debt funding costs, declined significantly. Banks' lending rates and funding costs declined alongside these other interest rates, such that average interest spreads were little changed. ✎

## Footnotes

[\*] The authors are from Domestic Markets Department.

[1] All measures in this article (unless otherwise noted) use banks' 'domestic books' as the basis of measurement, rather than their global balance sheet (APRA 2017).

[2] Banks can access the remainder of their TFF allowances until the end of June 2021.

[3] For more information on deposit creation, see RBA (2020)

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# Developments in the Buy Now, Pay Later Market

Chay Fisher, Cara Holland and Tim West<sup>[\*]</sup>

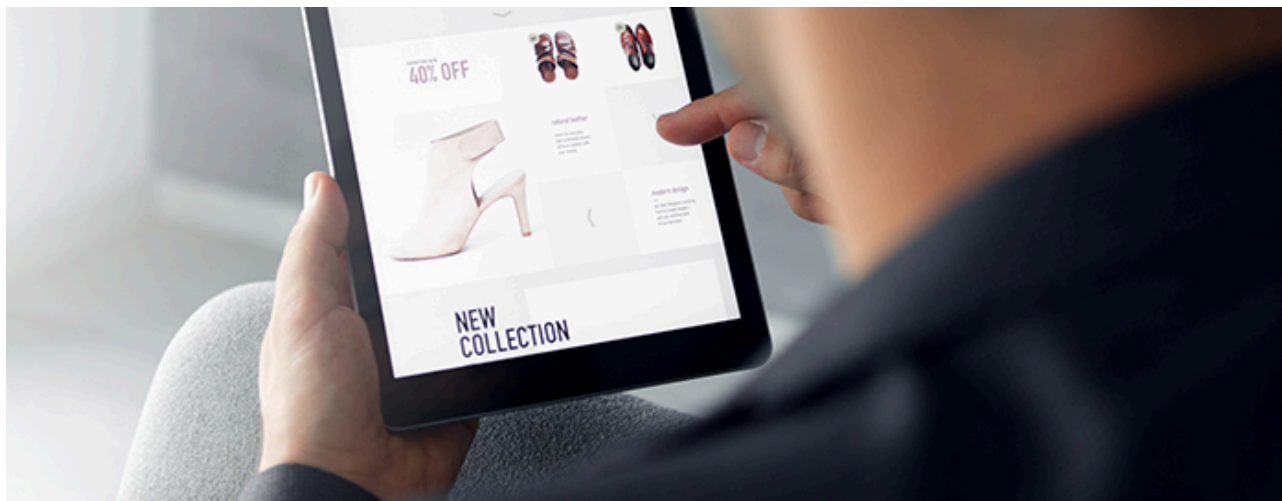


Photo: Georgijevic – Getty Images

## Abstract

The buy now, pay later (BNPL) sector is growing rapidly and new providers and business models are emerging. While the development of these new payment services is evidence of Australia's innovative and evolving payments system, it may also raise issues for policymakers. The Reserve Bank is currently considering policy issues raised by BNPL providers' no-surcharge rules as part of its Review of Retail Payments Regulation. This article discusses developments in the BNPL sector, focusing on different business models and implications for the cost of electronic payments to merchants.

## Introduction

Australians have long had the ability to pay for purchases in instalments. Traditional store lay-by arrangements allow consumers to pay for purchases over time, and some retailers have offered interest-free or deferred payment options for many years. In recent years, newer types of electronic instalment payment arrangements – known as 'buy now, pay later' (BNPL) services – have become more prominent, and use and acceptance of these services has grown rapidly.

BNPL services enable consumers to purchase goods and services by paying part of the purchase price at

the time of the transaction and the remainder to the BNPL provider in a series of instalments. Unlike traditional lay-by, the customer receives their purchase immediately and the merchant is paid up front by the BNPL provider. In most cases, customers use a mobile app to access these services and repayments are drawn from a customer's linked debit or credit card. Some popular BNPL services facilitate borrowing of amounts up to \$1,000 to \$2,000 and may be free for consumers if instalments are paid on time (otherwise late fees may apply) – that is, they do not charge interest or other fees.<sup>[1]</sup> Other BNPL services enable eligible

customers to borrow larger amounts but tend to charge establishment or monthly fees. BNPL is mostly used for online purchases, though some BNPL providers are also focusing on expanding adoption for in-store purchases (which operates via the provider's app by generating a scannable barcode or QR code). More recently, a number of providers have developed BNPL services that issue virtual cards through the provider's mobile app that can be used more widely for in-store payments, as well as online transactions, at merchants that accept card payments.

The strong growth in the use of BNPL in recent years suggests that an increasing number of people view these services as a convenient and cost-effective way of making purchases. There has also been an increase in merchant adoption of BNPL services for both online and in-store transactions. Merchants are generally charged transaction fees for accepting BNPL payments and may be attracted to offering BNPL as a payment option if they believe it will generate additional sales and/or to avoid losing business to competitors that do so. Merchants typically receive the full amount of the purchase price (less any fees) up front from the BNPL provider. Some BNPL providers offer marketing and other services to merchants in addition to facilitating payments. Competition appears to have strengthened in the BNPL market, with a number of new providers entering the market in recent years and the range of business models and services offered by new and existing providers has expanded.

The emergence of the BNPL sector is an example of how the consumer payments landscape is changing, facilitated by mobile technology and innovative businesses. While innovation and competition could enhance the efficiency of the payments system by providing services that meet end-user needs, they can also raise issues for policy-makers. An issue relevant to the Bank's mandate for promoting payments system efficiency is that the cost to merchants of accepting BNPL payments is typically higher than for other electronic payment methods, such as cards. Most BNPL providers also impose no-surcharge rules that prevent merchants from passing on these costs to the consumers who

use and benefit from BNPL services. This issue is being considered as part of the Payments System Board's Review of Retail Payments Regulation.

This article discusses recent developments in the Australian BNPL market and issues for payments policy, focusing on the different business models that have emerged and BNPL providers' no-surcharge rules.

### Growth of the BNPL market

The BNPL sector has grown rapidly in recent years. While industry-wide data are not readily available, company reports for a number of ASX-listed BNPL providers indicate that the value of BNPL transactions grew by around 55 per cent in 2019/20 and tripled over the previous 2 financial years (Graph 1).<sup>[2]</sup> In 2019/20, these listed entities processed around \$10 billion of purchases in Australia and New Zealand. The value of BNPL transactions has continued to grow strongly through the COVID-19 pandemic as the shift to electronic payment methods and online shopping accelerated (Bullock 2020). Based on recent public disclosures, the value of transactions processed by some of the large BNPL providers grew by over 50 per cent in the second half of 2020 compared to the same period a year earlier. Although share prices can be volatile, the prices of some of the larger BNPL providers have significantly outperformed the broader Australian share market in recent years (Graph 2). Some Australian BNPL providers have also sought to expand into overseas markets, including the United States, and these markets now account for a material share of some Australian providers' overall business.

In addition to data published by BNPL providers themselves, the Bank's 2019 Consumer Payments Survey (CPS) – which was conducted in late 2019 before the emergence of COVID-19 in Australia – provides some information on BNPL adoption. In late 2019, just under 20 per cent of survey participants reported that they had used a BNPL service at least once in the previous 12 months ('BNPL users') and 90 per cent of CPS participants reported that they were aware of BNPL services such as Afterpay and Zip Pay.

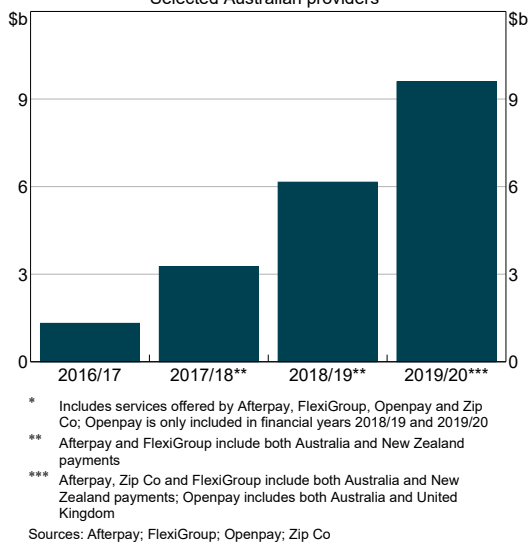


While there has been a substantial increase in BNPL transactions over the past few years, it is estimated that the value of BNPL payments (based on available listed company data) was equivalent to less than 2 per cent of the total value of Australian debit and credit card purchases in 2020. The 2019 CPS also indicated that a relatively small share of overall consumer payments was made using BNPL.<sup>[3]</sup> Less than 1 per cent of the number and value of consumer transactions made over the survey week (including those made in cash) were made using BNPL. The share of online transactions was a little higher, at around 3 per cent by number (Graph 3).

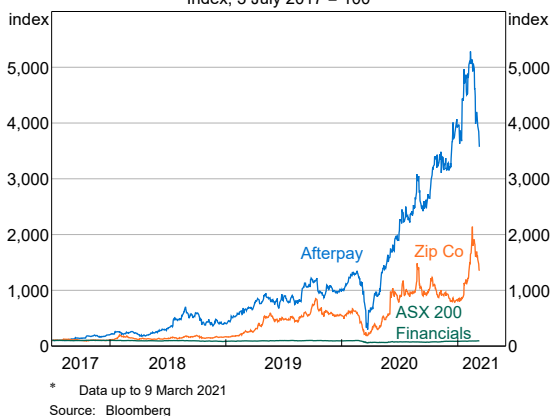
The relatively low share of BNPL payments in the CPS was consistent with survey respondents reporting that they used BNPL infrequently. Of the self-identified BNPL users, 70 per cent made a BNPL purchase every few months or less often, whereas only 3 per cent said they used BNPL at least once a week. The relatively low frequency with which BNPL services were used by most respondents is likely to partly reflect the nature of the purchases made with these services. At the time the CPS was conducted, BNPL was mostly available for ‘discretionary’ retail purchases, whereas it was not typically accepted at businesses such as supermarkets or other food retailers. More recently, growth in merchant acceptance networks and the introduction of new BNPL services is likely to have expanded the range of merchants at which BNPL payments can be made (see below). The figures from the CPS are also likely to understate the current share of payments made using BNPL, given the strong growth in transactions reported by providers since the CPS was conducted in late 2019. Moreover, BNPL has reportedly gained significant traction in certain sectors, such as online fashion retail, where transaction shares are likely to be much higher.

According to publicly available data, the 2 largest listed Australian BNPL providers had around 6 million ‘active’ BNPL user accounts as at December 2020 (defined as those accounts where the customer has made at least one transaction over the past 12 months), although the number of individual customers will be lower than this figure

**Graph 1**  
**BNPL Payments Processed**  
Selected Australian providers\*

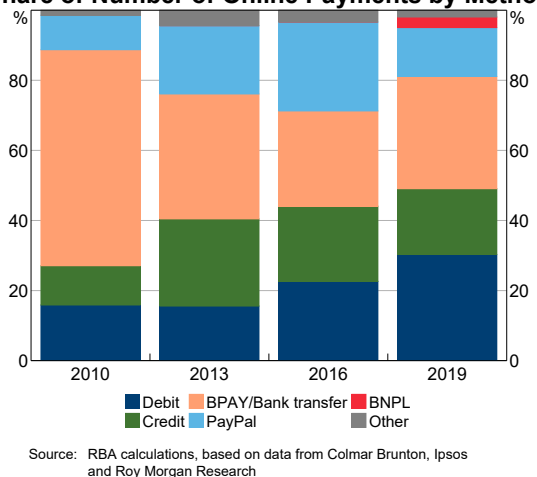


**Graph 2**  
**BNPL Share Prices\***  
Index, 3 July 2017 = 100



**Graph 3**

**Share of Number of Online Payments by Method**



**Table 1: BNPL network sizes**

Selected BNPL providers; includes Australia and New Zealand

	Transaction values (\$b) 2020	Active users (millions) December 2020	Active merchants ('000) December 2020
Afterpay	8.3	3.4	53.6
Zip Co	2.6	2.5	30.1
Openpay	0.3 <sup>(a)</sup>	0.2	2.8 <sup>(a)</sup>
Payright	0.06	0.04	1.8

(a) Includes Australia, New Zealand and the United Kingdom

Sources: Company reports; RBA

because some people use more than one BNPL service (Table 1). Indications are that BNPL services are used more intensively by younger consumers – more than 55 per cent of BNPL users in the 2019 CPS were aged under 40, though respondents aged 40–49 also accounted for a material share of BNPL users (Graph 4).

The number of merchants accepting BNPL payments has also grown strongly in recent years, with some merchants accepting payments from more than one BNPL provider. For example, according to company reports, the number of merchants that accept BNPL payments has more than doubled across the 2 largest providers over the past 2 years. In addition, some BNPL providers now issue virtual cards through their apps that allow customers to pay in instalments for purchases at most merchants that accept online card payments or contactless payments in-store (although some

providers prevent certain transactions such as online gambling and, in some cases, household essentials such as groceries and utilities).

### Competition and business models

There has recently been considerable activity in the BNPL market. A number of Australian and overseas companies have entered the domestic BNPL market and the variety of services offered by BNPL providers has expanded. It is estimated that there are almost 20 BNPL services in the Australian market offered by more than a dozen providers, whereas there was only a small handful of providers a few years ago. Some of the more established BNPL providers have also increased their range of services and other providers of payment services, including banks, have launched products that have similar features to BNPL.<sup>[4]</sup>

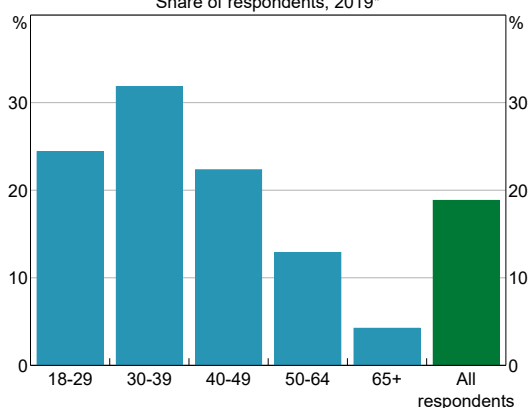
While there is a wider array of BNPL services in the market, a common feature is that BNPL providers make use of the existing card payment 'rails' to process transactions. This is because instalment payments are usually made via stored payment credentials such as a debit card, or less frequently, a credit card.

