Review of the Term Funding Facility

2024

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Review of the Term Funding Facility

Overview

In March 2020, the Reserve Bank Board announced the Term Funding Facility (TFF) as part of a comprehensive policy package to support the Australian economy in response to the COVID-19 pandemic, at a time when wholesale funding markets had been significantly disrupted. The goals of the TFF were twofold:

1. to reinforce the benefits to the economy of a lower cash rate, by reducing banks' funding costs and in turn helping to reduce borrowing rates
2. to encourage banks to lend to businesses, particularly small and medium-sized enterprises.

To deliver this, the TFF provided low-cost, fixed-rate three-year funding to banks operating in Australia against high-quality collateral. After one extension, the TFF ultimately provided $188 billion of funding, equivalent to 6 per cent of the stock of credit outstanding. It was closed to new drawdowns at the end of June 2021 and the final funding matured as planned in mid-2024.

This review examines the TFF and draws some key lessons. It focuses on the effectiveness of the TFF in delivering its goals, rather than evaluating the overall policy stance chosen by the Reserve Bank Board. It complements the reviews of the other unconventional monetary policy (UMP) tools that the RBA used during the pandemic.[1]

The key points of the review are:

- **The policy goals of the TFF were met.** The three-year fixed rate of the TFF reinforced the three-year yield target and forward guidance, which were part of the COVID-19 policy package. While it is difficult to isolate the contribution of the TFF to the overall impact of that package, the reinforcing aspects of the policy measures were effective in amplifying what had to be a relatively modest decrease in the cash rate, given its proximity to the effective lower bound. The announcement of the TFF, alongside the other elements of the package, also helped to reduce market disruptions and liquidity difficulties at a time of significant uncertainty. Banks' funding costs were lowered and the banks passed that on to households and businesses in full through historically low lending rates. Taken together, this supported the provision of credit to the economy. Many households took advantage of the certainty of the very low fixed rates on offer, and fixed-rate mortgage lending rose to its highest share on record. This flowed through to aggregate demand through the usual channels, supporting household consumption, dwelling investment and the housing market more generally. Business credit did not pick up to the same extent as housing credit, because businesses had little appetite to take on additional debt despite historically low interest rates: economic activity was weak, the outlook was uncertain, and government support had boosted their cashflows. But business credit held up better than during previous downturns – at least part of which may be attributable to the incentives to lend to businesses under the TFF.
- **The design of the TFF involved trade-offs between the degree of support provided to the economy, the responsiveness to changing economic conditions, and the risk exposures (or potential costs) to the central bank.** The fixed-rate TFF reinforced the policy package, but it came at a financial cost to the RBA because economic outcomes were significantly more favourable than expected. At the time the facility was introduced, the Board weighed this risk against the need to avoid extremely adverse outcomes in the wider economy. Cross-country evidence suggests that when the policy rate is at the effective lower bound and there are significant downside risks, a diverse package of interventions is likely to maximise policy effectiveness. Had the evolution of the economy over the lifetime of the TFF been as expected at the time it

was introduced, with policy rates remaining low, the cost of the TFF would have been minimal. In the event, activity and inflation outcomes were well beyond even the upside economic scenarios considered by staff (and most other economists) during 2020. As a result, the TFF ended up costing the RBA around $9 billion, which is equivalent to around ½ per cent of GDP. These losses reflected the three-year fixed-rate funding of the TFF (with policy rates increasing from 2022), the extension of the TFF in September 2020 and the large take-up of the facility by banks.

- **The Board has agreed that the supporting material for any future policy decisions involving unconventional policy measures should include strengthened assessment of a broad range of scenarios that might crystallise during the lifetime of the policy**, as noted in the RBA's reviews of its other UMP tools. This scenario analysis would include the benefits and potential costs of the policy. If, at some point in the future, circumstances were again judged to warrant a tool similar to the TFF, and it was not paired with a yield target, financial losses could be limited by extending funding at a variable rather than fixed rate, providing funding for a shorter term or building in a larger margin. The benefits of adjusting the design in this way would need to be weighed against any possible reduced effectiveness in supporting bank lending and underpinning economic activity. In its decision-making at the time, the Board paid close attention to the downside risks to employment and inflation. In retrospect, a greater focus also on upside risks could have led to a different calibration of the scheme, including a decision not to extend the TFF (or the yield target) in September 2020. Such a decision would have made a significant difference given that the extension accounted for nearly half of the (*ex post*) financial costs to the RBA. How to judge appropriate exit paths has been identified as one the key design issues for any future use of UMP tools in many jurisdictions.
- **Open lines of communication between the RBA, the Australian Prudential Regulation Authority (APRA) and banks, in combination with forward planning, contributed to the effective management of financial stability risks during the pandemic.** Commercial banks actively managed their sizable and concentrated task of refinancing TFF borrowings by smoothing their bond issuance. And while a small share of household and business borrowers with fixed-rate loans faced difficulty managing the large increase in loan repayments upon expiry, most managed to adjust. Banks contacted borrowers well ahead of the expiry of their fixed-rate periods, strong labour market conditions helped households to manage their finances, and prudent lending standards helped mitigate financial stability risks. Some commentators were concerned there would be a generalised 'mortgage cliff' because of the large volume of fixed-rate lending rolling off onto much higher rates. However, the rollover of the fixed-rate loans occurred over a number of years and the vast majority of these borrowers managed the adjustment and continued to meet their payment obligations.
- **Should the RBA ever again reach the extreme circumstances where its conventional monetary policy tool – the cash rate target – had been employed to the full extent possible but economic conditions required further policy easing, the use of UMP tools would again need to be considered.** The nature of any such interventions would depend on the circumstances at the time, and next year's framework review will consider this in greater depth. But in view of the TFF's effectiveness in contributing to stabilising sentiment at the height of the financial market turmoil and keeping credit flowing to the economy, the use of a term lending tool should be part of the set of choices, if circumstances warranted it.

In line with the RBA Review recommendation, we plan to draw on lessons from our experience and that of other central banks, as well as the academic literature to design a framework for additional monetary policy tools that could be used in extraordinary circumstances if the cash rate was already fully deployed. One cross-cutting lesson that is already clear is the importance of effective contingency planning, including ensuring operational readiness, to allow the RBA to respond quickly in a fast-moving crisis, with effective risk management and governance.

The review is structured as follows. We begin with an overview of the TFF, the main decisions and the deliberations behind those. Next, we discuss the use of the TFF by the banks and review the TFF against its policy aims; Box A describes the international experience of funding-for-lending schemes. We then discuss the financial implications of the TFF for the aggregate public sector balance sheet. Lastly, we draw some lessons from the Australian experience.

1. Overview of the Term Funding Facility

On 19 March 2020, the Reserve Bank Board introduced the TFF to provide low-cost three-year funding to banks operating in Australia. As with all central bank funding, the funds were lent against high-quality collateral. The TFF was accompanied by a package of other policy measures. These included a reduction in the cash rate target, a government bond yield target and forward guidance. The latter two policies were reinforced by the three-year fixed-rate nature of the TFF and the expectation that interest rates would remain low; like the TFF, the yield target had a three-year focus.

The TFF had two primary policy goals (RBA 2020b):

1. to reinforce the benefits to the economy of a lower cash rate, by reducing the funding costs of banks and in turn helping to reduce interest rates for borrowers
2. to encourage banks to support businesses during a difficult period; the TFF encouraged lending to all businesses, although the incentives to expand their lending were stronger for small and medium-sized enterprises (SMEs).

The TFF initially gave banks access to three-year funding at a cost of 0.25 per cent, with:

- an 'initial allowance' equivalent to 3 per cent of each bank's total credit outstanding; banks could access their initial allowance until 30 September 2020
- an 'additional allowance', which was available until 31 March 2021 to any bank that expanded its business credit, particularly to SMEs – for every extra dollar lent (relative to a pre-pandemic baseline) to large businesses, a bank could access one additional dollar of funding from the RBA; for every extra dollar lent to SMEs, it had access to an additional five dollars of funding.

The Board made a number of adjustments to the TFF over time in response to changes in economic and financial conditions:

- In September 2020, the TFF was expanded with a new 'supplementary allowance' for each bank equivalent to 2 per cent of its credit outstanding, available to be drawn between 1 October 2020 and 30 June 2021. Also, the period for drawdowns for the additional allowance was extended by three months to 30 June 2021.
- In November 2020, the cost of new funding under the TFF was lowered to 0.1 per cent in line with reductions in the target cash rate and the three-year government bond yield target.

With financial markets in Australia operating well, the TFF closed to new drawdowns on 30 June 2021 as scheduled. Total funding available over the life of the TFF was $213 billion. In total, banks drew $188 billion from the TFF – equivalent to 6 per cent of credit outstanding at the peak of its use – and they retained access to this low-cost funding for up to three years. The final TFF borrowings matured in mid-2024. Banks were well prepared to repay the funding and the TFF was closed without incident.

Table 1: Term Funding Facility Key Developments

Date	Event
19 March 2020	TFF announced as part of a package of monetary policy measures.
6 April 2020	TFF drawdowns became available.
1 September 2020	Extension and expansion of the TFF announced: latest funding maturity extended from September 2023 to June 2024.
3 November 2020	TFF rate lowered from 0.25 per cent to 0.1 per cent, as part of a package of additional measures, including cuts to the cash rate and yield target, and announcement of a bond purchase program.
30 June 2021	TFF closed to new drawdowns.
1 July 2024	Final TFF borrowings matured.

Source: RBA.

2. The Reserve Bank Board's deliberations

This section explores the main decisions around the TFF in greater detail, drawing on the earlier reviews of UMP tools used by the Board during the pandemic.

Mid-March 2020: TFF and broader policy package announced.

The outlook for the economy in March 2020 was bleak and highly uncertain. COVID-19 had been declared as a pandemic. Many countries were shutting their borders and restricting businesses and the movement of individuals to slow the spread of COVID-19. This would have caused significant disruptions in the global economy and in financial markets.