While details of individual services differ, one way of characterising the available service offerings is according to whether the BNPL provider facilitates transactions within a network of consumers and participating merchants, or whether consumers make purchases using a 'virtual card' that can be used at merchants that accept Visa or Mastercard card payments. Some banks have also launched credit card products with BNPL-like features.

**Graph 4**

#### BNPL Use by Age

Share of respondents, 2019\*



\* Defined as using a BNPL service at least once in the previous 12 months

Source: RBA calculations, based on data from Roy Morgan Research

The most common BNPL business model involves the BNPL provider facilitating transactions by entering into direct agreements with both participating consumers and merchants (see Box A for further details). In this type of ‘two-sided network’, consumers get greater value when a larger number of merchants accept the BNPL service and merchants are more likely to accept BNPL as more consumers adopt it as a means of payment.

Consumers typically establish a BNPL account via the provider’s smartphone app or website; in contrast to credit cards, spending limits are often approved on a per-transaction basis. BNPL services may appeal to consumers partly because they are relatively easy to sign up to and may be viewed as a convenient and cheap way of accessing short-term borrowing for consumer purchases. Merchants that enter into agreements with BNPL providers pay a per-transaction fee for accepting BNPL payments which, as discussed below, tend to be high relative to the cost of accepting debit and credit card payments. Some BNPL providers also note that they offer non-payment services to participating merchants – such as marketing, customer referrals and data analytics – in addition to facilitating payments.

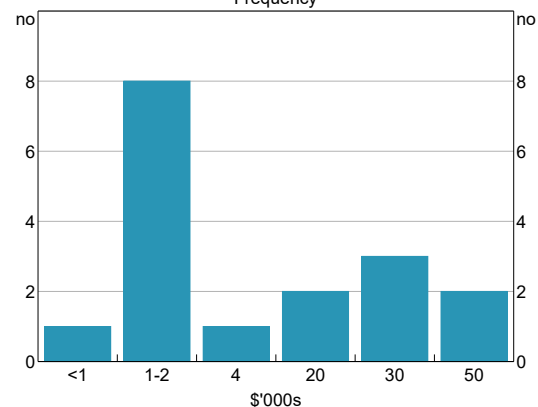
Although there are some common elements, details of the individual services differ across the BNPL providers that operate this type of network model, in terms of borrowing limits, fees and some other features. For example, a number of services facilitate payments (and borrowing) for relatively low-value retail purchases up to an overall limit of around \$1,000 to \$2,000 (Graph 5). The consumer usually pays a portion of the purchase price up front (to the BNPL provider) and the remaining amount in interest-free instalments over terms of around 6 to 8 weeks. Examples of this model include Afterpay, Zip Pay, Humm ‘Little things’ and Klarna. In some cases, consumers do not pay any fees for using this type of service if instalments are paid on time, although they may incur late fees if payments are overdue.<sup>[5]</sup> In other cases, the consumer pays a fixed monthly fee whenever they have amounts outstanding under the service.

A number of other BNPL providers enable borrowing for higher-value purchases, with maximum limits of \$10,000 to \$30,000 (e.g. Openpay, Humm ‘Big things’), and occasionally there are even higher limits available for certain specialised services. In these cases, instalment payments are usually made over longer terms than for the services catering for lower-value purchases. For example, Humm ‘Big things’ has a maximum loan term of 60 months. Products that facilitate higher-value purchases also often charge monthly fees and/or other consumer fees, such as establishment fees and repeat purchase fees.<sup>[6]</sup> While most BNPL providers focus on enabling consumer-to-business payments, a few providers now facilitate business-to-business payments.

An alternative model that has emerged recently enables consumers who have signed up to a particular BNPL service to make payments at a wider range of merchants that accept Mastercard and/or Visa card payments. That is, the BNPL service can be used at merchants that have not necessarily entered into a direct agreement with the BNPL provider. In some cases, the BNPL provider issues a single-use ‘virtual card’ for the transaction (if it is within a pre-approved limit), while another model is that the virtual card is re-usable and comes with an overall limit.<sup>[7]</sup> These virtual cards can be used to make online and/or contactless ‘tap and go’ payments at the point of sale. While at least one BNPL service specialises in the issuance of virtual cards, these cards are more commonly issued by

**Graph 5**

**BNPL Products by Maximum Spending Limit**



Source: Provider websites

providers that also have bilateral merchant acceptance networks (e.g. Zip Pay and Klarna). BNPL providers earn revenue from interchange fees on virtual card payments. While these fees are likely to be lower than those involved in bilateral merchant agreements, the virtual card model extends the range of merchants at which BNPL payments can be made and may, therefore, help the provider build up the consumer side of its network. Merchants that receive virtual card payments would pay fees to their acquirer (e.g. bank), as is the case for other types of card payments.

Another notable recent development has been the involvement of more traditional payment service providers, including some of the major Australian banks, in the BNPL market. One example is CBA's partnership with (and investment in) the Swedish firm Klarna, which is a large global BNPL provider. Another example is Westpac's partnership with Afterpay, which will enable Afterpay to offer Afterpay-branded savings and deposit accounts directly to its customers on Westpac's new digital banking platform (with customers' deposits held by Westpac).

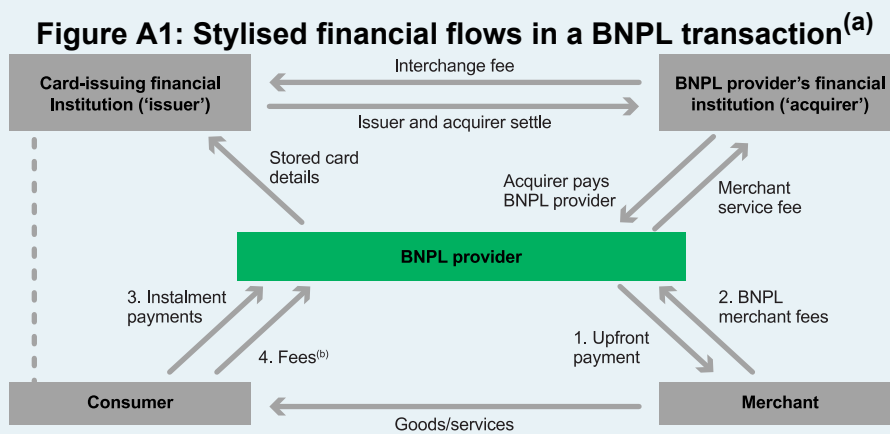
Some established credit card issuers have also responded to the growth in the BNPL sector by introducing instalment payment options for some of their existing credit cards and/or by issuing new cards with similar features to BNPL products. For example, American Express, Commonwealth Bank, Westpac and Citibank enable some cardholders to make credit card repayments in instalments (rather than paying minimum amounts over a longer period). These plans typically allow the cardholder to nominate a single purchase or balance amount to transfer to a monthly instalment option, and may involve a reduced interest rate on the balance and/or a monthly fee. More recently, some Australian banks have started to issue new credit card products with BNPL-like features, including charging monthly fees rather than interest on balances.

Another notable development, with parallels to credit card offerings, has been the introduction of rewards programs by some prominent BNPL providers. BNPL providers have also formed partnerships with mobile wallet providers to enable their customers to transact using mobile wallets for in-person contactless payments.

### Box A: Customer and merchant networks BNPL model

Figure A1 shows that in a number of BNPL arrangements, the BNPL provider pays the merchant the full purchase price at the time of purchase (allowing for processing time) (1), less BNPL merchant fees (2). The customer pays back the BNPL provider in a series of zero-interest instalments, with the first repayment typically made at the time of purchase. Customer repayments are typically made from a linked debit or credit card, although some providers also accept other payment methods such as direct debit from a bank account and/or BPAY (3). The consumer's bank and the BNPL provider's acquirer clear and settle the obligation with each other and when a credit or debit card is used, the BNPL provider's acquirer pays an interchange fee to the card issuer.

While many BNPL services are free for lower-value purchases when consumers make payments on time, there may be fees for late payments, as well as direct fees such as establishment or monthly fees for products that facilitate higher-value purchases (4).



(a) When repayments are made from a linked debit or credit card

(b) May be free to consumers for on-time repayments of smaller balances; missed payments usually attract late fees, and establishment and/or periodic fees may apply for larger balances

Source: RBA

### Merchant costs and surcharging

While BNPL services may be free or inexpensive for consumers (assuming repayments are made on time), the cost to merchants of accepting BNPL payments may be significantly higher than the cost of accepting other electronic payment methods such as credit and debit cards. There are limited data available on BNPL merchant fees, with few providers publicly disclosing their average fees. By way of example, an exception is the largest Australian provider, Afterpay, which reported an average (global) merchant fee of just under 4 per cent for 2019/20; and Zip Co's average fee has been estimated at 3 per cent (Graph 6).<sup>[8]</sup> This compares to an average fee of less than 1 per cent if

the same payment were made directly with a Visa or Mastercard credit card, and less than half a per cent if the customer used a debit card. Moreover, stakeholders have observed that the cost of acceptance for merchants with bilateral arrangements with BNPL providers can be up to 6 per cent or more, with smaller merchants tending to pay higher rates than larger merchants (as is also often the case with card payments; see Occhiutto (2020)). The prices that merchants charge for their goods and services incorporate the costs of running a business, so higher payment acceptance costs lead to higher prices for all customers.

For the Bank, a key issue in relation to BNPL is that most (but not all) merchants that accept BNPL

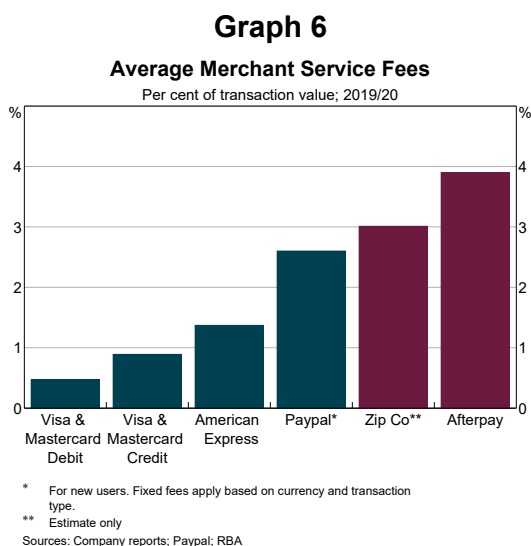
payments are prevented by BNPL providers from levying a surcharge to recover the cost of acceptance from the consumers that directly benefit from using the service.<sup>[9]</sup> This is in contrast to the situation for card payments where the Bank has previously introduced requirements that prevent card schemes from imposing ‘no-surcharge’ rules on merchants. Accordingly, merchants may levy a surcharge, if they wish, to recoup the cost of accepting card payments (while preventing merchants from surcharging excessively).<sup>[10]</sup> While merchants have the right to surcharge, many choose not to exercise the right. The Bank is considering the policy issues raised by BNPL providers’ no-surcharge rules as part of its current Review of Retail Payments Regulation (the Review; see RBA 2019 and RBA 2020).

The Bank’s longstanding view, which has been borne out by experience following the Bank’s reforms in the early 2000s, is that the right of merchants to apply a surcharge promotes payments system competition and keeps downward pressure on payment costs for businesses. If a business chooses to apply a surcharge to recover the cost of accepting more expensive payment methods, it may encourage customers to make the payment using a cheaper option. In addition, the possibility that a consumer may choose to use a lower-cost payment method when presented with a surcharge helps put competitive pressure on payment schemes to lower their pricing policies, indirectly lowering merchants’

payments costs. The possibility of surcharging may also help merchants to negotiate lower prices directly with their payments service provider. By helping keep merchants’ costs down, the right to apply a surcharge means that businesses can offer a lower total price for goods and services to all of their customers. By way of example, despite the fact that they were not regulated, average merchant service fees for American Express credit card transactions have almost halved since the early 2000s, broadly in line with the decline in merchant service fees for Visa and Mastercard. This partly reflected the ability of merchants to surcharge these transactions following the reforms the Bank introduced in the early 2000s. The ability to surcharge can promote competition between payment schemes especially in the case when merchants consider that it is near essential to accept a particular payment method for them to be competitive – that is, if the merchant is of the view that they cannot refuse to accept a payment method in case they lose sales to competitors that do so.

However, payments is a network industry in which service providers must build up both sides of their network – in this case consumers and merchants – to be successful. The more consumers in the network, the more valuable it is to merchants and vice versa. No-surcharge rules can, under some circumstances, play a role in facilitating innovation and the development of new payment methods by helping an emerging payment service provider develop its network – for example, by making the service initially free or low cost for consumers. Accordingly, a challenge for policymakers is determining an appropriate balance between supporting innovation by not overburdening an emerging part of the payments system with regulatory requirements on the one hand, and the costs of no-surcharge rules on the other.

In a speech in December 2020, the RBA Governor noted that the Payments System Board (PSB)’s preliminary view was that the BNPL operators in Australia had not yet reached the point where it was clear that the costs arising from the no-surcharge rules outweigh the potential benefits in terms of innovation (Lowe 2020). No-surcharge



rules may help newer entities compete with the incumbent providers of payment services. The PSB was therefore unlikely to conclude that the BNPL operators should be required to remove their no-surcharge rules right now, which is consistent with the PSB's philosophy of regulating only when it is clear that doing so is in the public interest.

While some stakeholders such as merchants have argued that it is becoming increasingly difficult not to offer BNPL as a payment option on competitive grounds, the available data indicate that BNPL providers account for a relatively small share of Australian consumer payments overall despite recent strong growth. It has also been observed that new BNPL business models are emerging, including some that facilitate payments using virtual cards issued under the designated card schemes (that are subject to the existing surcharging framework), and that this increased competition in the BNPL market could help put downward pressure on merchant costs.

Over time, however, a public policy case could emerge for the removal of the no-surcharge rules in at least some BNPL arrangements. Some of the BNPL operators are growing rapidly and becoming widely adopted by merchants, particularly in certain sectors. In view of this, the Bank is discussing with industry stakeholders possible criteria or thresholds to help determine the point at which it may be in the public interest to require a BNPL provider to remove its no-surcharge rules. In principle, these criteria could take into account factors such as payment shares, use in particular industries and/or consumer adoption of BNPL services. While judgement will be important, numerical thresholds may also play a role, partly because they have the benefits of simplicity and transparency and could

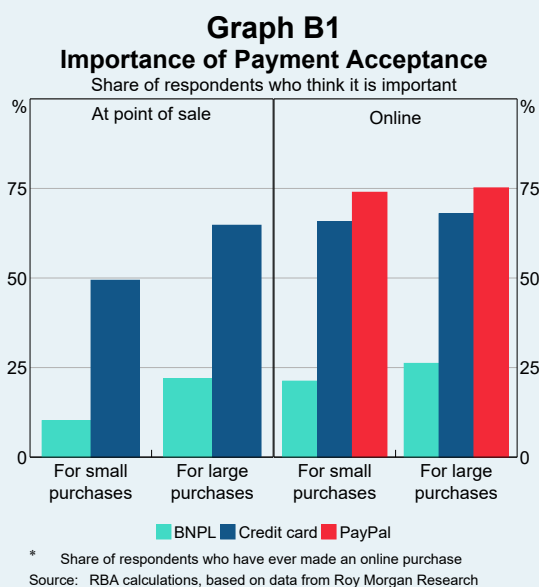
also help manage regulatory uncertainty for the industry.

The related issue will be how to calibrate any thresholds and the Bank is also seeking stakeholder feedback on this question. Qualitative information and judgement will also play a role in determining the point at which there could be a public interest case for the removal of no-surcharge rules. In this regard, the Bank's 2019 CPS provided some information on consumers' expectations for BNPL acceptance and possible responses to a surcharge on BNPL payments (Box B). Although a material share of consumers were of the view that it was important for merchants to accept BNPL, a much higher share expected to be able to pay with cards and other electronic payment methods. Around half of BNPL users reported that they would switch to an alternative payment method if faced with a hypothetical surcharge on BNPL payments; 40 per cent said they would pay the surcharge and around 10 per cent said that they would cancel the purchase. The possibility of purchases being cancelled could mean that merchants could choose not to levy a surcharge on BNPL payments, even if they were able to do so (as tends to be the case for card transactions).

One of the challenges in this area is that currently there is no comprehensive regular collection of data on the BNPL sector, although a number of providers publish certain data as part of their public disclosures. This may require the Bank to work with the BNPL industry to collect more timely and consistent data, for example on transaction flows and average merchant fees.

### Box B: BNPL acceptance and surcharging: Insights from the 2019 CPS

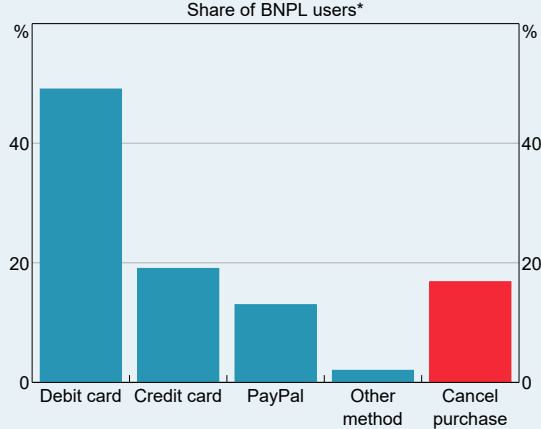
To help gauge the extent to which consumers expect merchants to accept BNPL payments, the 2019 CPS asked participants how important it was to them that merchants offered BNPL as a payment option for ‘small’ and ‘large’ online and in-person purchases. Around 20 to 25 per cent of respondents said that merchant acceptance of BNPL was important to them for online purchases, as well as for large purchases made in person (Graph B1). A significantly higher share – around 65 to 75 per cent – of respondents were of the view that it was important that other electronic payment methods, such as credit cards and PayPal, were accepted for online purchases.



When BNPL users (i.e. those who had made at least one BNPL purchase in the previous year) were asked what they would do when making their most recent BNPL purchase if BNPL were not offered by the merchant, the majority (around 80 per cent) said that they would switch to another payment method, with debit cards the most commonly cited alternative (Graph B2). The remaining 17 per cent of BNPL users said they would cancel the purchase if they could not make the payment using a BNPL service such as Afterpay or Zip Pay. As for the potential response when faced with a hypothetical 4 per cent surcharge on a \$100 online BNPL purchase, around 10 per cent of BNPL users said they would cancel the purchase, while the majority said they would either switch payment methods or pay the surcharge.



**Graph B2**  
**Payment Choice if BNPL Not Available**



\* Respondents who used BNPL at least once in the previous 12 months  
 Source: RBA calculations, based on data from Roy Morgan Research

## Summary

The BNPL market in Australia has been growing rapidly, with strong consumer and merchant adoption, and the range of available services is increasing. While the development of new payment services such as BNPL has the potential to enhance the efficiency of the payments system by providing services that are valuable to end users, stakeholders have observed that merchants are unable to levy a surcharge to recoup the relatively high cost of accepting BNPL payments. Among other things, this has raised issues around the competitive neutrality of payments regulation given that the card schemes are not permitted to impose no-surcharge rules.

The Bank is currently considering the policy issues raised by BNPL providers' no-surcharge rules. While the PSB has not reached any conclusions at this time, its preliminary view is that the BNPL operators in Australia have not yet reached a point where it is clear that the costs arising from a no-surcharge rule outweigh the potential benefits in terms of innovation. Over time, however, a public policy case could emerge for the removal of the no-surcharge rules in at least some BNPL arrangements. Bank staff are continuing to engage with stakeholders on this issue, including on potential criteria for determining the point at which it may be in the public interest for no-surcharge rules to be removed. ✎

## Footnotes

- [\*] The authors are from Payments Policy Department
- [1] BNPL services often have features which mean they generally fall outside the scope of the *National Consumer Credit Protection Act 2009* (NCCPA), such as only charging low and/or flat fees (rather than interest) to consumers. The Australian Securities and Investments Commission (ASIC) has reviewed developments in the BNPL market, with a focus on the impact of BNPL arrangements on consumers (see ASIC (2020)).
- [2] These figures are broadly consistent with data in ASIC's 2020 report on the BNPL sector, though there are slight differences in coverage of BNPL providers. In comparison, overall debit and credit card spending increased by around 11 per cent between 2017/18 and 2019/20.
- [3] The CPS asked a representative sample of over 1,000 Australian consumers to record details of every transaction they made for a week in October/November 2019, as well as further details about their payment preferences (including in relation to BNPL) in a separate questionnaire. The 2019 CPS separately identified BNPL as a payment method for the first time. See Caddy, Delaney and Fisher (2020) for further discussion of the survey methodology and results.
- [4] An example of a well-established payments service provider launching a BNPL product is PayPal's 'Pay in 4' option in the United States which PayPal recently announced will be launched in Australia in June.
- [5] Some stakeholders have raised concerns about the proportion of customers who have missed repayments to BNPL providers. See ASIC (2020) for a discussion of the late payment fees charged by BNPL providers from a consumer protection perspective.
- [6] Some providers of these types of products have noted that, even though BNPL services are usually not covered by the provisions of the NCCPA, they may undertake various checks of a customer's repayment capacity (e.g. credit checks and verification of employment and bank account information). The Australian Financial Industry Association (AFIA) launched a Buy Now Pay Later Code of Practice on 1 March, which sets out industry standards for BNPL providers to conduct suitability assessments before a potential customer can make a purchase.
- [7] Virtual cards are digital-only versions of debit, credit or prepaid cards that have been integrated into some BNPL services. As with a physical card, the virtual card details can be entered at checkout on a merchant's website to make online purchases; some virtual cards can also be stored in users' digital wallets and used to make contactless payments at the point of sale.
- [8] Data on revenue by source in ASIC (2020) showed that the majority of BNPL revenue was from merchant fees, though shares differed notably across the 6 providers covered. Other sources of revenue were consumer fees, including missed payment fees.
- [9] Some large merchants such as airlines do impose surcharges on BNPL arrangements. For example, Jetstar applies a payment surcharge of 1.5 per cent for Afterpay transactions.
- [10] The revised surcharging framework was put in place following the Bank's 2015–16 review of card payments regulation and is enforced by the ACCC. For a discussion of the economics and enforcement of surcharging regulation in card payments systems see Dark *et al* (2018).

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# Determinants of the Australian Dollar Over Recent Years

Tim Atkin, Isabel Hartstein and Jarkko Jääskelä<sup>[\*]</sup>



Photo: John White Photos, d3sign – Getty Images

## Abstract

The exchange rate is influenced by a number of domestic and international factors. Two key fundamental determinants of the exchange rate are the terms of trade and differences between interest rates in Australia and those in major advanced economies. Since the end of the mining boom, the decline in the terms of trade and easing in domestic monetary policy, including the recent introduction of quantitative easing measures, have contributed to the depreciation of the Australian dollar. On a shorter-term basis the Australian dollar has also moved closely with prices in other international financial markets in response to changes in global risk sentiment.

The Australian dollar has depreciated on a trade-weighted (TWI) basis from its peak in 2013 following the end of the mining boom.<sup>[1]</sup> Over the same period, monetary policy in Australia has been eased while interest rates in other advanced economies have remained low. As a result, the difference between interest rates in Australia and those in major advanced economies – the interest rate differential – has declined (Graph 1). Australia's terms of trade – the ratio of export to import prices – has also declined from its peak at the height of the mining boom despite some large swings in commodity prices over recent years. The Australian

dollar reached its lowest level since the early 2000s during the period of heightened market stress related to the COVID-19 outbreak in March 2020.<sup>[2]</sup> Since then the Australian dollar has appreciated as the prospects for a recovery in global growth have improved and commodity prices have increased, but it remains well below its 2013 peak.

The terms of trade and interest rate differentials are key determinants of the Australian dollar over the medium to longer run.<sup>[3]</sup> These determinants provide information about the expected demand for Australian dollars. For example, the interest rate differential captures expectations about returns on

Australian dollar assets relative to those on comparable assets elsewhere in the world, which influences the demand for Australian dollars. These relationships have been observed over long periods of time and feature prominently in the Reserve Bank's suite of exchange rate models, including the forward-looking model of the Australian dollar (Chapman, Jääskelä and Smith 2018). This model estimates the real TWI (RTWI) based on historical relationships with the Reserve Bank's forecasts for the terms of trade and information from different maturities across the (real) yield curve in Australia relative to the major advanced economies.

The level of the Australian dollar has typically been consistent with the model estimates implied by these fundamental determinants (Graph 2). However, the relationships do not hold precisely and the Australian dollar has deviated noticeably at times from what these determinants imply. This occurs periodically when shorter-term developments in global financial markets, such as changes in investor attitudes to risk (or 'risk sentiment'), influence the behaviour of market participants. For example, during the period of heightened market stress related to the COVID-19 outbreak in March 2020 the RTWI depreciated by more than what the model suggested based on the longer-term determinants alone.

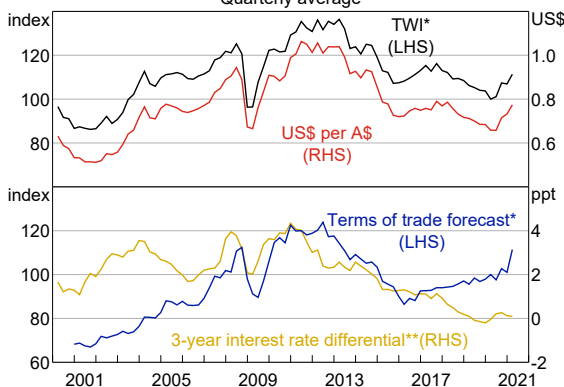
## The role of monetary policy and interest rates

The structure of interest rates – or the yield curve – in the Australian economy affects demand for Australian dollars and so the exchange rate. Yield curves typically capture information about expectations for the future path of monetary policy, inflation and economic activity. However, it is ultimately the interest rate differential between Australia and other advanced economies that matters for the exchange rate. For example, if interest rates in Australia decline relative to those of other advanced economies, returns on Australian dollar assets become less attractive for investors, putting downward pressure on the currency. In contrast, if interest rates in Australia and other economies declined by similar amounts, the interest rate differential would be little changed (other things being equal). In this case there would be little incentive for investors to shift the allocation of their portfolios across economies and little effect on the exchange rate.