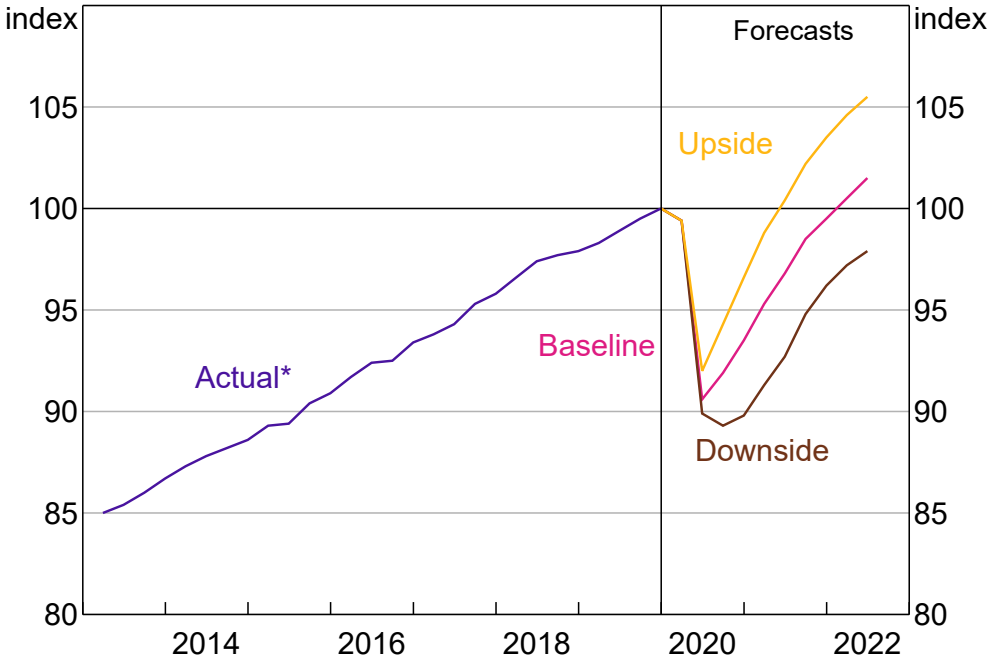
Indeed, the grim and highly uncertain outlook had led to extreme volatility in financial markets, a sharp increase in risk aversion and disruption to the functioning of key markets. Equity prices in advanced economies, including in Australia, had fallen by around 30 per cent. Liquidity in sovereign, credit and money markets was extremely poor. Even the deepest and most liquid financial market in the world – US Treasury securities – was at risk of seizing up. The market for corporate bond issuance was essentially closed to all but the highest quality borrowers. The Australian dollar had depreciated against the US dollar by around 15 per cent over the preceding month, to be at its lowest level since 2002.

The economic outlook was dire and a sharp and deep contraction in economic activity was widely expected. Given the fluidity of the situation, the Board did not have a full set of updated forecasts for the economy for its out-of-cycle meeting in mid-March 2020, but the general contours of the outlook were clear. An indication of the severity of the outlook at the time can be taken from the set of forecasts subsequently published in the May 2020 *Statement on Monetary Policy* (Graph 1; Graph 2). Even with the considerable fiscal and monetary policy support that had been put in place by that time, the central forecasts were for a much sharper contraction in economic activity than during the global financial crisis (GFC), amounting to the largest peace-time contraction in Australian activity since the Great Depression. The RBA's forecasts at that time were broadly in line with the average market forecasts for 2020 and 2021.

Graph 1

GDP Forecast as of May 2020

Forecast scenarios from May 2020 SMP, December 2019 = 100



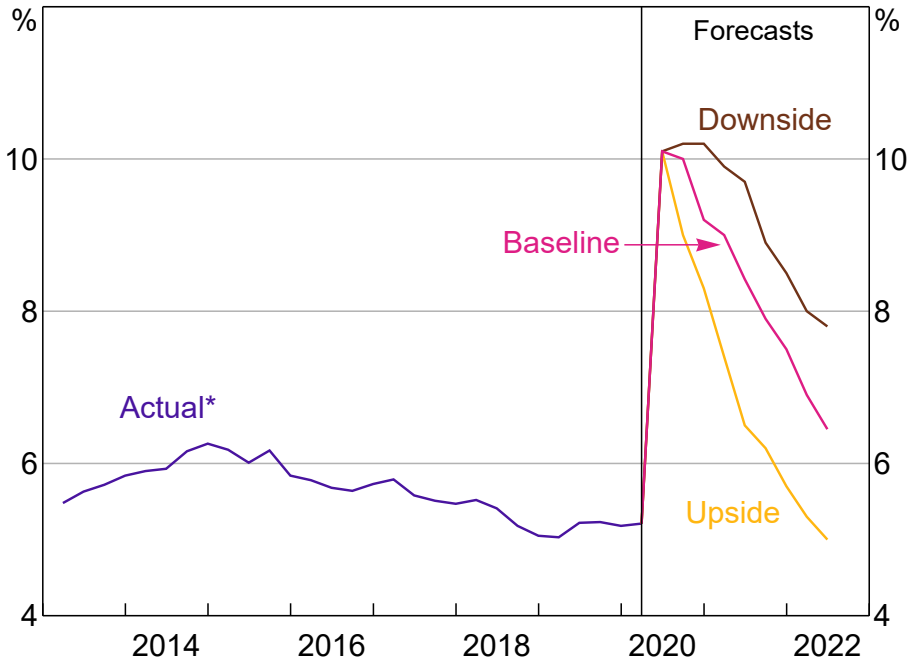
* Outturn as at May 2020.

Sources: ABS; RBA.

Graph 2

Unemployment Rate Forecast as of May 2020

Forecast scenarios from May 2020 SMP



* Outturn as at May 2020.

Sources: ABS; RBA.

At its meeting in mid-March 2020, the Board agreed to do what it could to help stabilise and give confidence to financial markets and to provide some insurance against economic outcomes that would have been very damaging to Australians. It recognised the uncertainties regarding the outlook and the health situation and sought to do what it could to support the economy and avoid scarring to the labour market. It also recognised that the cash rate was already very low coming into this period, limiting the amount of monetary support that could be provided by further lowering the cash rate.

The Board decided that UMP tools would need to be deployed. The international evidence pointed to the beneficial effect of having a package of policy measures tailored to individual country circumstances (BIS 2019). International work also underlined the importance of acting decisively when policy rates are near the effective lower bound.[2]

Prior to the pandemic, the RBA had actively considered the potential use of UMP tools in the event of reaching the effective lower bound. Papers on the subject had been discussed by the Board in July 2016 and August 2019, and the Governor had shared considerations publicly in a speech in November 2019 (Lowe 2019). This work had focused on tools used elsewhere, including negative interest rates, funding for lending schemes, forward guidance and bond purchase programs.

The focus on three-year terms for the TFF and related tools was appealing given the importance to the Australian financial system of funding at the shorter end of the yield curve out to three years. In part, this reflects the relatively short terms on fixed-rate loans in Australia compared with many other advanced economies. In addition, banks are a significant part of the Australian financial system, creating a role for the TFF as part of a policy package to reinforce the cash rate cuts being transmitted to the broader economy.

The Board was aware that the fixed rate would carry interest rate risk for the RBA, but in the circumstances was focused on the need to ensure the scheme was effective in lowering funding costs for borrowers. It assessed that a fixed rate would align well with the rest of the policy package. The Board discussed the costs and implications for the RBA's balance sheet associated with the UMP measures in aggregate, but in hindsight with not as much structure as desirable.

September to November 2020: TFF extended and rate lowered.

In the later part of 2020, the incoming data suggested that the economic downturn was not as severe as earlier feared, but the outlook was still very sobering. The recovery was far from assured, including because of the ongoing risks to the community's health from the pandemic. Indeed, a COVID-19 outbreak in Victoria had introduced a new uncertainty. Moreover, there were signs that a pick-up in the labour market in other states was faltering in the face of weak aggregate demand. In the rest of the world, central banks' monetary policy settings remained extremely accommodative, with most advanced economy central banks having expanded their balance sheets more rapidly than in Australia via UMP. A number of central banks had also indicated that new stimulus policies remained under consideration.

The weak and uncertain outlook was reflected in financial market pricing. The three-year overnight index swap (OIS) rate, which embodies market expectations for the cash rate and a term premium over the period, remained below the RBA's yield target through this time, consistent with markets anticipating the possibility of a further reduction in the cash rate. The possibility of negative interest rates was being discussed in a range of countries.

In this environment, the Board discussed what further measures the RBA could take to support the Australian economy. While the Board considered that additional stimulus would need to come mostly from fiscal policy, it judged that the risks were such that further monetary response was appropriate (RBA 2022a).

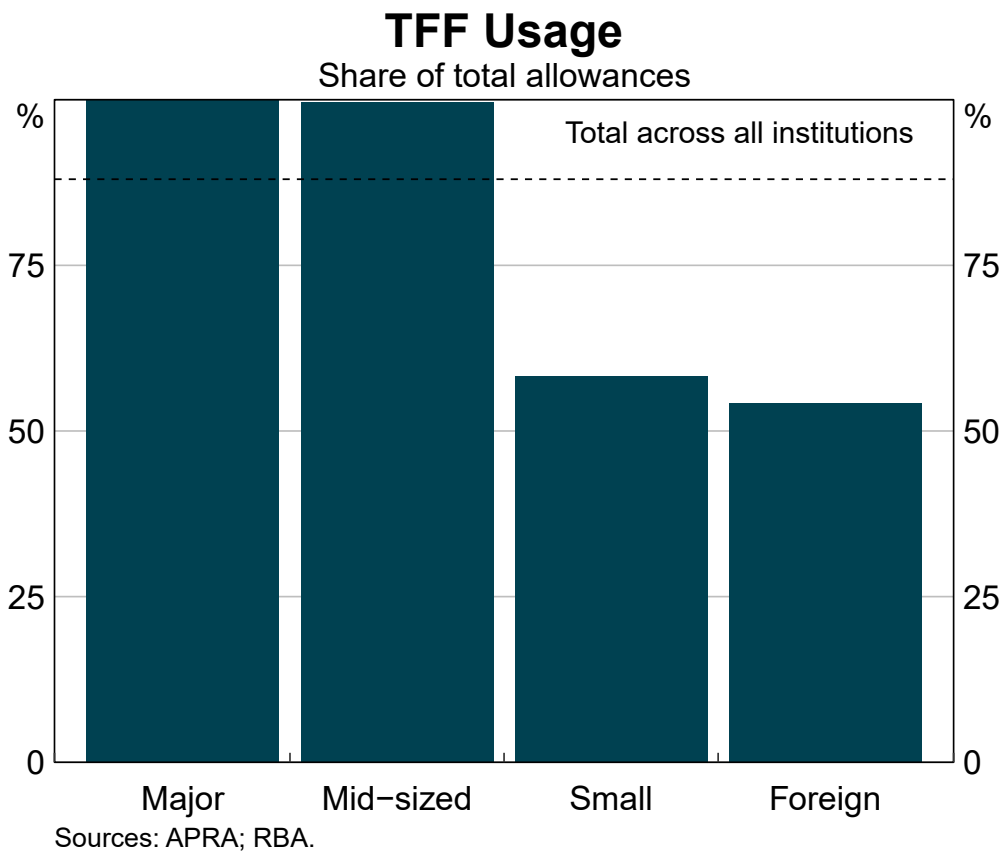
In September, the Board increased the size of the TFF and extended the time for final drawdowns of TFF allocations from March 2021 to June 2021. The Board also noted that the focus of the yield target would shift from the April 2023 maturity to the April 2024 maturity as the latter became the bond with a maturity closest to three years. In November, the RBA announced a package of further monetary policy measures, including cuts to the rates on cash, the yield target and the TFF, as well as a bond purchase program.

3. Use of the Term Funding Facility

Most banks took up most of their TFF allowances.