## Trends in short-term interest rates

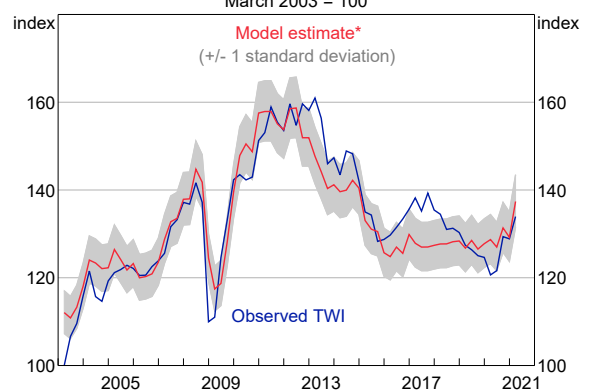
Policy rates in a number of major advanced economies fell sharply in the aftermath of the global financial crisis and short-term interest rates converged to around zero. In contrast, policy rates in Australia remained higher than in most other advanced economies for a number of years following the global financial crisis (Graph 3). This

**Graph 1**  
**Australian Dollar**  
Quarterly average



\* Indexed to March 2020  
\*\* Spread to United States, Japan and Germany, weighted by GDP  
Sources: Bloomberg; RBA

**Graph 2**  
**'Equilibrium' Real TWI**  
March 2003 = 100

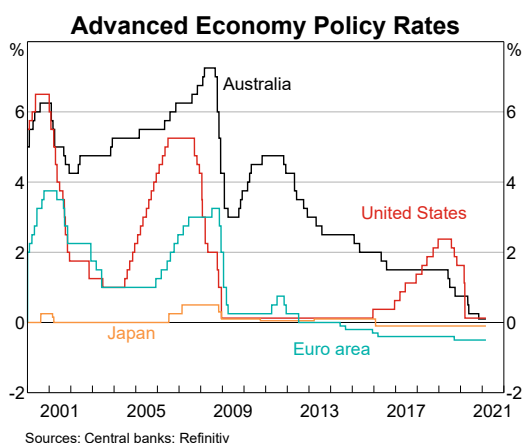


\* Using terms of trade forecast and Australia-G3 government bond yield differential over entire yield curve; standard deviation based on model errors  
Source: RBA

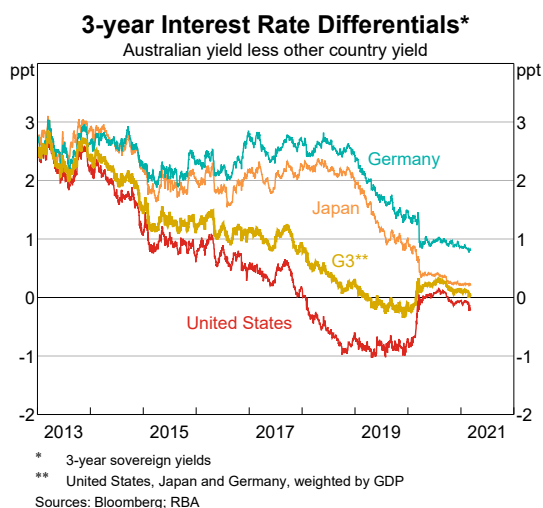
reflected the relatively good performance of the Australian economy over this period, which was related to the resources boom and the associated high level of investment, as well as the relative absence of stresses in the domestic financial system.

Since 2013, the Reserve Bank has eased monetary policy, reducing the policy rate from 3 per cent to 0.1 per cent. The interest rate on 3-year Australian Government Securities (AGS) declined and the Reserve Bank introduced a 3-year yield target on AGS in March 2020 that was adjusted in November 2020 to be 0.1 per cent. Australia's 3-year interest rate differential with other major advanced economies has declined by more than 2 percentage points; this decline has been one of the main drivers behind the depreciation of the Australian dollar over this period (Graph 4).

**Graph 3**



**Graph 4**



**Unconventional policy measures and the exchange rate**

As policy rates reached very low levels, a number of central banks introduced unconventional policies, such as quantitative easing measures, whereby central banks purchase government bonds in the secondary market with the aim of lowering longer-term interest rates. In doing so, these quantitative easing measures also affect the exchange rate. There are 2 widely discussed channels in the literature through which quantitative easing policies flow through to interest rates and the exchange rate:<sup>[4]</sup>

- The **signalling channel**: the announcement of quantitative easing serves as a commitment by the central bank to keep short-term policy rates at a low level for an extended period of time. The structure of interest rates is lowered as longer-term interest rates respond to expectations about the future path of short-term interest rates. The importance of this channel depends on the extent to which market participants would have otherwise expected a higher policy rate.
- The **portfolio balance channel**: when the central bank purchases government bonds with longer maturities, the prices of these assets rise and interest rates decline. This can induce investors to rebalance their portfolios away from government bonds towards other assets with higher returns. If investors rebalance their portfolios towards offshore assets, this is likely to result in a depreciation of the exchange rate.

A number of international studies have examined the effect of quantitative easing measures on macroeconomic and financial variables.<sup>[5]</sup> There is a broad consensus in the literature that asset purchase programs expand central banks' balance sheets, lower interest rates on government bonds, and contribute to the exchange rate being lower than otherwise, albeit by varying degrees (see below). In general, the effect of quantitative easing is conceptually comparable to the effect of an easing in conventional monetary policy, in that it lowers interest rates and this leads to a depreciation in the exchange rate, all else equal.

## The introduction of quantitative easing in Australia and the exchange rate

In November 2020, the Reserve Bank introduced a bond purchase program that complemented the package of measures that had been introduced earlier in 2020, including the 3-year yield target. The bond purchase program included purchasing \$100 billion of AGS at maturities of around 5 to 10 years over a period of about 6 months. These measures have helped to lower interest rates in the Australian economy and has meant that the Australian dollar is lower than otherwise. One reason for introducing the bond purchase program was that longer-term interest rates in Australia were higher than those in other advanced economies because central banks abroad had introduced new or expanded asset purchase programs in response to the economic and financial disruptions associated with the pandemic (Graph 5).<sup>[6]</sup>

Relatively high longer-term interest rates in Australia following the peak of the crisis in March 2020 contributed to upward pressure on the Australian dollar exchange rate.

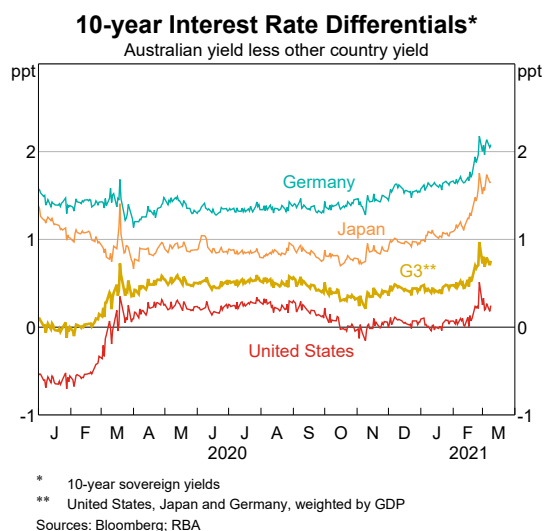
In the months leading up to the announcement of the bond purchase program in November 2020, market participants anticipated further policy easing by the Reserve Bank. The interest rates on 3-year and 10-year AGS declined and the Australian dollar depreciated by around 5 per cent on a TWI basis over the period from early September to early November (Graph 6). Over the same period,

commodity prices were little changed, although other financial market developments may have also played a role in the depreciation of the exchange rate. For example, during the first half of September there was a decline in US equity prices that was associated with a decline in risk sentiment globally. These developments make it difficult to isolate the specific effect of the policy measures introduced in November. Despite the high degree of uncertainty around estimating the effect of the bond purchase program on the exchange rate, the decline in interest rate differentials that occurred over this period would typically suggest around a 1 to 2 per cent depreciation based on historical relationships. However, it is possible that a larger share of the observed depreciation could also be attributed to the decline in interest rates and the bond purchase program.

Since November 2020 the exchange rate has appreciated, consistent with the increase in commodity prices which has occurred against the backdrop of more positive sentiment about a recovery in global growth (see below). Then in February, the Reserve Bank announced that it would purchase an additional \$100 billion of bonds when the current bond purchase program is completed. There was little additional effect on the exchange rate from this announcement, which suggests that it had already been largely anticipated by markets.

So while there is uncertainty around estimates of the effect, by lowering the structure of interest rates in the Australian economy, the Reserve Bank's policy measures have contributed to a noticeably lower exchange rate than otherwise.

**Graph 5**



## Evidence on the relationship between interest rates and the exchange rate

Both conventional policy easing and quantitative easing measures lower the structure of interest rates in an economy and result in a depreciation of the exchange rate all else being equal. However, the maturities of interest rates that are affected will be different and there is a wide range of estimates around the size of the effect on the exchange rate. As a result, an important question that has emerged has been how changes in different parts of the yield

curve might affect the exchange rate. Event studies are a widely used method in the international literature for examining the effect of interest rates, and quantitative easing measures, on the exchange rate (see, for example, Ferrari, Kearns and Schrimpf (2017), Swanson (2020) and Gagnon (2016) for a survey of QE event studies). This type of study relies on high frequency data and focuses on a narrow window around central bank policy announcements to isolate the effect of these announcements on the exchange rate and other asset prices.

Changes in conventional policy are reflected in policy rates and shorter-term interest rates (maturities at around 2 to 3 years), which are typically found to have a larger effect on the exchange rate than changes in longer-term interest rates.<sup>[7]</sup> Nonetheless, quantitative easing measures that lower longer-term interest rates are also found to result in a depreciation of the exchange rate, all else equal. A range of international studies that analyse the effect of quantitative easing have shown that an announcement that reduces long-term bond yields by 100 basis points typically results in a 3–9 per cent depreciation of the exchange rate. However, there is not a clear consensus in the literature around the magnitude of the effect compared with conventional monetary policy.<sup>[8]</sup>

From an Australian perspective, the relationship between the structure of interest rates in the

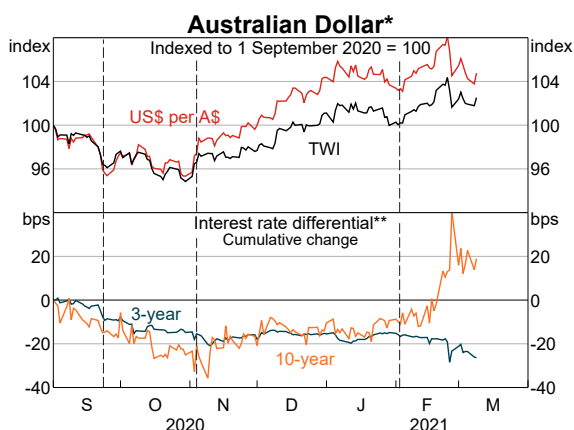
economy and the exchange rate appears consistent with international evidence. Estimates from a range of exchange rate models, including Chapman *et al* (2018), and event studies around the Reserve Bank's policy announcements suggest that a decline in both shorter-term and longer-term AGS interest rates result in the exchange rate being lower than otherwise.<sup>[9]</sup> Changes in shorter-term interest rates are typically found to have a larger effect on the exchange rate, and some studies have highlighted that the sensitivity of the exchange rate to changes in interest rates has increased over time as policy rates have declined to low levels. However, similar to international studies there is a high degree of uncertainty around the estimated effects of quantitative easing measures in Australia, partly because unconventional policy measures have only recently been introduced here.

### Commodity prices and the terms of trade

Australia's terms of trade are another key fundamental determinant of the Australian dollar over the medium to longer term. Movements in the terms of trade are influenced by changes in commodity prices, reflecting the fact that commodities account for a large share of Australia's exports. Typically, an increase in commodity prices flows through to an increase in the terms of trade and this is associated with an appreciation of the exchange rate and similarly, a decline in the terms of trade is associated with a depreciation of the exchange rate. Estimates from the Chapman *et al* (2018) model suggests that, on average, a 10 per cent increase in the terms of trade forecast is associated with an appreciation of around 5–7 per cent in the Australian dollar real TWI (Graph 7).

One good example of the relationship between commodity prices and the exchange rate was during the resources boom over the decade from the early 2000s. Global commodity prices rose reflecting strong demand from China, so Australia's terms of trade increased significantly. These developments led to large inflows of foreign capital into Australia to help fund an expansion of capacity in the resources sector and a more positive outlook for the Australian economy more generally.<sup>[10]</sup> This

**Graph 6**



\* Dashed lines at key news days for the bond purchase program: 22 September, 3 November and 2 February

\*\* Spread to United States, Japan and Germany, weighted by GDP  
Sources: Bloomberg; RBA



resulted in increased demand for the Australian dollar and it appreciated significantly through to around 2013.

The Australian dollar has depreciated since its peak in 2013. While the depreciation was associated with the decline in the terms of trade as commodity prices fell, there have been periods where the relationship between commodity prices and the exchange rate has appeared less clear. One way to illustrate this is to consider a simple correlation of weekly changes between movements in the Australian dollar and RBA's index of commodity prices (ICP) (Graph 8).<sup>[11]</sup> Typically there is a positive correlation, but over the period from late 2017 through to 2019, the correlation declined to around zero.

Movements in the Australian dollar and commodity prices appear more synchronised when commodity prices are driven by *persistent*, that is relatively long-lasting, shifts in demand and supply. These types of developments are more likely to flow through to investment decisions and the medium-term outlook for economic growth but also reflect a more positive outlook for the global economy. In contrast, commodity price movements related to *temporary* factors, such as supply disruptions, are less likely to influence the medium-term outlook and the exchange rate.

For example, the increase in the price of iron ore over much of 2019 was associated with temporary supply disruptions in Brazil and Australia. Because these price movements were expected to be short lived, they did not lead to large increases in capacity or production by Australian producers. In addition, the increase in mining profits from higher commodity prices did not boost domestic household incomes noticeably.<sup>[12]</sup> As a result, it is not surprising that the exchange rate did not move closely with commodity prices over this period.

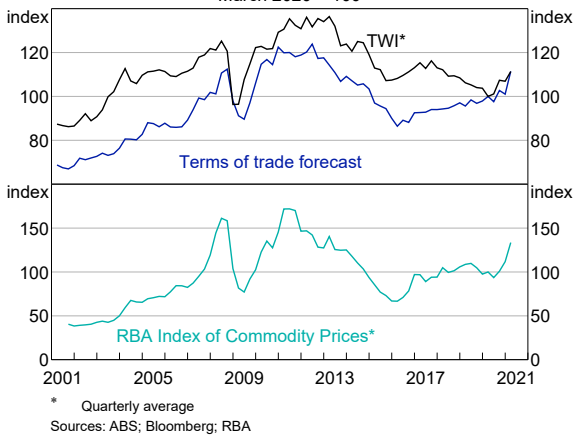
However, since late 2020 commodity prices have been more closely associated with movements in the Australian dollar. Indeed, the appreciation of the Australian dollar since November 2020 has been broadly consistent with the increase in commodity prices. These developments have occurred against the backdrop of improving expectations for a recovery in global growth. Over this period, the price of iron ore increased significantly because of stronger Chinese demand for steel, and is around its highest level in a decade. In this environment, improved investor sentiment supported demand for a variety of 'risk-sensitive' assets, including equities, many commodities, and the Australian dollar.