Banks drew down $188 billion – or 88 per cent – of the $213 billion total funding available from the facility. The major banks and mid-sized Australian banks took up their allowances in full, while small banks and foreign banks took up a little over half of their total allowances (Graph 3).[3]

Graph 3

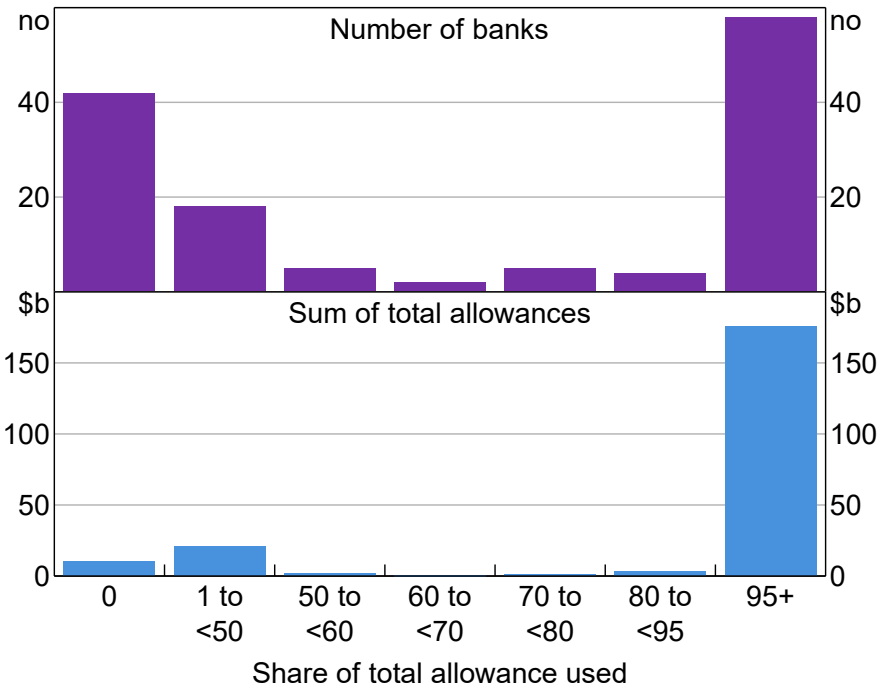


By number, 92 banks – around two-thirds of the 134 eligible – accessed the TFF (Graph 4).[4] The 41 banks that did not access the facility represented a very small share of allowances by value. In large part, these were either small Australian banks or foreign banks; many either had very small allowances or larger allowances but less ready access to eligible collateral at a low cost. (The issue of access and competition implications are discussed in further detail below.)

Graph 4

Distribution of TFF Allowance Usage*

By share of total allowance used



* Includes 134 eligible banks as at the end of the drawdown period.

Sources: APRA; RBA.

The size of additional allowances varied over time, reflecting changes in each bank's business credit outstanding.

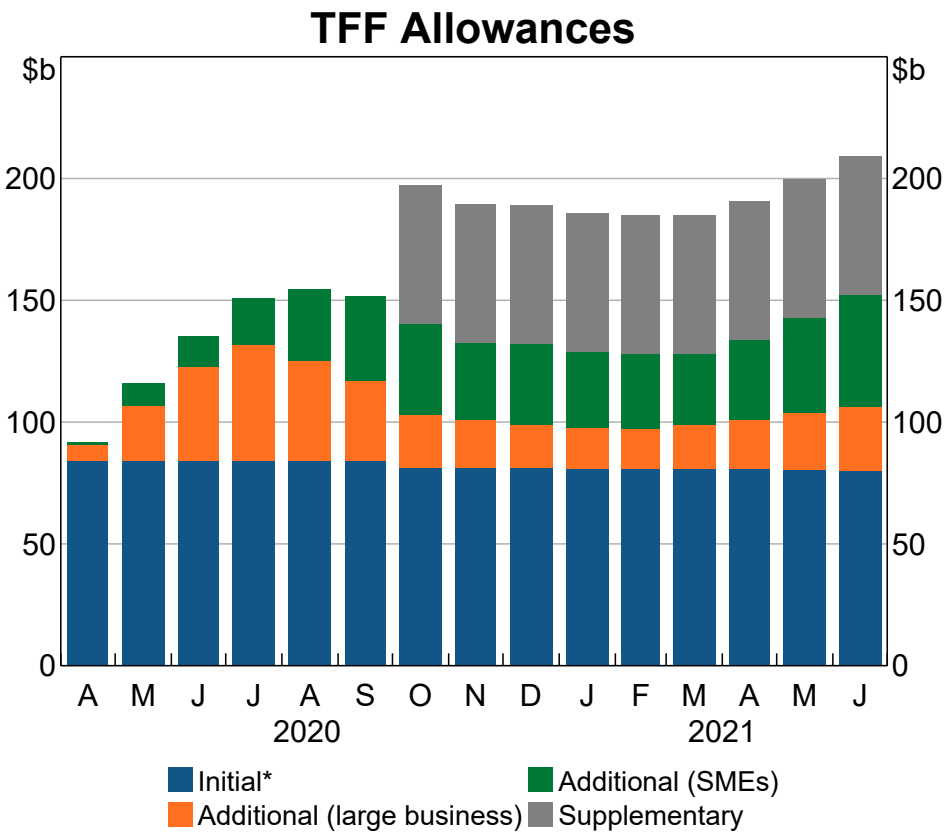
Total funding of $213 billion available over the life of the TFF was made up of:

- initial allowances of $84 billion (which closed in September 2020, and of which $80 billion was drawn)
- supplementary allowances of $57 billion (which closed in June 2021, and of which $54 billion was drawn)
- additional allowances of $72 billion (which closed in June 2021, and of which $53 billion was drawn).

In contrast to the initial and supplementary allowances, the additional allowance varied over the life of the TFF, depending on each bank's increase in lending to businesses relative to a pre-pandemic baseline.

Additional allowances rose strongly in the first few months following the commencement of the TFF (Graph 5). This reflected a sharp pick-up in large business lending, as businesses drew on revolving credit facilities for precautionary reasons in response to the COVID-19 shock. As businesses repaid some of the buffers they had drawn down and outstanding business credit declined, additional allowances also declined through to early 2021. Additional allowances then rose over the last few months of the TFF, driven by a number of banks that increased their business lending, particularly to SMEs. At the end of June 2021, the final value of available additional allowances was around 7 per cent of business credit, or 34 per cent of total TFF allowances. The banks that had access to additional allowances increased lending to large businesses by $26 billion and to SMEs by $9 billion over the drawdown period.

Graph 5



* Represents final usage from October 2020 onwards, as the drawdown period for the initial allowance closed on 30 September 2020.

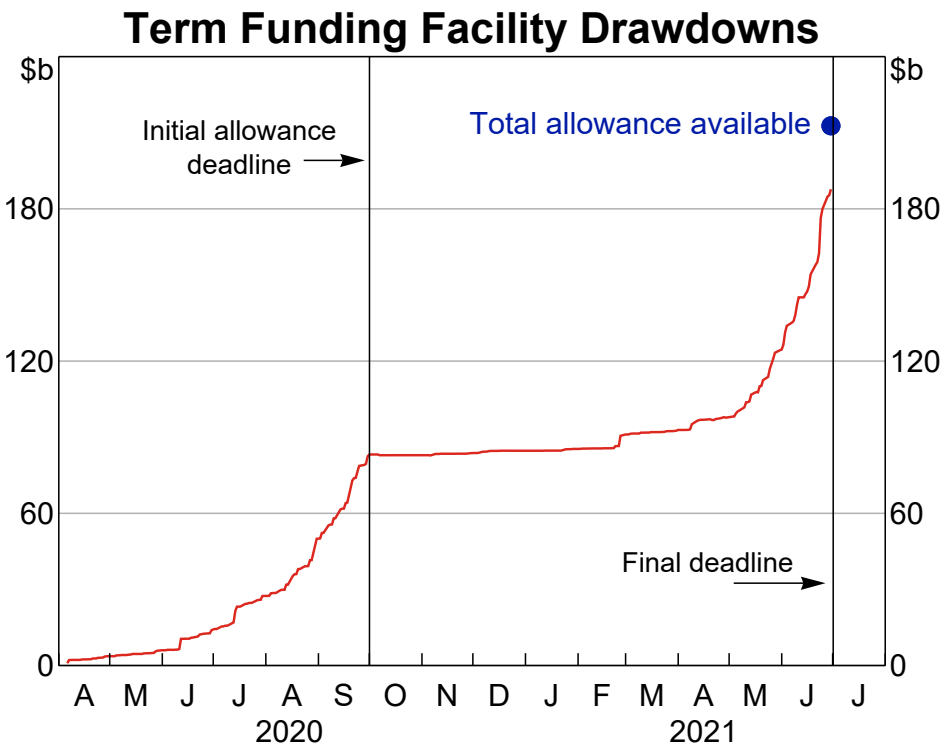
Sources: APRA; RBA.

Most banks borrowed from the TFF as late as practical.

While banks – particularly large banks – took up the majority of their TFF allowances, many waited as long as practical to draw down their allowances (Graph 6). As a result, drawdowns were concentrated over two periods of heightened activity in the weeks leading up to expiry dates for allowances. This delay occurred because:

- the announcement of the package of policy measures, and the RBA's expanded liquidity provisions, had helped to improve funding and liquidity conditions
- the banks also had plentiful funding from low-cost deposits, as outlined in RBA (2020a)
- there were incentives under APRA's liquidity regulations to maintain the option to draw on the TFF as long as possible.

Graph 6



Sources: APRA; RBA.

Australian banks must meet minimum liquidity requirements set by APRA, and the TFF provided a cost-effective way of doing this.[5] In addition to drawn TFF funding being able to be included in the calculation of banks' liquidity requirements, APRA determined that banks could also include *undrawn* TFF allowances (to the extent banks had collateral to access the facility) (APRA 2020).[6] Banks therefore had an incentive to draw down from the TFF as late as practical to extend the time the TFF would contribute to meeting APRA's liquidity requirements, since any drawn amounts would extend this benefit by a further three years.[7]

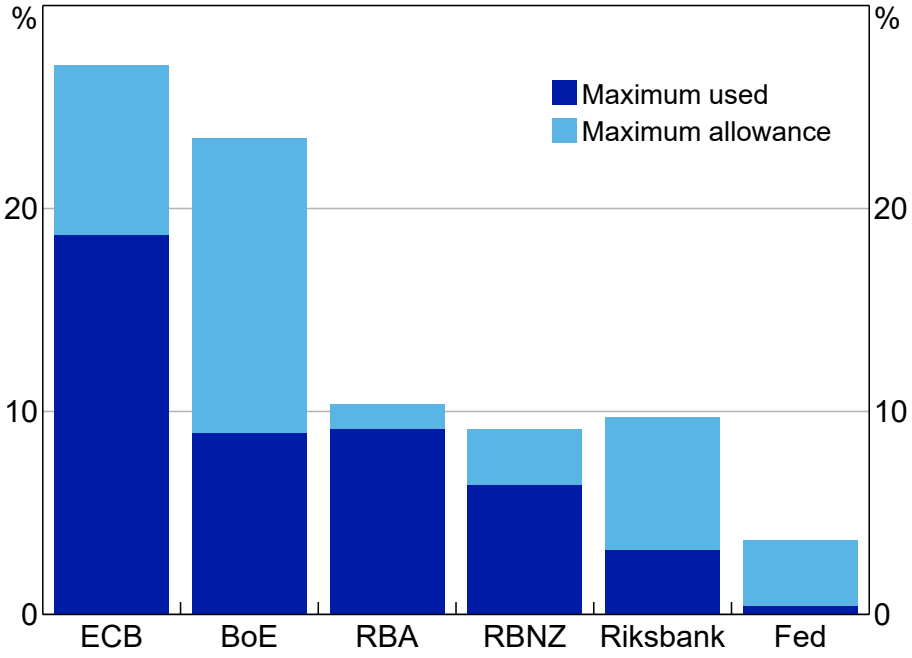
Use of the TFF was higher than for comparable international schemes.

The maximum funding available under the TFF was broadly similar (relative to GDP) to term-lending facilities created by some other central banks. However, uptake of the TFF (as a share of total allowances) was generally higher than for other comparable schemes (Graph 7). The strong take-up may partly reflect the program's low operational burden relative to some international schemes where program complexity at times hindered take-up.[8]

Graph 7

Size of Term Funding Schemes*

Percentage of GDP



* Schemes created in response to COVID-19 pandemic.

Sources: central banks; New Zealand Treasury; RBA; UBS; United States Small Business Administration.

Box A: International experience of funding-for-lending schemes

A number of other advanced economy central banks also introduced or expanded existing term funding schemes in response to the COVID-19 pandemic – including the European Central Bank (ECB), the Reserve Bank of New Zealand (RBNZ), Sweden's Riksbank, the Bank of Japan (BoJ), the US Federal Reserve (Fed) and the Bank of England (BoE). The design of the TFF incorporated lessons from other central banks' experience with these types of programs.[9]

These schemes varied in their design (see Table 2 for details):

- **Low-cost funding:** This is a common feature across all term funding schemes, with the price often tied to a policy rate. The overall price of the scheme may also incorporate additional fees or discounts that vary depending on certain criteria, including the volume of lending.
- **Fixed versus floating:** Several other central banks adopted variable-rate pricing, which limited their financial losses should policy rates increase (discussed below). Key exceptions to this were the Fed (which had a smaller program and low uptake), the BoJ (which did not raise its policy rate while it had loans outstanding) and to some extent the ECB (which initially capped its lending rate at –1 per cent, making it near-fixed in practice, before later switching to variable-rate pricing). The RBNZ also offered fixed-rate funding in the substantially smaller of its two programs, which was used to support the government's loan guarantee scheme.

- **Allowances**: Similar to the TFF, some schemes offered banks an initial borrowing allowance linked to a measure of existing lending (ECB, BoE, RBNZ) plus an additional allowance contingent on their volume of new lending during a particular period (BoE, RBNZ). Some schemes (BoE, BoJ) made favourable terms contingent on the volume of lending to SMEs, as with the TFF. Others (Fed, RBNZ) directly complemented government loan programs by linking funding allowances to the use of these programs. The Riksbank's lending program did not have individual allocations, but provided funding to counterparties through regular auctions.

All advanced economy term funding schemes ceased new lending in either 2021 or 2022. At the time of writing, only the RBNZ and BoE still have substantial repayments outstanding (each around 5 per cent of GDP), while the ECB's outstanding repayments are smaller (less than 1 per cent of GDP) and are due to mature by the end of 2024. All other schemes have been fully repaid, in many cases – though not for Australia – with early repayment.

Table 2: Design of Selected International Term Funding Schemes during the Pandemic

Central bank/scheme	Pricing	Max allowances[(a)]	Term
ECB Targeted Longer-term Refinancing Operations III	Floating with cap (from April 2020: rate linked to lending volumes) Floating (from November 2022: rate linked to lending volumes)	Determined as a proportion of eligible outstanding loans in early 2019.	Three years. Offered in a series of 10 quarterly refinancing operations, starting in September 2019.
BoE Term Funding Scheme with Additional Incentives for SMEs	Floating (rate linked to lending volumes; at/near policy rate)	Determined as a proportion of eligible outstanding loans in late 2019. Additional allowances based on increases in lending.	Originally four years, with some lending extendable up to 10 years.
RBA Term Funding Facility	Fixed (0.25 per cent from March 2020; 0.1 per cent from November 2020)	Determined as a proportion of eligible outstanding loans in early 2020. Additional allowances based on increases in lending.	Three years.
RBNZ Funding for Lending Program (FLP) and Term Lending Facility (TLF)	FLP: Floating (policy rate) TLF: Fixed (policy rate at time of loan)	FLP: Determined as a proportion of eligible outstanding loans in early 2020. Additional allowances based on increases in lending. TLF: Up to total lending under government guarantee scheme.	FLP: three years. TLF: five years, structured as series of five renewable one-year repurchase transactions.
Riksbank Funding to Banks to Support Corporate Lending (& superseded program)	Floating (rate linked to lending volumes; at or near policy rate)	Funding allocated to participants via auction.	Early program: up to four years (in renewable one-year loans). Later program: funding offered at various terms.
Fed Paycheck Protection Program Liquidity Facility	Fixed (35 basis points)	Up to total lending under government guarantee scheme.	Up to five years.

(a) Total allowances as a share of GDP shown in Graph 7.

Sources: central banks; RBA.

4. An assessment of the Term Funding Facility relative to its primary goals

The primary objectives of the TFF, as outlined above, were to:

1. reinforce the benefits to the economy of a lower cash rate, by reducing the funding costs of banks and in turn helping to reduce interest rates for borrowers
2. encourage banks to support businesses during a difficult period.

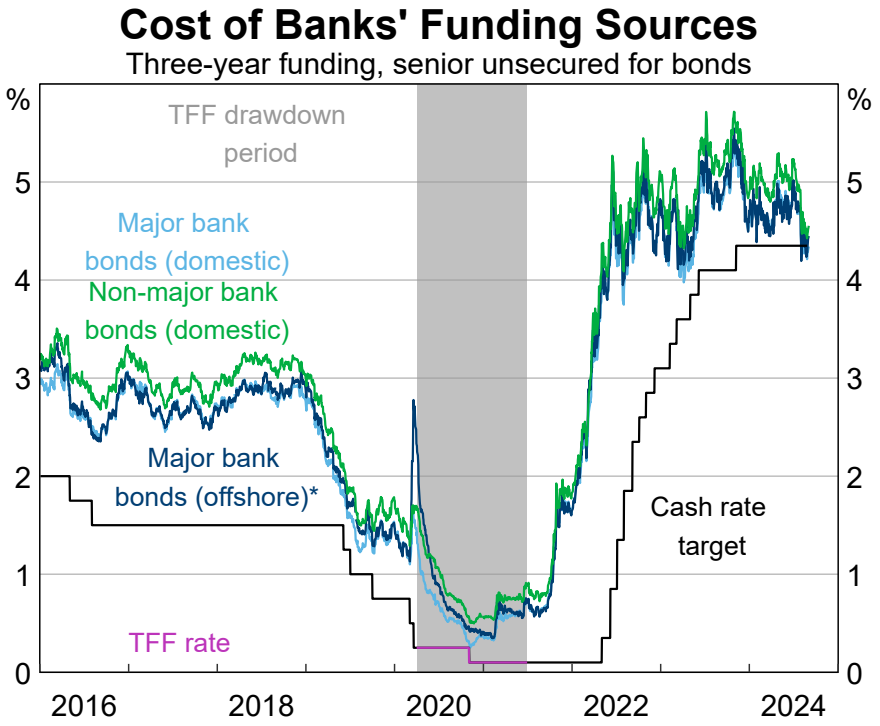
The TFF reinforced the lower cash rate, by reducing the funding costs of banks.

The TFF provided funding certainty for banks and lowered their funding costs, both directly and indirectly. It reduced funding costs directly because it had a lower price than banks' alternative sources of funding at the same term. Notably, it provided funding to all eligible lenders at the same rate, and so was effectively more advantageous to lenders with higher costs of funding originally (e.g. those with lower credit ratings). In addition, the TFF reduced funding costs through various indirect channels. For example, bank bond issuance declined, which reduced bond spreads as investors continued to demand similar securities. For similar reasons, lower levels of bank bond issuance also benefited non-bank lenders indirectly through a decline in spreads on asset-backed securities.

Direct effect on banks' funding costs:

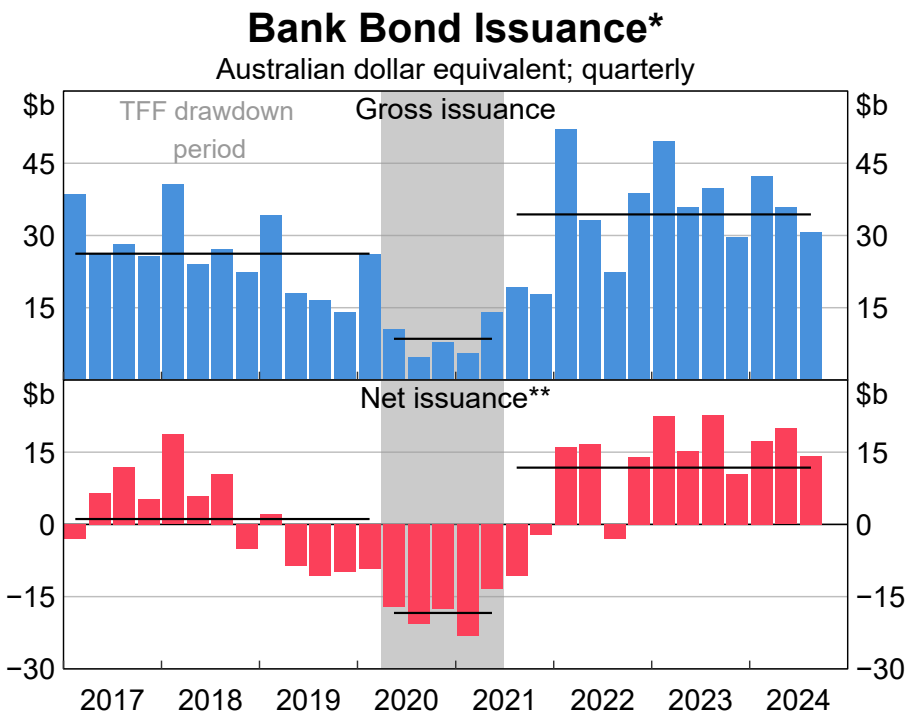
- **The price of the TFF was set at a low level to ensure it was attractive to banks.** Initially set at 25 basis points, and then at 10 basis points from November 2020, the TFF was much cheaper than wholesale funding of the same term for banks throughout the drawdown period; accordingly, banks largely used it to replace their usual bond issuance (Graph 8; Graph 9). For example, the cost of TFF funding (0.1 per cent) was around 60 basis points lower than issuing three-year unsecured funding in domestic wholesale debt markets for the major banks at the end of June 2021 (0.7 per cent); this difference measures the impact on the marginal cost of funding (i.e. cost of obtaining *new* funding) under the TFF for major banks.[10] The cost differential was somewhat greater for non-major banks, which typically have higher costs of funding due to lower credit ratings. The fact that most of the TFF allowances were drawn underscores the point that this funding was substantially cheaper than other sources of funding.