The relative importance of supply and demand drivers for iron ore prices in early 2019 and late 2020 can be quantified by using econometric models, such as the commodity factor price model of Cunningham and Smith (2019). This model decomposes price movements into changes that are specific to iron ore, common to all bulk commodities, or common across all commodities (Graph 9). In early 2019, the increase in iron ore

**Graph 7**

**TWI, Terms of Trade and Commodity Prices**

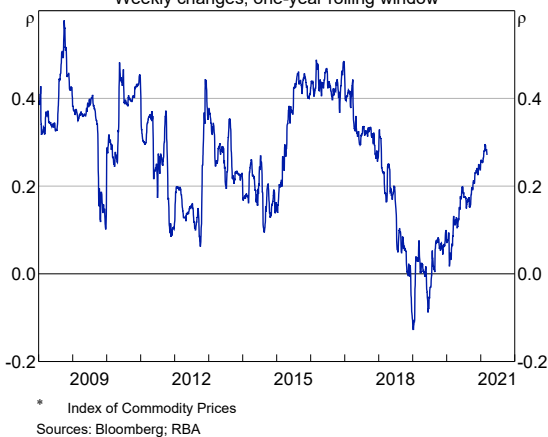
March 2020 = 100



**Graph 8**

**TWI Correlation with RBA ICP\***

Weekly changes; one-year rolling window



prices was largely attributed to developments specific to the iron ore market as a result of temporary supply disruptions (the yellow bars in Graph 9). In late 2020, the iron ore price was mostly driven both by demand growth across all commodities, and bulks specifically (the blue and green bars in Graph 9). This comparison highlights that it is important to understand the nature of commodity price shocks when analysing the role that commodity prices play in driving exchange rate movements.

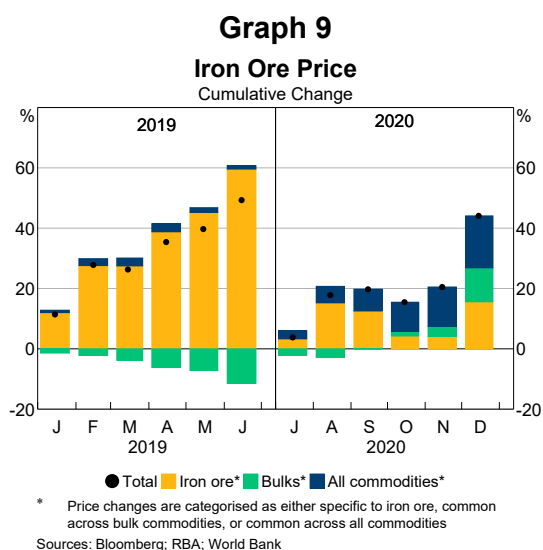
### Shorter-term factors and developments in other financial markets

Over time Australian financial markets, including the foreign exchange market, have become more closely integrated with the global financial system (Jacobs 2019). The Australian dollar is the fifth most traded currency globally, and the AUD/USD is the fourth most traded currency pair (Guo, Ranasinghe and Zhang 2019). Turnover of the Australian dollar has increased alongside global turnover of all currencies (in US dollar terms) over recent years, and most of the increase in turnover has been recorded in offshore markets. So although the fundamental determinants (discussed above) are important for understanding longer-term movements in the exchange rate, in the shorter term other factors can be important in influencing the behaviour of participants in foreign exchange markets and thus the exchange rate.

One of these additional factors is the attitudes of market participants towards risk (or ‘risk sentiment’). While risk sentiment is not directly observable, changes in risk sentiment are typically associated with asset price changes across a range of financial markets. The Australian dollar is historically more volatile than most other advanced economy currencies, and market commentators often link movements in the exchange rate with developments in the outlook for global growth. Indeed, the Australian dollar is typically considered a ‘risk-sensitive’ currency.

One way to highlight the role that risk sentiment plays in influencing the Australian dollar is through its correlation with prices of risk-sensitive assets, such as US equities. Price movements in these markets are typically considered to capture information about changes in the outlook for risks and global growth. Each episode of risk aversion can have different underlying drivers and occur amid different macroeconomic circumstances, but usually the Australian dollar depreciates. Movements in the Australian dollar have been highly correlated with movements in US equities at different points in time over the past decade. This was particularly evident over 2020 when movements in the Australian dollar broadly followed those in US equity markets – depreciating during the height of financial market stress in March before appreciating alongside the rise in equity prices as conditions in global financial markets improved and the outlook for global growth became more positive (Graph 10). Similar co-movement between the Australian dollar and US equities was observed during the global financial crisis.

The high correlation between movements in the Australian dollar and US equities during periods of heightened financial market volatility can also reflect dynamic hedging practices by Australian asset managers. Asset managers, such as superannuation funds, often maintain a pre-set hedging ratio on their foreign asset portfolios to reduce exchange rate risk.<sup>[13]</sup> When there is a sharp decline in US equity prices, the value of assets denominated in foreign currencies declines and the share of the portfolio that is hedged increases



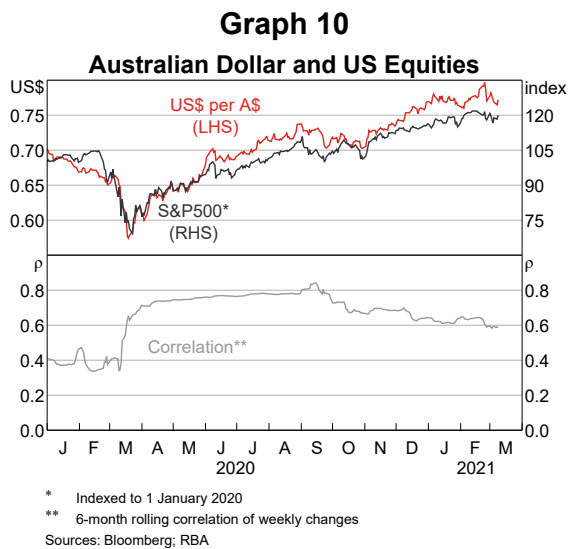
above the targeted ratio. Asset managers sell Australian dollars to reduce the value of their currency hedge in maintaining their pre-set hedging ratios.

The recent COVID-19 episode also highlighted that during periods of heightened financial market volatility and risk aversion short-term Australian dollar movements can be very sharp. The Australian dollar typically depreciates during these episodes as demand for 'safe-haven' currencies such as the US dollar increases. Also, during periods of financial market volatility unwinding of 'carry trades' can exacerbate a depreciation in the exchange rate. A carry trade generally involves borrowing money in a low-yielding currency (such as the Japanese yen) and investing in a high-yielding currency (such as

the Australian dollar). Historically, carry trades have been an important driver of the Australian dollar, at least periodically, but as interest rates have converged they may have become a less important driver because even a small depreciation can make the trade unprofitable.<sup>[14]</sup>

## Conclusion

Australia is a small trade-exposed economy and is closely integrated with global capital markets. The flexible exchange rate allows the Reserve Bank to set monetary policy in a way that responds to domestic economic conditions to achieve its objectives. It also means the Australian dollar is influenced by international developments. The terms of trade and interest rate differentials are key fundamental determinants of the Australian dollar over the medium to long term. The decline in the terms of trade since the end of the mining boom and the decline in interest rate differentials over a number of years have been important drivers of the depreciation of the Australian dollar on a trade-weighted basis since its peak in 2013. The easing of domestic monetary policy over a number of years, including the recent introduction of quantitative easing measures, have contributed to a lower structure of interest rates in Australia and the exchange rate being lower than it would otherwise have been. ❖



## Footnotes

- [\*] The authors are from International Department and would like to thank Nicole Adams, Anthony Brassil, Jason Griffin, Rochelle Guttmann, Fred Hanmer, Alex Heath and David Jacobs for contributions to work that has benefited this article, and for their thoughtful advice and suggestions.
- [1] The Australian dollar TWI peaked in 2013, while the Australian dollar peaked against the US dollar in 2011.
- [2] For more information on developments in foreign exchange markets around the height of the COVID-19 pandemic, see RBA (2020a).
- [3] There is also an RBA Explainer on the ‘Drivers of the Australian Dollar Exchange Rate’.
- [4] The literature highlights other channels that may vary in importance over time depending on conditions in financial markets. For example, during periods of stress when demand for liquidity is high, central banks can support market functioning by purchasing bonds.
- [5] See CGFS (2019), Swanson (2020), Dedola *et al* (2020), Inoue and Rossi (2019) and Beck, Duca and Strassa (2019) for a review of the literature on quantitative easing and its effects on different financial markets and the economy.
- [6] See Vallence and Wallis (2020) for more information about the response by central banks in advanced economies to COVID-19.
- [7] The 3-year yield on Australian Government Securities (AGS) influences funding rates across much of the Australian economy and is also important for financial markets, including foreign exchange markets. For more information see Lowe (2020).
- [8] For example Neely (2011) finds that quantitative easing measures have a smaller effect than would be expected by a change in yields of a similar magnitude from conventional policy, while Glick and Leduc (2018) find the opposite.
- [9] Ferrari *et al* (2017) provide estimates of the exchange rate effect from a change in central bank policy decisions using an event study methodology for a range of advanced economies, including Australia. (See also Curcuru (2017) for estimates related to the US dollar.) The estimates indicate that a 100 basis point increase in 2-year and 10-year yields corresponded to an exchange rate appreciation of around 5½ per cent and 4½ per cent respectively. Estimating a similar model with more recent data and a slightly longer time window around the policy announcements suggests a somewhat lower sensitivity of the Australian dollar to interest rate changes. The difference in estimates highlights that there is a high degree of uncertainty. However, the updated estimates also suggest that the sensitivity of the Australian dollar to yields appears to have increased over time, which is consistent with Ferrari *et al* (2017).
- [10] For more information on the resources boom and the Australian dollar see Kent (2014).
- [11] The ICP is an index of Australian commodity export prices, weighted by share of annual export value. Iron ore accounts for 30 per cent of the ICP. See: <https://www.rba.gov.au/statistics/frequency/commodity-prices/2020/weights-icp-20200401.html>
- [12] For more information on the 2019 increase in iron ore prices and the implications for the Australian economy, see RBA (2019a)
- [13] Australian investors, such as superannuation funds, hedge the currency risk on offshore assets by using forward foreign exchange contracts, where the investor enters into a forward contract to convert foreign currency back into Australian dollars. This practice contrasts with that of offshore investors investing in Australia who tend to implement lower hedging ratios.
- [14] For more information on the ‘carry trade’, see RBA (2019b) and D’Arcy and Zurawski (2009).

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# Understanding the East Coast Gas Market

Timoth de Atholia and Aaron Walker<sup>[\*]</sup>



Photo: grandriver – Getty Images

## Abstract

Wholesale gas prices on the east coast have become linked to LNG export prices since 2015. This is because local gas producers can now sell into international markets through the 3 Queensland LNG export terminals. Wholesale prices will continue to be influenced by LNG export prices as long as this option is available. Contracted prices apply to the bulk of east coast gas demand and production. Contracted gas prices are likely to remain structurally higher than their pre-2015 levels over coming decades, reflecting higher marginal costs of domestic production.

## Introduction

East coast wholesale (spot) gas prices increased sharply from around 2015, and in subsequent years averaged roughly double the level in the first half of the decade (Graph 1). Prices in new longer-term contracts, which underpin supply to large users such as firms and energy retailers, also increased strongly as legacy contracts expired. Wholesale prices fell sharply during 2020, while contracted prices for 2021 decreased to \$6–10/GJ (ACCC 2021).

In this article we explore developments in the east coast gas market and the key drivers of domestic gas prices. We begin with some background on the

demand and supply of gas on the east coast, including how the market is structured. We then consider the main arguments put forward to explain price developments since 2015 and assess their relative importance. We conclude with the outlook for domestic gas demand, supply and prices in light of our findings. Possible policy changes and technological advancements that could impact demand and supply going forward are also noted.

## Demand and supply in the east coast gas market

There are 3 main end uses for natural gas:

- industrial uses, including chemical processing;
- residential and commercial uses (e.g. cooking and heating by households and businesses); and
- electricity generation via gas-fired power plants.

A fourth category of demand is export demand. Gas is super-cooled to become liquid ('liquefied natural gas' or LNG) so it can be economically transported to other countries to supply those 3 end uses (Cassidy and Kosev 2015).

Prior to 2015, gas demand on the east coast was roughly split 40/30/30 across industrial, residential and commercial, and electricity generation (Graph 2). Since then, the development of Queensland's LNG export capacity has led to a significant increase in gas demand, with these export projects accounting for almost three-quarters of total demand for gas on the east coast in recent years. Over the same period domestic usage of gas has decreased somewhat; some gas-fired electricity generation has been replaced by renewable energy sources, while higher gas prices have prompted a demand response from some industrial gas users. In aggregate, ABS input-output tables indicate that gas accounted for less than 2 per cent of total costs for even the most gas-intensive manufacturing sub-industries in 2017/18 (glass and glass products, and basic chemical manufacturing). Nonetheless, for some firms gas can comprise a much larger share of total costs

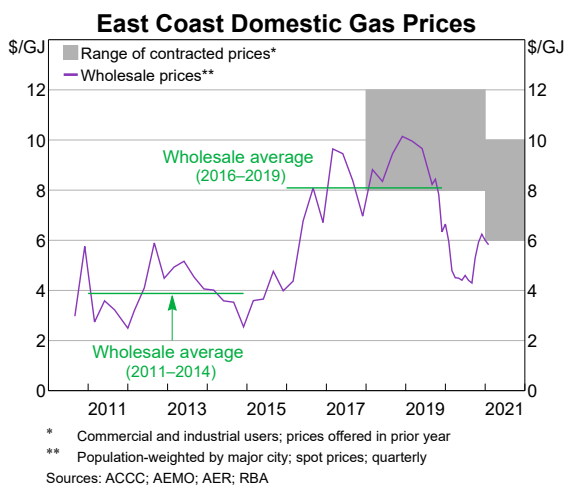
(such as plastics, ceramics, fertiliser and explosives manufacturers).