Graph 8



* Adjusted for cross-currency hedging.
Sources: Bloomberg; RBA.

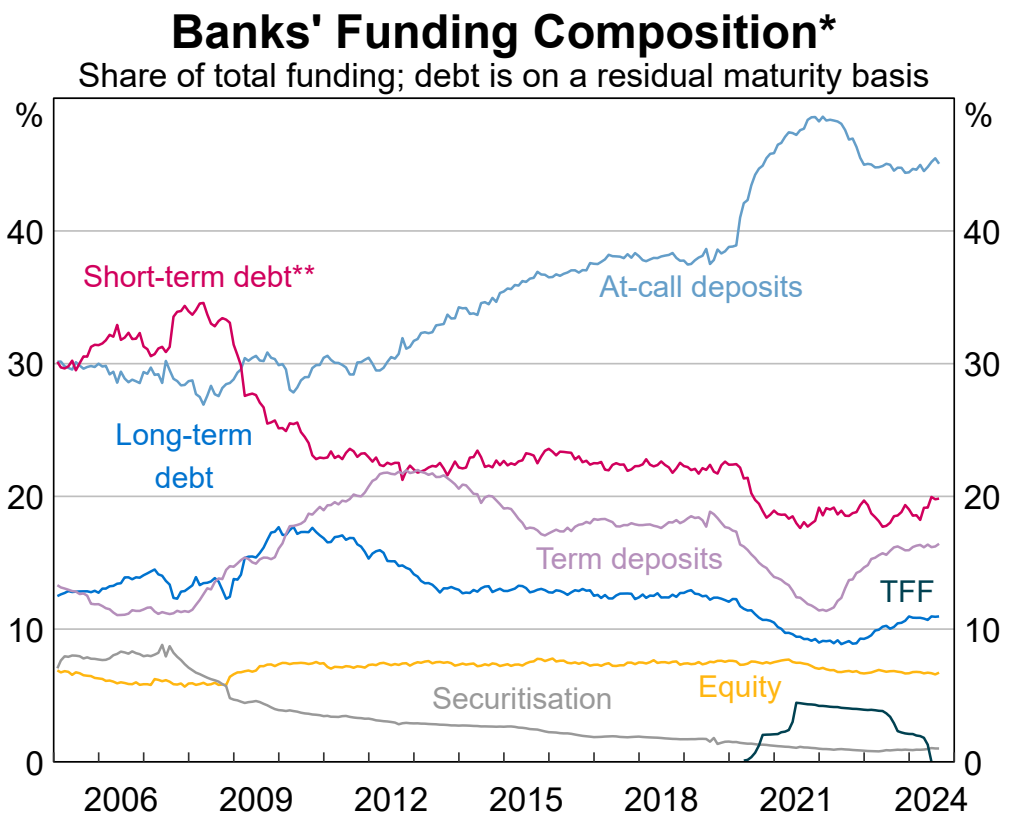
Graph 9



* Horizontal lines show average quarterly issuance for different periods.
** Net issuance calculation includes maturities to date.
Sources: Bloomberg; Private Placement Monitor; RBA.

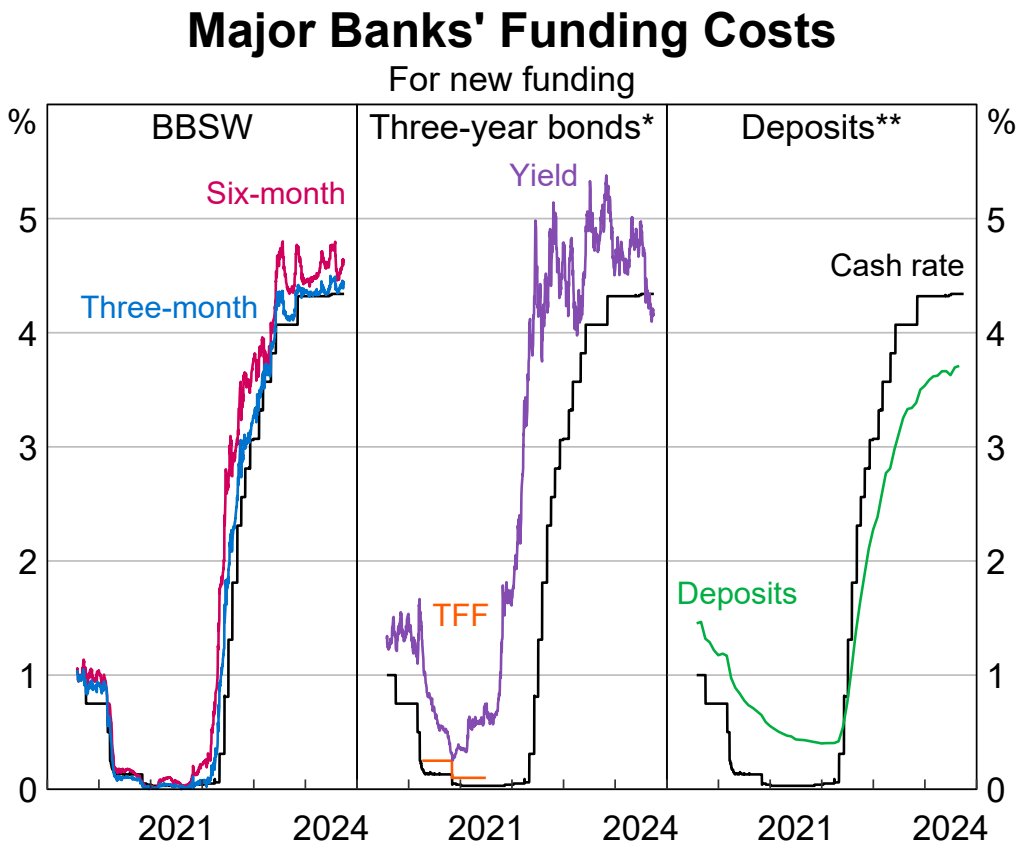
- **The TFF had a larger (direct) impact on the marginal cost of funding than on banks' overall outstanding funding costs**, because the TFF accounted only for around 5 per cent of banks' non-equity funding outstanding at its peak. We estimate that the TFF directly reduced outstanding funding costs for major banks by around 5 basis points, in line with the TFF being priced lower than the banks' average cost of funds across their other funding sources (Graph 10; Graph 11).

Graph 10



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

Graph 11

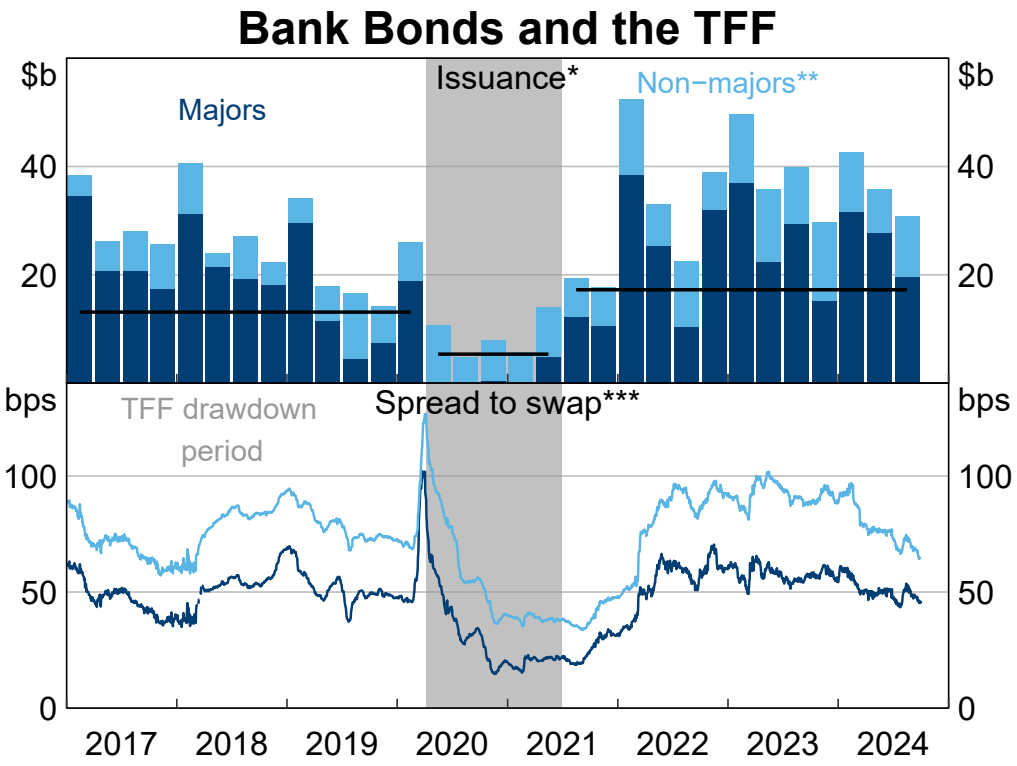


* Domestic issuance only.
** Includes deposits in housing loan offset accounts.
Sources: APRA; ASX; Bloomberg; LSEG; major bank liaison; RBA.

Indirect effect on banks' funding costs:

- **The composition of banks' funding shifted towards cheaper funding sources during the pandemic**.[11] Banks had the option to draw on TFF funding until June 2021, which provided extended access to low-cost funding. As banks drew on the TFF, the major banks largely refrained from issuing (more expensive) senior unsecured debt in wholesale funding markets, so the total stock of bank bonds declined as existing bonds matured. The lower supply of bank bonds led to a decline in spreads on bonds in the secondary market, with the spread to the swap rate (a reference rate for the pricing of fixed-income securities) falling to its lowest in over a decade (Graph 12). This benefited the non-major banks, which continued to issue bonds over the drawdown period.[12]

Graph 12



* Excludes hybrid bonds. Horizontal lines show average quarterly issuance over different periods.
** Includes issuance by foreign banks operating in Australia.
*** Domestic secondary market; three−year senior unsecured bonds.
Sources: Bloomberg; Private Placement Monitor; RBA.

- **Issuance costs declined across a range of wholesale markets during the drawdown period**; the decline in spreads was a global phenomenon. It is also difficult to quantify the TFF's indirect effects because it was announced as part of a broader policy package (with the other measures also particularly relevant for funding costs around the three-year maturity) in a period of significant market dysfunction. Nonetheless, the pricing difference between bonds issued by banks – the most direct beneficiaries of the TFF – and similar non-banks is illustrative. Spreads fell by around 50 basis points more for bank bonds than for similarly rated non-bank and non-financial corporate bonds in the month after the TFF announcement, and remained lower over the rest of the drawdown period. This is broadly consistent with research showing that the Bank of England's Funding for Lending Scheme contributed to a narrowing in bank bond spreads compared with bonds issued by non-banks (Churm *et al* 2021).[13] We estimate that spreads on residential mortgage-backed securities (RMBS) issued by banks also declined by a similar magnitude as a result of these indirect effects from the TFF.

The comprehensive policy package and liquidity operations resulted in cash rate declines being passed through in full to banks' funding costs.

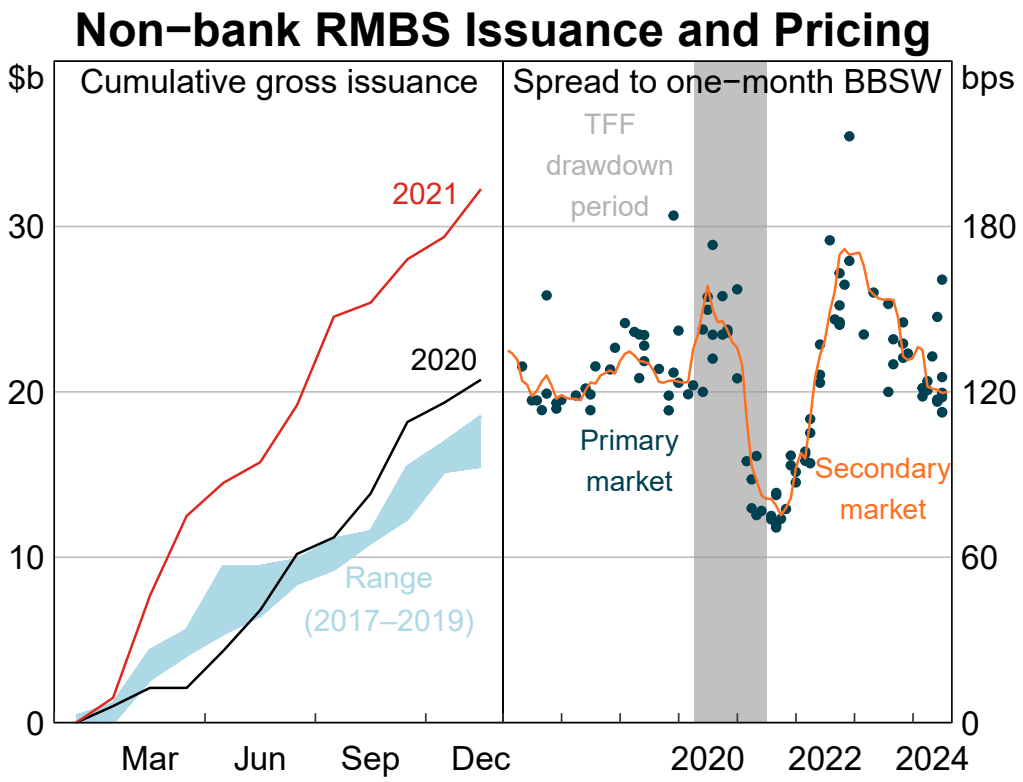
Prior to the COVID-19 pandemic, the RBA had expected that further reductions in the cash rate would not pass through in full to banks' funding costs due to the low level of interest rates and the impact of low-rate deposits (that were already close to the zero lower bound). However, the UMP measures, along with the RBA's substantial liquidity injections, reinforced the reductions in the cash rate in 2020 and supported this channel of monetary policy transmission.[14] In 2020, banks' overall funding costs declined by a similar amount to the cash rate (around 70 basis points) to historically low levels (Garner and Suthakar 2021).[15]

The TFF indirectly contributed to lower funding costs for non-banks and corporations in wholesale markets.

The TFF was designed to lower banks' funding costs, and in turn lending rates to households and businesses. While non-bank lenders[16] and corporations were not eligible to directly access TFF funding, the TFF nonetheless indirectly contributed to lowering their funding costs in wholesale markets.[17]

Securities issued by non-banks are close investment substitutes for bank bonds. This includes RMBS, which are a key source of funding for non-bank mortgage lenders. As major banks withdrew from issuing bonds, demand for non-bank RMBS increased accordingly, and spreads on newly issued non-bank RMBS declined to their lowest level in over a decade. Additional demand for highly rated RMBS also came from banks investing in a range of securities soon after they drew down their TFF allocation, particularly near the drawdown deadline in mid-2021. It is difficult to isolate the size of this indirect effect of the TFF from the overall RBA policy package and other supportive government measures. The combination of these factors saw the cost of issuing new funding through RMBS decline by around 60 basis points for non-banks over 2020. Non-bank lenders responded by issuing higher volumes of RMBS, largely offsetting the fall in bank-issued RMBS and consolidating the presence of new non-bank issuers in the securitisation market (Graph 13).

Graph 13



Sources: Bloomberg; ICE; KangaNews; RBA.

Similarly, spreads on wholesale debt issued by non-financial corporations (NFCs) also fell during the TFF drawdown period, as investors searched for alternative fixed-income securities; the fall in spreads was in line with global developments in corporate bond spreads. NFC spreads tightened to be slightly below their pre-TFF level, and NFCs responded by increasing issuance as they looked to secure term funding amid an uncertain economic outlook. The combination of these factors saw the cost of issuing new funding through bond markets decline by around 65 basis points for highly rated corporations over 2020.

Banks passed their lower funding costs through to lending rates for households and businesses.

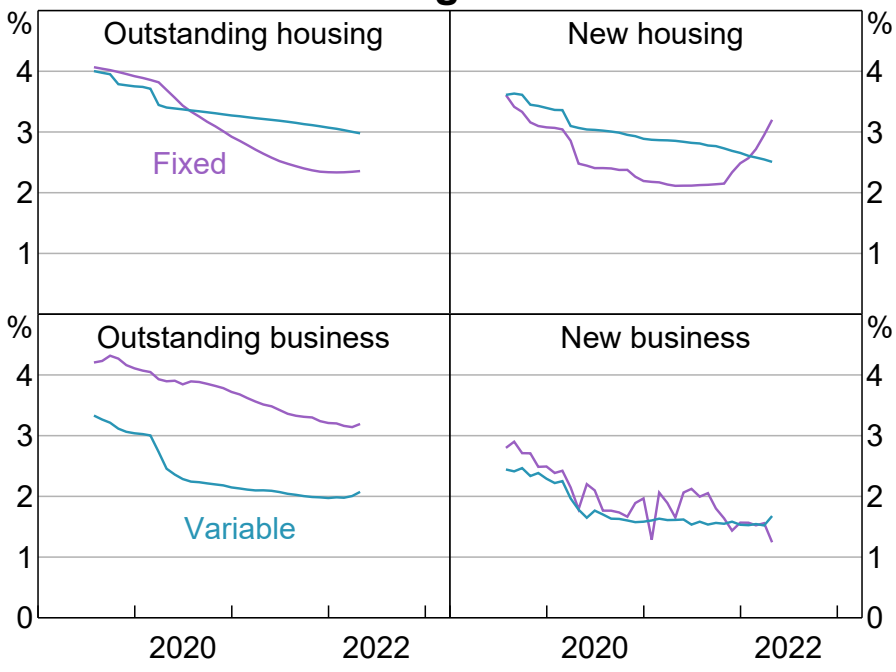
In turn, the lower funding costs were passed through to rates on new and outstanding loans for both housing and businesses. These rates fell to historically low levels, supporting progress towards the RBA's goals by lowering interest payments for existing borrowers and encouraging new borrowing at low rates.

On average, lending rates declined by a similar amount to banks' overall funding costs (which fell by around 85 basis points), although the extent of reductions in interest rates varied across different types of housing and business loans (Graph 14). For businesses, the fall in lending rates was comparable across new variable- and fixed-rate loans. For mortgages, however, the fall in lending rates was most pronounced for fixed-rate loans. Between the end of February 2020 and the trough in rates around the end of February 2022:

- interest rates on outstanding variable-rate loans to businesses declined by around 105 basis points
- interest rates on outstanding fixed-rate loans to businesses declined by around 90 basis points
- interest rates on outstanding variable-rate housing loans declined by around 70 basis points
- interest rates on outstanding fixed-rate housing loans declined by around 150 basis points.

Graph 14

Lending Rates*



* Data up to April 2022.

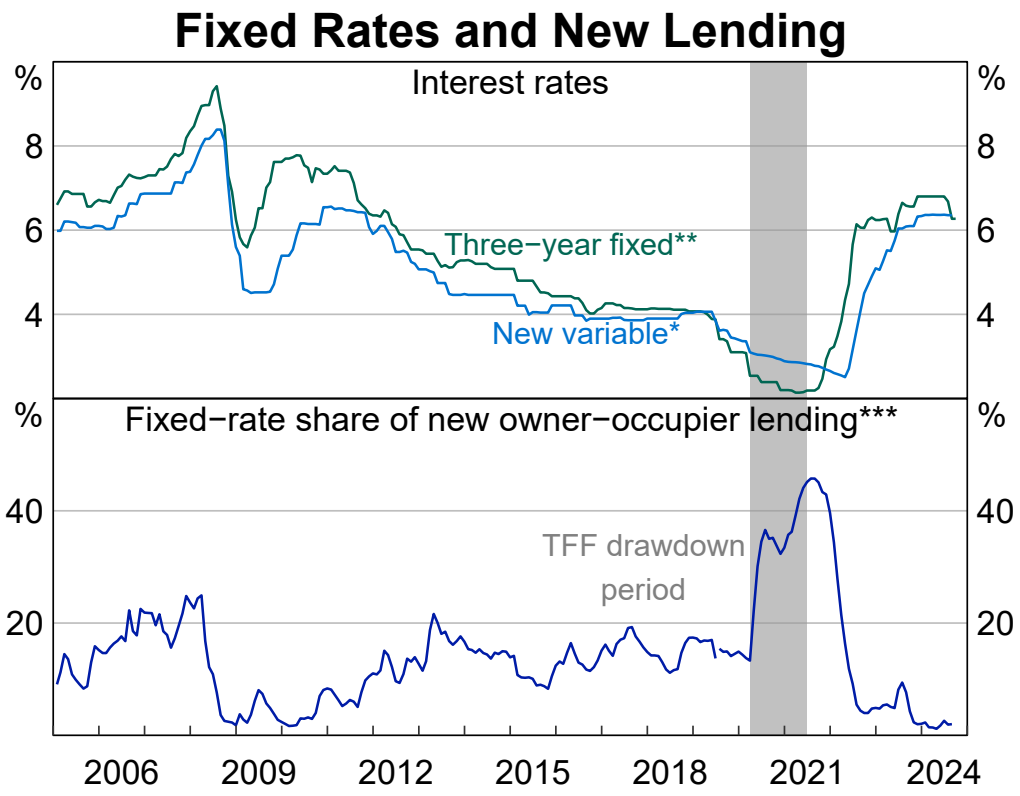
Sources: APRA; RBA.

In Australia, variable rates offered on household mortgages have tended to be lower than fixed rates over recent decades. During the pandemic, however, banks lowered their three-year fixed housing rates to well below the new variable rate (Graph 15). Compared with earlier monetary policy easing phases, the fall in fixed rates was large relative to the reduction in the cash rate (see Table 3). The low fixed housing rates reflected, in roughly equal contributions:

- *A decline in swap rates out to three years; swap rates are key benchmarks for pricing fixed-rate mortgages.* The TFF, yield target and forward guidance helped anchor banks' marginal funding costs to historically low levels around the three-year maturity and contributed to lower swap rates. These swap rates (which are forward-looking) declined ahead of the drawdown period and reduction in retail lending rates.
- *A decline in the fixed mortgage rate relative to the swap rate* (Graph 16). Banks focused their competitive efforts on the fixed-rate lending market – particularly in the second half of the drawdown period and following the decision to extend the TFF – contributing to a narrowing in the spread between three-year fixed housing rates and the swap rate.