Traditionally, 'conventional' projects produced gas as a by-product of oil production. Unconventional deposits (including coal seam gas (CSG)) typically do not contain oil, and so involve higher production costs; these deposits account for 90 per cent of the east coast's known remaining gas reserves. The shift towards CSG production has therefore increased the marginal cost of production on the east coast. Analysis conducted for the Australian Competition and Consumer Commission (ACCC) indicates that the median cost of production from CSG deposits is around 35 per cent higher than remaining conventional deposits (Core Energy and Resources 2018). New sources of east coast supply have also been constrained by state government restrictions on onshore exploration and development in New South Wales, Victoria and Tasmania. In line with these developments, wholesale gas prices in 2021 are estimated to be around \$7-8/GJ (ACCC 2020), significantly higher than the \$3-5/GJ range observed prior to 2015.<sup>[1]</sup>

**Market structure**

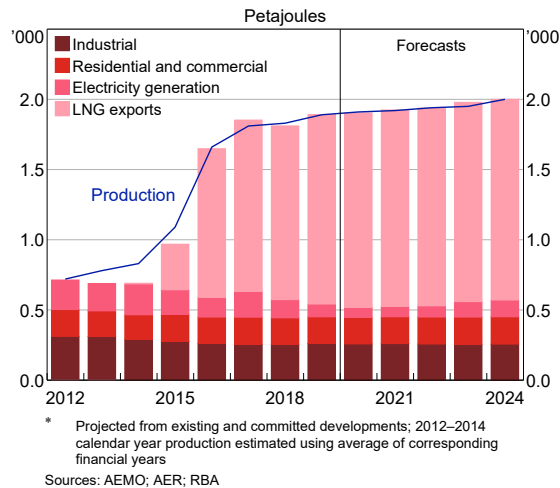
The east coast gas market is heavily contract based, with only a small share of production traded on the wholesale (spot) market. This is because long-term contracts provide producers the confidence to invest in new gas supply, and large gas users the

**Graph 1**



**Graph 2**

**East Coast Gas Demand and Production\***





confidence to invest in new gas-consuming projects.

Domestic gas contracts can range from 1–10 years in length, with terms at the shorter end of this range becoming more prevalent recently as prices have risen. There is limited information regarding the commercial terms underlying these contracts. While pricing arrangements can be diverse, liaison and public information indicates that fixed price contracts are not uncommon. Contracted gas prices usually incorporate a premium over wholesale (spot) prices due to the certainty and longevity of supply being provided. Wholesale prices reflect any excess demand and supply of gas in the domestic market at a particular point in time. Because these volumes are small, wholesale prices can be volatile.

LNG export contracts are much longer than those in the domestic market, at around 20 years in length. This underpins the very large capital costs associated with constructing new LNG plants and export facilities. Pricing under LNG export contracts is typically linked to oil prices with a lag of around 3 months (Cassidy and Kosev 2015). The remaining capacity at LNG plants can be used to produce ‘spot’ or un-contracted cargoes. Similar to wholesale domestic prices, spot LNG prices reflect excess demand and supply of LNG at a point in time. Spot cargoes sold into Asian markets are typically priced off the Japan Korea Marker (JKM).

### Understanding pricing developments since 2015

The increase in both wholesale and contracted gas prices on the east coast since 2015 has attracted a lot of attention. Regulators, energy market contacts in the Reserve Bank’s liaison program<sup>[2]</sup> and market commentators generally attribute the increase in domestic gas prices to one or more of the following:

- the development of the 3 Queensland LNG projects linking domestic prices to international prices;
- insufficient domestic gas supply; or
- increases in domestic gas production costs.

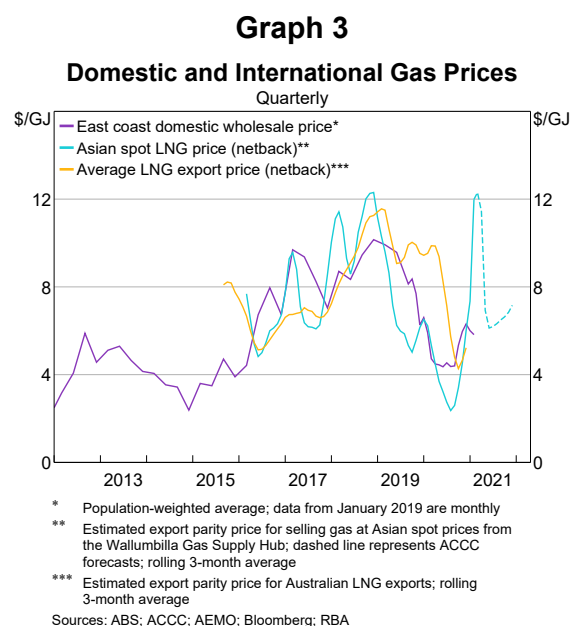
When assessing the relative importance of these factors it is important to clarify which market – the

wholesale or contract market – is being referred to. We find the first argument does the most to explain price developments in the domestic *wholesale* market since 2015. The third argument is likely to be driving structurally higher prices in the domestic *contract* market. While wholesale prices only apply to a very small proportion of total gas production on the east coast, data for this market are more readily available so we will start there.

### Wholesale gas prices

We compare wholesale gas prices with estimates of the prices a local producer could obtain by instead selling their gas as LNG to international buyers. This is called a ‘netback’ price, which is the price an LNG seller receives minus the costs of liquefying the gas and transportation (shipping) required to get the gas to the buyer. As illustrated in Graph 3, movements in wholesale prices have moved broadly in line with estimated LNG netback prices since 2015. In particular, it appears that wholesale prices are most closely correlated with *spot* international LNG prices. The strong divergence in pricing outcomes between spot and average LNG export prices in 2019 provides the clearest support for this, as wholesale prices more closely followed the spot LNG price.

Evidence suggests that the development of the 3 Queensland LNG export projects has created a link between domestic east coast gas prices and



international gas prices. This link was created because there is spare export capacity at the LNG projects – giving local gas producers the option to sell into international markets. In aggregate these projects had around 15 per cent spare capacity available in 2018/19 and 2019/20, which was equivalent to around two-fifths of domestic demand in 2019.

However, the development of LNG export terminals does not *necessarily* link domestic prices to international prices. The Western Australian experience provides an example of this. Despite several large LNG export projects being developed in Western Australia over the past 5 years domestic gas prices in the state have remained low and seemingly uncorrelated with international prices. Liaison and public information indicate that Western Australian gas prices are around half the levels observed on the east coast since 2015. Lower gas prices in Western Australia are widely attributed to the state government’s domestic gas reservation policy. The policy requires LNG project owners to make gas equivalent to 15 per cent of exports available to the domestic market (domestic gas plants must typically be constructed as part of the LNG export project), increasing supply in the WA domestic gas market. The reservation policy also prevents gas from domestic-facing projects from being sold overseas (McGowan 2020), so international and domestic prices remain unlinked, and only domestic demand and supply determine local prices. With domestic gas demand remaining little changed in recent years many contacts have described the WA domestic market as ‘oversupplied’.

### Contracted prices

The lack of data regarding the domestic contract market makes it harder to draw strong conclusions about the drivers of recent price developments. However, the ACCC’s inquiry into gas supply arrangements in Australia and information from the Bank’s liaison program provide some indications.

Increases in domestic production costs are likely to affect contracted domestic gas prices more than wholesale prices. Liaison contacts note that longer-run production costs and contract terms,

particularly around length and reliability requirements, are key determinants of contracted prices. As discussed above, increases in production costs have lifted the estimated cost of new domestic gas supply to around \$7–8/GJ (including transportation costs).

LNG export prices might also affect contract prices to a small extent. A few liaison contacts note an increase in the number of domestic gas contracts linked to oil prices in recent years (on which contracted LNG export prices are based). This could potentially arise when LNG producers can sell their undeveloped ‘gas in the ground’ via contract into either the export or domestic market.

### Outlook

The outlook for east coast gas prices will depend on the evolution of supply and demand. Our findings suggest that contracted gas prices on the east coast are likely to remain structurally higher than their pre-2015 levels over the coming decade, reflecting higher marginal costs of domestic production.

### Supply

Options to increase gas supply on the east coast include developing new deposits near major demand centres in southern states, upgrading pipeline infrastructure to facilitate the flow of gas from other states, or importing gas from overseas.

- While Victoria has announced that its ban on onshore conventional gas exploration and development will be lifted from July 2021 (Symes 2020), liaison suggests it could take several years for exploration to commence and even longer for new production to start.
- With regards to new pipelines, the focus appears to be on boosting capacity to transport gas from northern states (e.g. Northern Territory and Queensland) to southern states. This includes proposals to connect gas basins in the Northern Territory to South Australia and Queensland, as well as expanding existing capacity to transport gas from Queensland to southern states (Macdonald-Smith 2020). Liaison over recent years suggests a West-East gas pipeline from Western Australia is unlikely to

be viable. Recent Australian Government announcements designed to increase domestic gas supply appear to involve both the development of additional pipeline infrastructure and gas basins.<sup>[3]</sup>

- LNG import terminals have also been put forward as a way to increase the supply of gas to the east coast, with 5 projects currently under consideration (Rystad 2021). This would involve purchasing LNG from the international market and converting it to gas here in Australia for use domestically. The key drivers for LNG import terminals appear to be security and flexibility of supply rather than price, with final prices for imported gas expected to be greater than \$8/GJ over the medium term.<sup>[4]</sup>

**Demand**

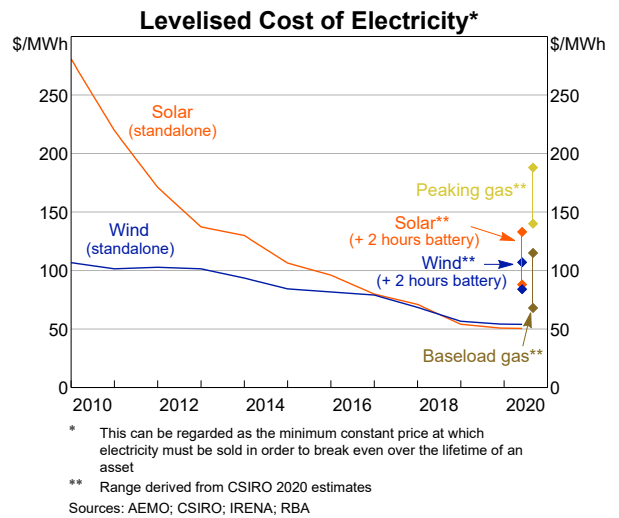
As noted earlier, industrial demand accounts for the largest portion of domestic gas usage on the east coast. With east coast gas prices likely to remain structurally higher than pre-2015 levels, it seems unlikely that industrial gas consumption will increase materially going forward.

Another substantial source of east coast gas demand is for gas-fired electricity generation. Gas-fired generation appears to have been the largest marginal source of dispatchable (i.e. on-demand) electricity in the National Electricity Market (NEM) over the past decade, with gas generation costs highly correlated with movements in wholesale electricity prices. However, this position as the largest marginal supplier is being challenged by investment in renewable energy and storage such

as batteries and pumped-hydro-power (Graph 4) (De Atholia, Flannigan and Lai 2020). Future changes in costs to batteries, other dispatchable sources of renewable energy, and a shift in investor preferences towards low- or no-emissions technologies, could pose downside risks to domestic demand for gas-fired electricity generation.

With regards to external demand, many of Australia’s major LNG customers, such as China, South Korea and Japan, have recently pledged to reduce their greenhouse gas emissions to net zero by 2050 in line with Paris Agreement targets. These, and other changes in the international regulatory environment, will influence demand for Australian gas exports in the longer term and thus wholesale domestic prices. ✖

**Graph 4**



## Footnotes

- [\*] The authors are from Economic Analysis Department.
- [1] Marginal gas production costs in Queensland and Victoria are estimated to be around \$5.5/GJ, with transportation costs comprising the remainder. Data from another source, Rystad Energy (2020), indicates that only around 15 per cent of currently under-development and discovered gas fields on the east coast will have a break-even production cost below \$4/GJ by 2030. This does not include transportation costs.
- [2] For more information on the liaison program, please see *The RBA's Business Liaison Program(2014)*
- [3] Announcements included the creation of a National Gas Infrastructure Plan and Australian Gas (trading) Hub as well as the development of Strategic Gas Basin Plans for the Beetaloo, North Bowen and Galilee basins. See Coorey (2020), Prime Minister of Australia (2020a, 2020b).
- [4] Final prices for imported gas will depend on the international LNG price, the exchange rate, transportation costs and re-gasification costs at Australian import terminals. Futures contracts indicate spot Asian LNG prices will remain above US\$5/MMBtu over the next 5 years. Assuming an international LNG price (including shipping) of US\$5/MMBtu, AUD/USD exchange rate of 0.75 and re-gasification cost of A\$1.5/GJ yields a final price of around A\$8/GJ. Re-gasification cost estimates from Department of Industry, Innovation and Science (2018).

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# The Response by Central Banks in Emerging Market Economies to COVID-19

Sam Pordeli, Lorenzo Schofer and Maxwell Sutton<sup>[\*]</sup>



Photo: wenjin chen – Getty Images

## Abstract

The COVID-19 health and economic crisis has severely affected emerging market economies (EMEs). As a result, emerging market central banks have employed a wide range of tools to support their economies and financial systems, many of which have been used for the first time. These measures have helped to support the functioning of domestic financial markets, lower domestic interest rates and facilitate the flow of credit to households and businesses. The scale of monetary easing by EME central banks was larger, and the pace faster, than in some past crisis periods. This was influenced by the sudden and synchronised nature of the COVID-19-induced economic shock and the large scale policy response in advanced economies that occurred alongside the EME response. It also reflects the significant improvements emerging market central banks have made to their institutional frameworks over recent decades and the development of EME financial markets over the same period.

## COVID-19 in emerging markets

Emerging market economies faced a severe economic and financial shock following the onset of the COVID-19 pandemic. To contain the spread of the virus, many EME governments implemented

public health measures, including quarantines, social distancing and travel restrictions. The significant reduction in economic activity from this response has been compounded by heightened economic uncertainty, weak external demand and

**Table 1: Policy Responses by Emerging Market Economy Central Banks to COVID-19**

March 2020 to February 2021

Central Bank <sup>(a)</sup>	Policy rate	Foreign exchange intervention <sup>(b)</sup>	Expanded liquidity operations	Secondary market public sector asset purchases	Primary market public sector asset purchases	Term funding scheme
India	5.15% → 4.00%	✓	✓	✓		✓
Indonesia	4.50% → 3.50%	✓	✓	✓	✓	
Malaysia	2.75% → 1.75%		✓	✓		✓
Philippines	3.75% → 2.00%	✓	✓	✓	✓	
Thailand	1.00% → 0.50%	✓	✓	✓		✓
Brazil	4.50% → 2.00%	✓	✓ <sup>(c)</sup>			✓
Mexico	7.00% → 4.00%	✓	✓ <sup>(c)</sup>	✓		✓
Russia	6.00% → 4.25%	✓	✓			✓
South Africa	6.25% → 3.50%		✓	✓		
Turkey <sup>(d)</sup>	10.75% → 17.00%	✓	✓	✓		

(a) This group of EMEs is covered because of their economic and financial linkages to Australia as well as their importance for the global economic outlook. The RBA also monitors significant developments in other emerging economies.

(b) Foreign exchange intervention is announced in some cases, but in others a judgement must be made based on observed movements in reserves levels.

(c) The central banks of Brazil and Mexico entered into bilateral swap line agreements with the US Federal Reserve.

(d) The central bank of Turkey reduced policy rates to 8.25% between March and May 2020 before increasing policy rates to 17% between September and December 2020.

Sources: Central Banks

supply disruptions. EMEs dependent on tourism and/or commodity exports were particularly hard hit by travel restrictions and a sharp fall in commodity prices. Financial conditions in emerging markets tightened significantly reflecting the severity of the economic shock and tighter global financial conditions. Government bond yields rose sharply, equity prices declined, there were substantial capital outflows and exchange rates depreciated (which tends to tighten financial conditions in many EMEs).

Central banks in EMEs implemented a broad range of measures to ease financial conditions, restore market functioning and support their economies (Table 1). In contrast to some previous crises, almost all EME central banks significantly reduced their policy rates during the early months of the pandemic. All central banks injected liquidity through market operations, most intervened in the foreign exchange market to limit currency depreciation, some launched new facilities to support the flow of credit to business and households (through term funding schemes), and a few entered into

bilateral swap line agreements with advanced economy central banks. A number of EME central banks embarked on asset purchase programs for the first time, while a small number engaged in direct financing of governments.

This article provides an overview of the policy response by EME central banks to the COVID-19 crisis. The first section describes how aspects of the COVID-19 crisis, as well as longer-run improvements in policy design and financial market development in EMEs, have allowed EME central banks to respond forcefully to this crisis. This is followed by a discussion of each of the policy tools implemented, placing particular emphasis on the specific role of each tool and how the considerations faced by EME central banks differ from those of advanced economies.

### [How has this episode been different from previous ones for EME central banks?](#)

Historically, many EME central banks have had less capacity than their advanced economy counterparts to ease monetary policy settings

when economic conditions deteriorate. One concern has been that this could lead to an exchange rate depreciation. While a depreciation typically supports the economy through net exports, it can also lead to large and persistent increases in inflation when inflation expectations are not well anchored. In addition, a depreciation in the exchange rate can cause EMEs' financial conditions to tighten if the depreciation increases the cost of servicing and repaying unhedged foreign currency debt. A third concern is that sharp depreciations can induce large capital outflows if foreign investors with unhedged EME local currency assets sell their holdings in an attempt to limit their losses.

A couple of key developments over recent decades have reduced the relevance of some of these concerns. First, improved institutional arrangements of EME central banks have helped to reduce the risk that monetary easing leads to large and persistent increases in inflation (Aguilar and Cantú 2020). Since the early 2000s, many EMEs have adopted inflation targeting frameworks and central bank independence has been enhanced through legislative changes (Gelos, Rawat and Ye 2020). In the time since, EME central banks have established the credibility of their targets and frameworks. These changes have helped to anchor inflation expectations, such that depreciations induced smaller and less persistent increases in inflation. Central banks therefore faced less need to keep policy rates high during the COVID-19 crisis.

Second, financial market development in EMEs over recent decades has enabled EME central banks to respond more effectively to this crisis. Encouraged by a range of policy decisions by EME authorities, capital markets have grown, local government bond markets have deepened and foreign exchange derivative markets have been established. The size of financial markets in some countries within emerging Asia are approaching those in advanced economies (Alston *et al* 2018). This development has helped EME governments and corporations increase their use of local currency borrowing, enhance their management of foreign exchange risk and gain better access to credit (Alston *et al* 2018). Taken together, these develop-

ments have reduced concerns about the effect of exchange rate depreciations on EME financial conditions, and so reduced the trade-offs associated with monetary policy easing.

Separately to these longer-term developments, the nature of the COVID-19 crisis and the policy response from advanced economies has provided EME central banks with greater scope to ease policy. Unlike some other crisis episodes affecting EMEs, the COVID-19 pandemic has reduced economic activity in a sudden and synchronised fashion across advanced and emerging economies. This has contributed to inflation falling significantly in 2020 in many EMEs, because of the decline in consumer spending and because EMEs entered the crisis with output below its potential (Graph 1). Furthermore, large-scale easing of monetary policy in advanced economies and fiscal policy support globally have helped calm global financial markets, which has meant that interest rate differentials between advanced economies and EMEs have remained more stable even with EME central banks easing policies.<sup>[1]</sup> These factors have also limited currency depreciation and capital outflow pressures in EMEs.

### Policy tools used in response to the COVID-19 crisis

EME central banks responded with multiple policy tools to help address different facets of the crisis. A number of the policy actions were designed to





restore the orderly function of financial markets, consistent with the role of central banks in providing emergency assistance to financial institutions and averting a sudden disruption to the flow of finance to the real economy. Short-term funding markets for financial institutions were supported through an expansion in the liquidity provided via central bank market operations, as well as the use of US dollar swap line agreements with the US Federal Reserve. At the same time, central banks intervened in foreign exchange markets to avoid disorderly depreciation, and purchased government bonds to restore liquidity conditions.

Reductions in central bank policy rates were the primary tool used for easing domestic financial conditions more broadly and supporting the economy in EMEs. In some economies, term funding schemes have also been used to provide additional support for the economy by further lowering rates paid on bank loans. In a small number of emerging market economies, central banks have provided finance directly to the government to assist with financing the fiscal deficit.

Many of the actions taken in 2020 by EME central banks were familiar features of the central banking toolkit in those economies. In contrast, the purchase of government bonds by many EME central banks was a notable innovation.

### Policy rate reductions

Central banks in EMEs lowered their policy rates substantially between March and July 2020 to ease financial conditions and support economic growth. The scale of these declines in EME policy rates in 2020 was in contrast to the Asian Financial Crisis, Global Financial Crisis (GFC) and the 2013 'Taper Tantrum' when EME policy rates were generally increased at times when large-scale capital outflows were already causing a tightening of financial conditions for emerging markets (Graph 2).

The reductions in policy rates, as well as expectations that rates would remain low for some time, have contributed to lower borrowing costs across EMEs. Local currency government bond yields have declined to historic lows in many EMEs, while financing costs for household and business have

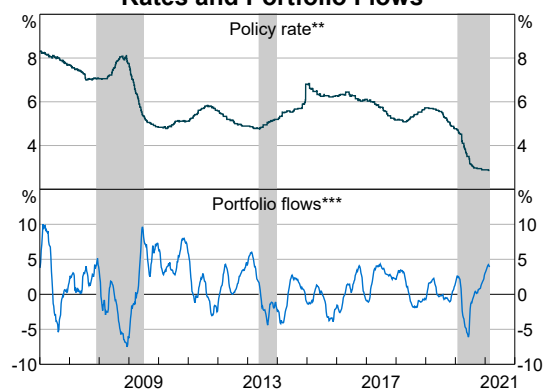
also generally fallen. That said, pass through from central bank policy rates to borrowing rates is generally weaker in EMEs than in advanced economies, in part due to less developed financial markets and weaker banking systems (Mohanty and Turner 2008). The impact of declining financing costs on economic activity can also be more muted in EMEs with underdeveloped financial systems and large informal sectors.

In contrast to the majority experience, a few EMEs such as South Africa and Turkey continue to face borrowing costs that are substantially higher than at the start of 2020, reflecting elevated concerns about their economic outlooks, sustainability of their finances, and the capacity of policymakers in those economies to respond to any further significant shocks.<sup>[2]</sup>

Since July 2020 most EME central banks have kept policy rates little changed at accommodative levels and this is continuing to provide substantial support to the economic recoveries. Unlike in advanced economies, policy rates generally remain well above zero in most EMEs, and in weighing whether to lower rates further in the time since July 2020, EME central banks have cited a range of concerns (Table 2). The majority of EME central banks have been most concerned about the effects of further rate cuts on the exchange rate. Notwithstanding the improvements in inflation anchoring

**Graph 2**

### Emerging Market Policy Rates and Portfolio Flows\*



\* Shaded areas show approximate periods of the Global Financial Crisis, Taper Tantrum, COVID-19

\*\* Average of India, Indonesia, Malaysia, Philippines, Thailand, Brazil, Mexico, Russia and South Africa

\*\*\* One-quarter rolling sum of net inflows to emerging market investment funds; per cent of assets under management

Sources: BIS; EPFR Global; RBA

**Table 2: Stated Concerns about Further Policy Rate Cuts**<sup>(a)</sup>

	Last policy rate cut	Exchange rate depreciation	Inflation	Financial stability	Approaching the zero lower bound
India	May 2020		✓		
Indonesia	Feb 2021	✓			
Malaysia	Jul 2020	✓			
Philippines	Nov 2020	✓			
Thailand	May 2020				✓
Brazil	Aug 2020			✓	
Mexico	Feb 2021	✓			
Russia	Jul 2020	✓	✓		
South Africa	Jul 2020	✓			
Turkey	Jul 2020	✓	✓		

(a) The assessment of constraints is based on the authors' interpretation of monetary policy statements released in the period after July 2020.

Sources: Central Banks

and financial market development discussed above, challenges remain with the impact of exchange rate depreciations on financial conditions for some EMEs. For EMEs with substantial unhedged foreign currency debt, like Indonesia and Turkey, a depreciation increases concerns around financial stability as the cost of servicing and repaying debt increases. Relatedly, in EMEs like South Africa and Russia where foreign investors make up a substantial portion of participants in their capital markets, there have been heightened concerns about capital outflows that can arise when there is an exchange rate depreciation.

A few EME central banks have framed the downsides of further monetary easing in other ways. The central bank of Thailand has stated that they are maintaining rates unchanged – at a level a little above zero – so as to preserve some policy space in case conditions deteriorate further. A few EME central banks such as India and Turkey have cited high inflation as their major concern with further rate cuts, because inflation is above central bank targets in both economies. In contrast to other EMEs, Turkey's central bank has raised its policy rate above pre-pandemic levels because Turkey experienced a large depreciation of the exchange rate and high inflation.

### Foreign exchange intervention

EME central banks intervened extensively in the foreign exchange market during the most acute phase of the COVID-19 crisis. EME currencies faced substantial depreciation pressure, though without the concurrent monetary policy easing in advanced economies it may have been even greater (Graph 3). Central bank interventions dampened financial stability risks that can arise from sudden increases in the value of unhedged foreign currency obligations, and supported financial conditions more broadly by limiting the portfolio outflows that are commonly associated with sharp depreciations. Since capital markets in EMEs are not as deep as those in advanced economies, EMEs are more sensitive to outflows that can significantly tighten financial conditions.

Estimates from the International Monetary Fund (IMF) suggest that, while the scale of intervention in March was the largest in US dollar terms since the GFC, the accumulation of reserves over the past decade meant that it was a less significant event when measured relative to the total stock of available reserves (IMF 2020a) (Graph 4). As conditions in emerging markets stabilised, intervention to support currencies was scaled back, while some EMEs, particularly in the Asian region have been intervening to limit the appreciation of

their currencies, resulting in an expansion of their foreign exchange reserves.

A key motivation for the expansion in reserve holdings over recent decades was to give central banks more capacity to intervene and mitigate the financial stability risks described above (Kohlscheen, Moreno and Domanski 2016). The experience of many EMEs during the GFC and Taper Tantrum episodes suggests that having relatively large reserves resulted in smaller exchange rate depreciations (Arslan and Cantú 2019).

Despite experiencing large scale capital outflows during the COVID-19 crisis, most EME governments did not rely heavily on measures to restrict the flow of capital. In the past, some EMEs have placed restrictions on capital outflows to reduce currency depreciation pressures but these measures can also reduce the availability of external financing over the longer term.