Taken together, there were material declines in swap rates immediately prior to and during the drawdown period, with additional savings passed onto borrowers through banks' pricing decisions.

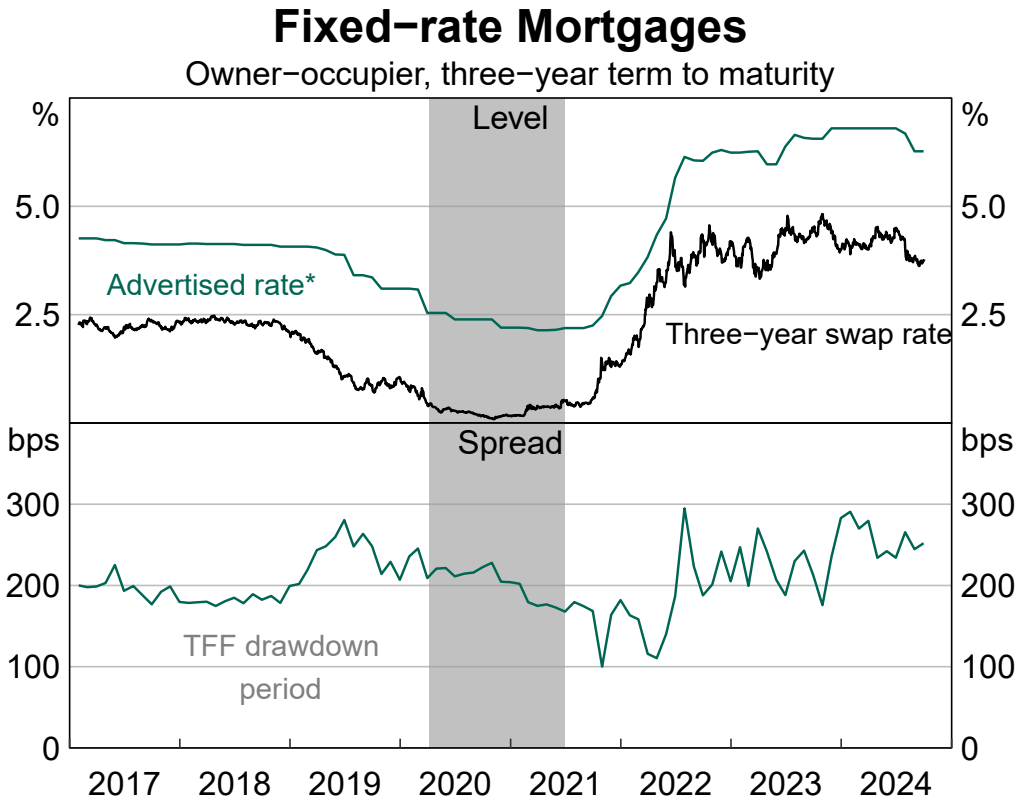
Graph 15



* Perpetual data to 2013; advertised package rates to July 2019; thereafter, data from the EFS collection. Break adjusted.
** Advertised fixed rate (major banks, owner−occupier, principal−and−interest).
*** Housing loan approvals to July 2019; thereafter, loans funded in the month as sourced from the EFS collection.

Sources: APRA; Banks' websites; CANSTAR; Perpetual; RBA; Securitisation system.

Graph 16



* Advertised fixed rate (major banks, owner−occupier, principal−and−interest).

Sources: APRA; Banks' websites; Bloomberg; CANSTAR; RBA.

In response to the cheap fixed-rate TFF funding, banks made commercial decisions to provide their fixed-rate lending at attractive rates. Again, it is not possible to isolate the effects of the TFF from the broader policy package, and the reinforcing aspects of the TFF, forward guidance and the yield target were all likely to have played a role. While funding is fungible and can be transformed through derivatives markets from fixed rate to variable rate, banks mostly hedged the fixed-rate TFF funding by lending at fixed rates; liaison suggests this was more cost effective than hedging through swap markets. Competing vigorously on fixed-rate loans also enabled banks to attract new borrowers without further reducing the lending rates on their existing variable-rate loans.[18] However, many borrowers refinanced from their existing variable-rate loans to fixed-rate loans, which (among other factors) reduced banks' net interest margins (discussed further below). Notably, the same policy package in the future may not lead to the same outcomes as banks may make different commercial decisions.

Table 3: Changes in Housing Indicators

Maximum change over the two years following first cash rate reduction[(a)]

Easing phase	Lowest cash rate	Change in cash rate	Deviation from neutral rate[(b)]	Change in new variable housing interest rates[(c)]	Change in new fixed housing interest rates[(d)]	Change in RMBS spread[(e)]	Change in housing loan commitments	Change in housing prices
	Per cent	Basis points	Basis points	Basis points	Basis points	Basis points	Per cent	Per cent
Sep 2008 – Apr 2009	3.00	–425	–151	–388	–330	–48	41	12
Nov 2011 – Sep 2013	2.50	–225	–130	–195	–141	–43	35	7
Feb 2015 – Aug 2016	1.50	–100	–165	–61	–106	90	7	15
June 2019 – Oct 2019	0.75	–75	–182	–80	–81	–32	20	8
Mar 2020 – May 2022	0.10	–65	–329	–81	–94	–58	77	25

(a) Two-year period following June 2019 only extends through to March 2020, when the cash rate was lowered at the beginning of the COVID-19 pandemic.

(b) Maximum deviation from the central estimate of the nominal neutral rate at the lowest level of the cash rate, using quarterly estimated model-average real neutral rate and quarterly trend inflation expectations.

(c) Owner-occupier variable rate using Perpetual data to 2013, advertised package rate to July 2019 and, thereafter, data based on the EFS collection. Break-adjusted.

(d) Major banks' advertised three-year fixed owner-occupier, principal-and-interest interest rates.

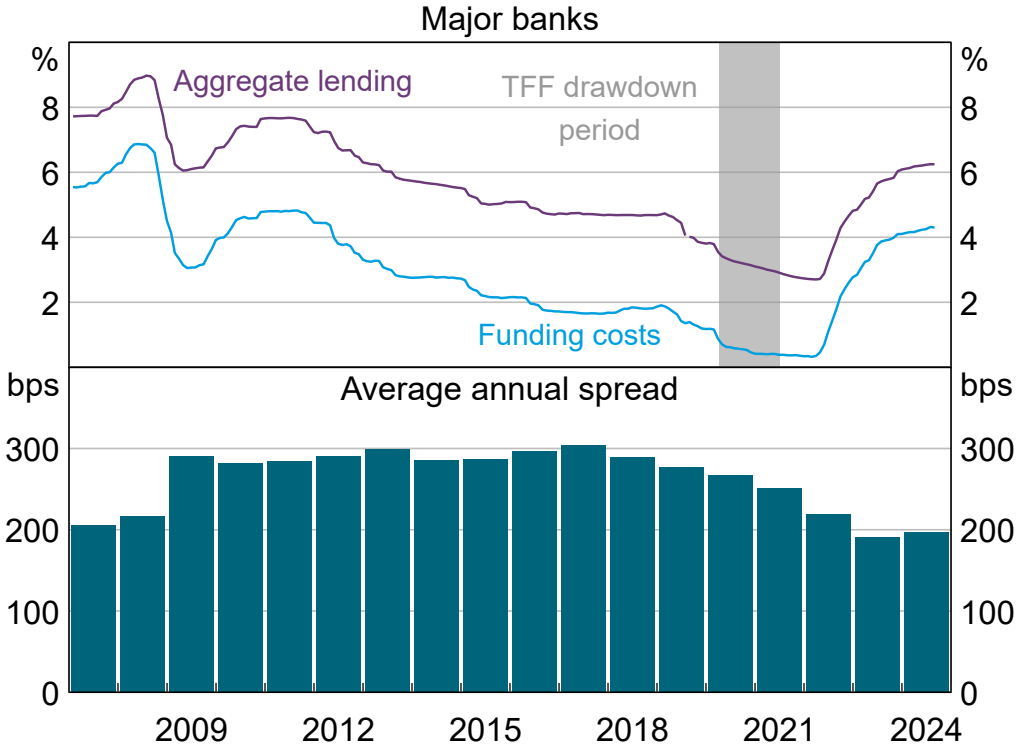
(e) Monthly weighted average spread of AAA RMBS notes to one-month BBSW.

Sources: ABS; APRA; Bloomberg; Canstar; CoreLogic; KangaNews; Perpetual; RBA.

Households and businesses that took out low fixed-rate loans were the main beneficiaries of the TFF, since banks passed on in full the overall reduction in their funding costs during the pandemic to lending rates (Graph 17).[19] Banks' net interest margins declined over this period due to a range of factors, including strong competition, lower spreads-to-swap on fixed-rate loans and the repricing of existing loans from variable rate to low fixed rates as internal refinancing activity increased (Graph 18).[20] Australian banks' profitability was also adversely affected by the lower level of interest rates as the cash rate fell towards zero.

Graph 17

Lending Rates and Funding Costs*



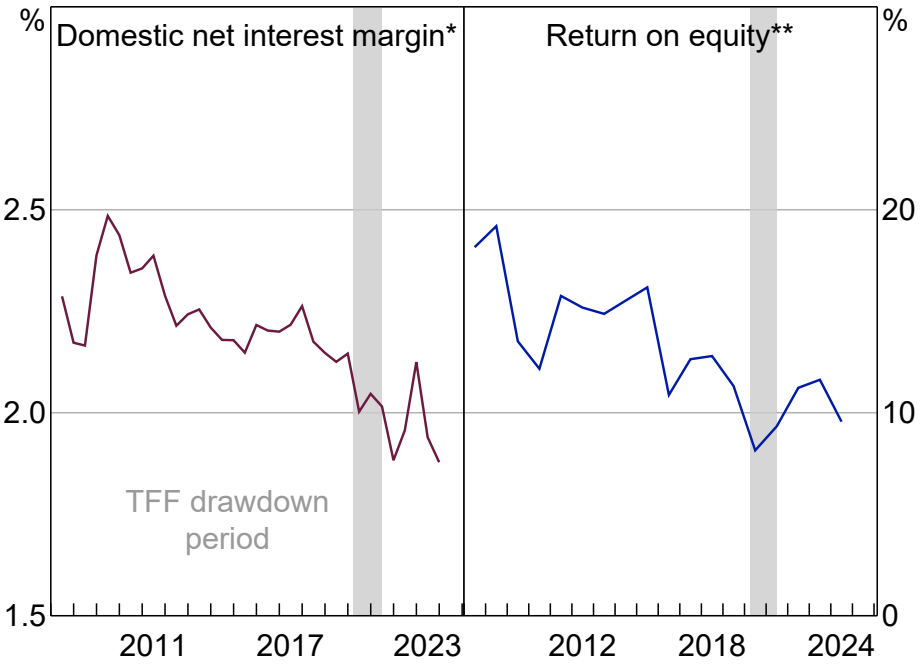
* Data from the EFS collection from July 2019.