**Policy tools to support domestic market functioning**

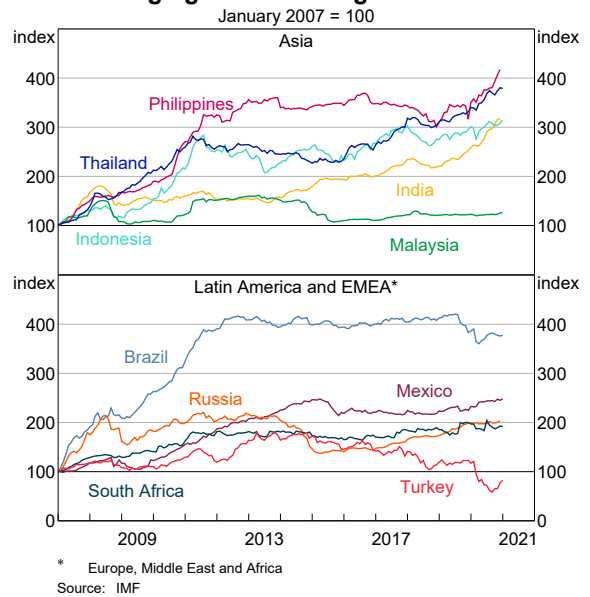
In March, global financial markets became severely dislocated as foreign investors rapidly reduced their exposure to riskier assets in favour of highly liquid and low-risk instruments (Vallence and Wallis 2020). This led to sharp declines in liquidity and significant increases in local currency bond yields in EMEs (Graph 5). In some cases, EME government bond auctions were cancelled due to limited demand.

**Liquidity and lending operations**

EME central banks intervened in money markets to help meet the sharp increase in demand for liquidity. Most EME central banks expanded short-term open market repurchase operations and some lengthened the duration of repurchase agreements to ease stresses in longer-term funding markets (IMF 2020b).

Against the backdrop of capital outflows, exchange rate depreciation and stresses in US dollar funding markets, a couple of EME central banks also entered

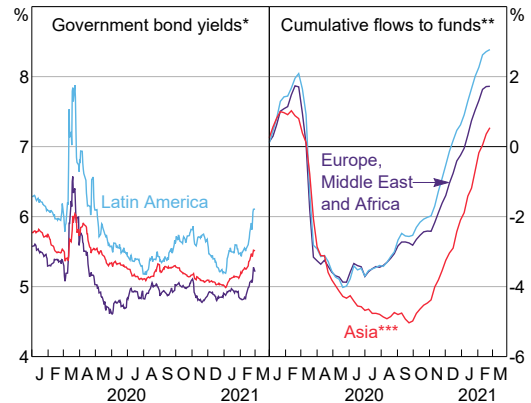
**Graph 4**  
**Emerging Market Foreign Reserves**



\* Europe, Middle East and Africa  
Source: IMF

**Graph 5**

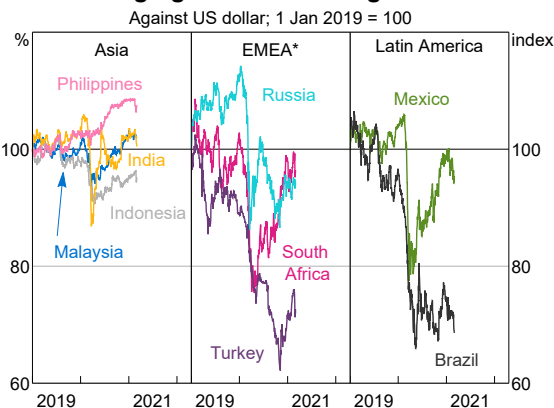
**Emerging Market Bond Yields and Portfolio Flows**



\* Local currency bonds, weighted by market value  
\*\* Per cent of assets under management; includes flows to bond and equity funds  
\*\*\* Excluding China  
Sources: EPFR Global; J.P. Morgan; RBA

**Graph 3**

**Emerging Market Exchange Rates**



\* Europe, Middle East and Africa  
Sources: Bloomberg; RBA

into bilateral swap lines with the US Federal Reserve during March to gain access to US dollar liquidity. Under the facility the central banks of Mexico and Brazil could request up to US\$60 billion from the Federal Reserve in exchange for an equivalent amount of their domestic currencies. The US dollars could then be distributed to help cover current account deficits, repay external borrowing and provide liquidity to the banking system. Only the central bank of Mexico used the facility.

### Asset purchases in the secondary market

Many EME central banks launched asset purchase programs for the first time, purchasing mainly local currency government bonds.<sup>[3]</sup> The main purpose of these programs has been to support local market functioning although, in a few cases, central banks have used these programs to help their governments finance substantial fiscal support packages. EME asset purchase programs have differed from those in advanced economies, both because they have been conducted with policy rates mostly well above zero and, for the most part, they have not been used to provide a broader easing of financial conditions by lowering longer-term risk-free interest rates. Government bond purchases by EME central banks have generally been small (in most cases between 0.5–1.5 per cent of GDP; Graph 6) relative to advanced economy central bank purchases (in most cases between 2–15 per cent of GDP).<sup>[4]</sup>

Event studies suggest that EME central bank announcements of government bond purchase programs have reduced longer-term government bond yields but have not been associated with exchange rate depreciations. Longer-term local currency yields were found to be 20–60 basis points lower over the week following a program’s announcement (Arslan, Drehmann and Hofmann 2020; IMF 2020d; Hartley and Rebucci 2020).<sup>[5]</sup> The lack of impact on the exchange rate perhaps reflects the small size of the programs and the sterilisation of purchases in many cases (Hartley and Rebucci 2020).

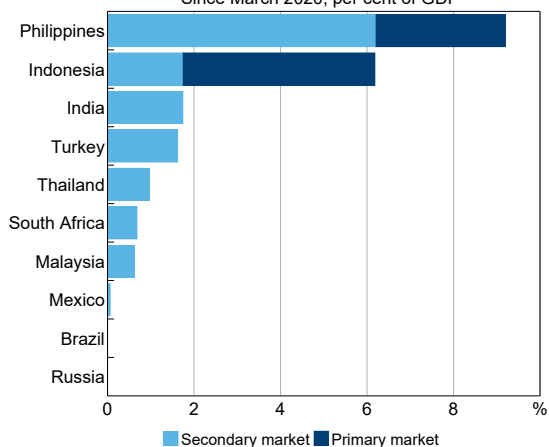
If EMEs were to reach the lower bound of policy rates and pursue monetary easing via large scale asset purchases, they would likely face greater obstacles relative to advanced economies.

- Some EME central banks face restrictions in purchasing government bonds because of clauses in legislation or constitutions. In Brazil and Indonesia, however, legislation was temporarily changed in 2020 to relax restrictions on their respective central banks.
- Bond markets in EMEs are generally smaller and less liquid than those in advanced economies. This could potentially make bond yields more sensitive to increased participation of EME central banks in government bond markets, particularly for EME central banks that already own a large share of bonds outstanding.
- The channels through which a reduction in government bond yields passes through to broader financial conditions and economic activity are often weaker in EMEs. In part, this is because, in EMEs government bond yields are not used as often as a pricing benchmark for other domestic interest rates and the use of financial services is lower which can reduce pass-through from funding costs to lending rates.
- Central bank asset purchases could place significant downward pressure on the exchange rate if foreign investors shift from EME government bonds to foreign assets as a result, which could cause financial conditions to tighten.

**Graph 6**

### Emerging Market Central Bank Government Bond Purchases

Since March 2020; per cent of GDP\*



\* End dates vary due to data availability  
Sources: Central Banks; RBA

- Prolonged use of asset purchases associated with worsening fiscal positions in EMEs could erode perceptions of central bank independence and credibility, which may de-anchor inflation expectations and cause bond yields to rise (World Bank 2021a). This is particularly the case for central banks purchasing government bonds in the primary market.

### Purchases of government debt at issuance

Some EME central banks have purchased government bonds in the primary market with the explicit intention of assisting their governments to finance large fiscal deficits. The scale of the fiscal response to the COVID-19-induced economic crisis has been larger than any previous crises and this response has generally been funded by EMEs issuing local currency debt. In 2 cases, central banks began purchasing government debt at issuance or providing funds directly to the government, despite the deepening of their local currency debt markets in recent years.

In July 2020 Bank Indonesia announced a deficit burden-sharing arrangement with the Indonesian Ministry of Finance in which it would purchase government bonds in the primary market to assist in financing the government's fiscal response to the COVID-19 crisis. The central bank's purchases have been split into 3 parts and directly linked to components of the government's fiscal response to the COVID-19 crisis including health and social security spending, and support for businesses. 2 of the 3 parts concluded in 2020, with 1 part still ongoing and scheduled to run until the end of 2021. The value of bonds purchased under the arrangement was around 4 per cent of GDP by December 2020.

In the Philippines, the central bank directly purchased government bonds through a pre-existing 'provisional advance' facility with the Philippine fiscal authority. In September the limit on the size of this facility was increased to 30 per cent of average government revenues over the previous 3 years (from 20 per cent), and will remain at the higher level for 2 years. Direct purchases in 2020 were equivalent to 3 per cent of GDP.

Direct central bank financing generally raises concerns about central bank independence and the long-run ability of the central bank to meet its legislated objectives (IMF 2020c). Some previous episodes of large scale financing of government spending by EME central banks in the 1980s and 1990s led to periods of persistently high inflation, prolonged output contractions and macroeconomic instability (World Bank 2021b). However, many circumstances are different for the countries that have engaged in direct financing since the COVID-19 crisis. In particular, they have developed stronger monetary and fiscal policy frameworks and have lower external debt on average (World Bank 2021b; Cantú, Goel and Schanz 2020).

Nevertheless, concerns remain about the programs implemented in 2020 and there has been increasing discussion among academics and policy-makers about how direct financing episodes can be best managed. The consensus view is that direct financing programs should include safeguards that reduce concerns regarding central bank independence and persistent periods of high inflation. Risks will be lower when the central bank can clearly communicate that it has control over the direct financing and that the objective of the program is consistent with its objectives (IMF 2020d). Direct financing could be consistent with central bank objectives during periods of market dysfunction where it may be difficult for the government to access sufficient funding via financial markets, or where other monetary policy tools are exhausted and inflation is forecast to fall short of target over the policy horizon (Bartsch *et al* 2019). Ideally, fiscal and monetary authorities must clearly define and communicate whether the direct financing arrangement is to be a permanent or temporary policy tool.

### Term funding schemes

A typical response of financial institutions during periods of elevated risk is to tighten lending standards and reduce the supply of credit to households and businesses. This response can inhibit economic activity and slow economic recovery. This is particularly the case for EME

financial institutions which have had a larger share of loans become impaired relative to advanced economies during previous banking crises (BIS 2020). The lockdown measures imposed by governments to contain the spread of COVID-19 have made financing difficult for many firms, particularly small and medium-sized enterprises (SMEs) (IMF 2020c). As a result, many firms have been unable to access credit to meet their financial commitments and working capital requirements, or to invest in projects that support economic activity.

In response to these concerns, a number of EME central banks launched term funding schemes in 2020 to address constraints on non-financial firms' access to bank credit, and to improve the transmission of monetary policy. Typically, these have been funding-for-lending arrangements, where the central bank provides low-cost funding to participating banks on the condition that credit is extended to firms most affected by the crisis, often SMEs. In some cases, the credit provided is guaranteed by the central bank or government. This is particularly important for EMEs, which generally have weaker banking systems and a larger informal sector, placing additional constraints on SMEs' ability to access banking credit (IMF 2020c). The size and scope of the schemes implemented by EMEs vary but are much smaller relative to GDP than schemes launched by advanced economy central banks. Like in advanced economies, some EME schemes have also been complemented by additional government support programs for SMEs as well as a loosening of some regulatory measures that help to promote the supply of credit more broadly, however the scale and breadth of the

programs have been much smaller than those launched by advanced economies (OECD 2020).

## Conclusion

EME central banks responded decisively to the COVID-19 pandemic in order to restore orderly market functioning, ease financial conditions and support both financial stability and the economic recovery. An array of policy tools have been used by EME central banks in this pursuit, including purchases of local currency government debt which appear to have successfully contributed to a normalisation of EME financial conditions. Nevertheless, policy rate reductions remain the primary tool for easing broad monetary conditions in EMEs (in contrast to many advanced economies where policy rates have been close to effective lower bounds for some time). The scale of the policy rate response to the COVID-19 crisis was larger, and the pace faster, in EMEs than in some past crisis periods. This was influenced by the sudden and synchronised nature of the COVID-19 induced economic shock and the large scale policy response in advanced economies that occurred alongside the EME response, without which capital outflows and exchange rate depreciations in EMEs would have been more severe. It also reflects the significant improvements emerging market central banks have made to their institutional frameworks over recent decades, which has improved the stability of inflation, and the development of foreign exchange hedging and local currency capital markets in EMEs over the same period. ✎

## Footnotes

- [\*] The authors are from International Department.
- [1] See Vallence and Wallis (2020) for a detailed discussion of the policy response to COVID-19 by advanced economy central banks.
- [2] The International Monetary Fund (IMF) has approved a large number of funding arrangements since March 2020, with the vast majority relating to emergency financing for low-income countries and smaller EMEs. Some larger EMEs including South Africa have also received rapid financing loans from the IMF.
- [3] The central banks of Brazil and Thailand also launched programs to purchase corporate bonds. However, data on the use of these programs are unavailable, which could suggest that these central banks have not purchased any assets so far.
- [4] To address a lack of liquidity in longer-term government bonds, a few central banks, including in India, Mexico and Brazil, conducted 'Operation Twists' where longer-term government securities are purchased and the same amount of short-term government securities are sold.
- [5] Estimated impacts varied, in part, because of differences in the other influences on bond yields that the studies controlled for; the impact remained significantly different to zero when controls for global financial conditions and other domestic and foreign policy adjustments were included in some studies.

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