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

Graph 18

Bank Profitability

Major banks



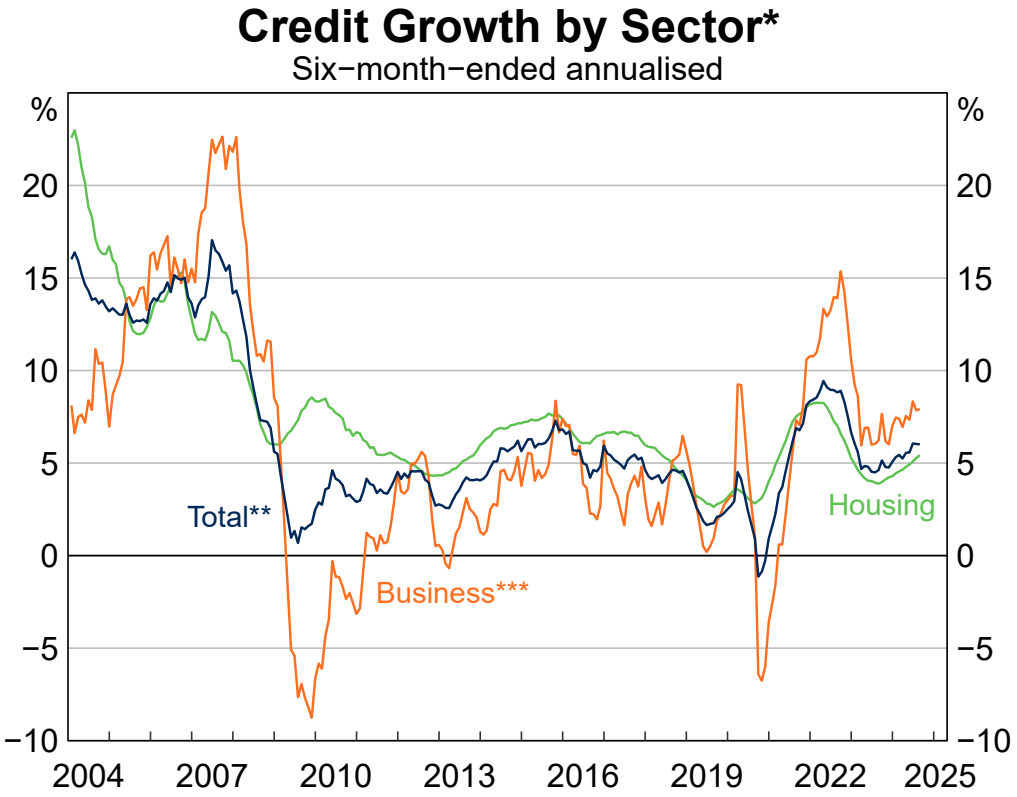
* Data for a given period relate to banks' public profit reports released in that half; IFRS basis; excludes St George Bank and Bankwest prior to the first half of 2009.

** After tax and minority interests; fiscal years.

Sources: APRA; banks' annual reports; RBA.

Low-cost funding provided directly to the banks via the TFF supported the availability of credit to the economy, at a time when high uncertainty meant banks might otherwise have been less willing to lend (Graph 19).[21] In response to the very low fixed lending rates and the historically large discount on fixed rates relative to variable rates, many households took out fixed-rate mortgages to lock in these rates. It is likely that the fixed-rate nature of these mortgages encouraged take up by offering certainty to households during an uncertain time, affecting both new loans and refinancing activity. The share of new housing lending that was fixed rate rose from around 15 per cent at the start of the pandemic to a historical high of more than 45 per cent by mid-2021 and refinancing by households from variable-rate loans to lower fixed-rate mortgages was also elevated. The value of the stock of fixed-rate housing loans outstanding increased by around $250 billion over the period of the TFF drawdown (compared with $188 billion of TFF funding).

Graph 19



* Seasonally adjusted and break−adjusted; including securitisation.
** Includes housing, personal and business credit.
*** Lending to non−financial businesses.
Sources: ABS; APRA; RBA.

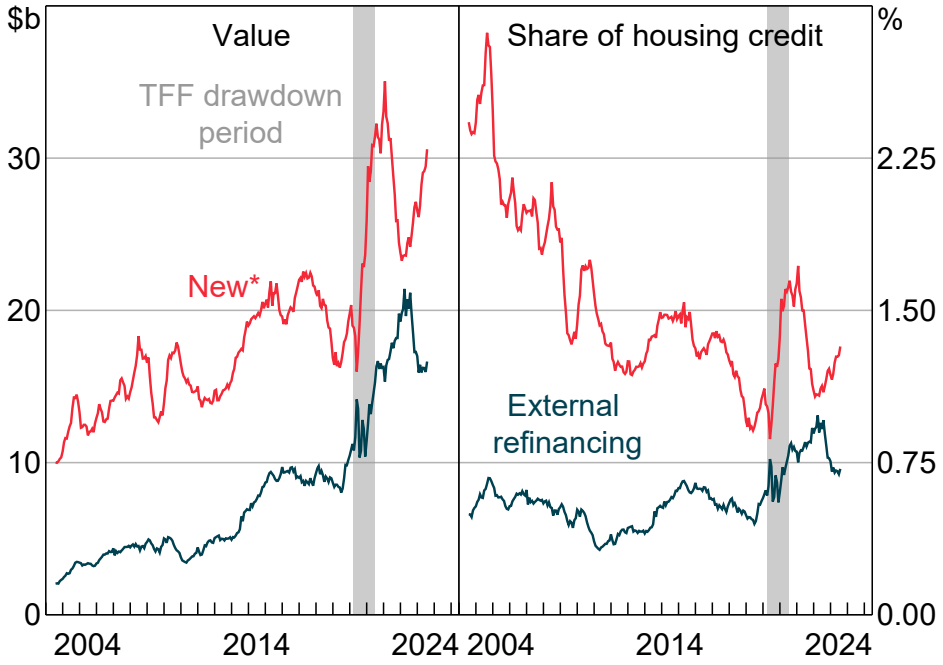
In the pandemic period, housing loan commitments rose by more than in any of the monetary policy easing phases in the past five economic cycles (Graph 20). Though the cash rate decline during this period was the smallest of these episodes, it nevertheless reached a historically low level and the policy package reinforced the transmission of this to lending rates. While monetary policy contributed to housing price growth over the pandemic period, a number of other factors were likely to have been more important, including:

- a shift in preferences towards smaller household size and more physical living space per person
- strong demand for housing outside of the largest cities
- a build-up in saving as incomes grew strongly because of government support payments and reduced opportunities for consumption because of lockdowns
- large government incentives for first home buyers (Hunter 2024).

Graph 20

Housing Loan Commitments

Monthly; seasonally adjusted and break-adjusted



* Excludes refinancing.

Sources: ABS; APRA; RBA.

The reduction in interest rates to a very low level contributed to a pick-up in housing construction through the usual channel of policy transmission: many dwelling construction projects are debt-funded, and so lower interest costs support the flow of new housing supply. But other factors also played a key role in underpinning dwelling investment during the pandemic. Alterations and additions were supported by households' increased savings accumulated during the pandemic as well as desire for extra space; and there was a large pipeline of residential construction, underpinned by the Australian Government's HomeBuilder grant program (Hunter 2024).

The TFF encouraged banks to support businesses during a difficult period.

The TFF funding supported the availability of credit, at a time when banks may have otherwise been less willing to lend.[22] The additional allowance was designed to encourage banks to lend to businesses, particularly SMEs, in recognition of the long-running difficulties SMEs have in accessing bank funding. As outlined above, a bank was provided with $1 of additional funding for every extra dollar it lent to large businesses, and $5 for every extra dollar it lent to SMEs.

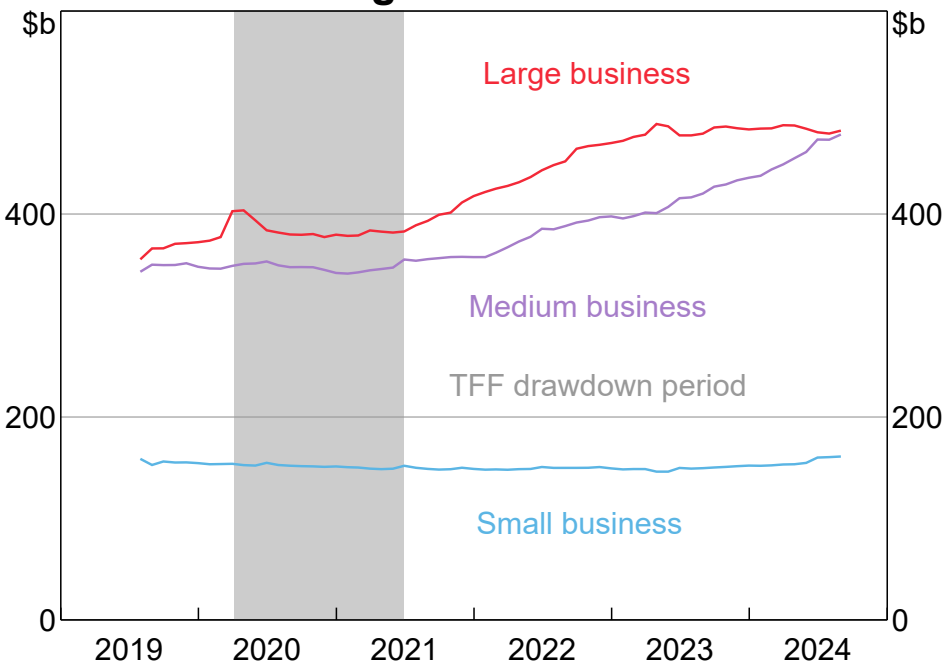
Despite the availability of credit and low interest rates, businesses' demand for debt was weak throughout 2020 and early 2021, owing to the weakness in economic activity, heightened uncertainty around the outlook, and a reduced need for credit due to sizeable government support (e.g. JobKeeper) that boosted businesses' cash flows (Black, Lane and Nunn 2021; Bank and Lewis 2021). In the very early months of the pandemic, large businesses with existing lines of credit had also drawn down on those facilities and some sought higher credit limits as a precaution. Businesses' appetite to borrow strengthened later in 2021 as economic conditions improved.

Total business lending was little changed over the drawdown window. Lending by a number of banks declined; however, for some it increased. Overall, the banks that had access to additional allowances generated $26 billion of additional new lending to large businesses and $9 billion to SMEs (relative to a pre-pandemic baseline)

(Graph 21). Several banks materially increased their lending to SMEs.[23] This latter group of banks reported in liaison that this was influenced by the incentive of the additional allowance; other banks noted that they also tried to increase their lending to businesses, but were constrained by businesses' limited demand for credit. SMEs were also disproportionately in industries more severely affected by the pandemic, adversely affecting both the supply of and demand for credit.

Graph 21

Lending to Businesses*



* Data cover financial institutions with $2 billion or more of business credit; not seasonally adjusted. Excludes loans to financial businesses. Data not break-adjusted for changes to business size definitions in July 2024.

Sources: APRA; RBA.

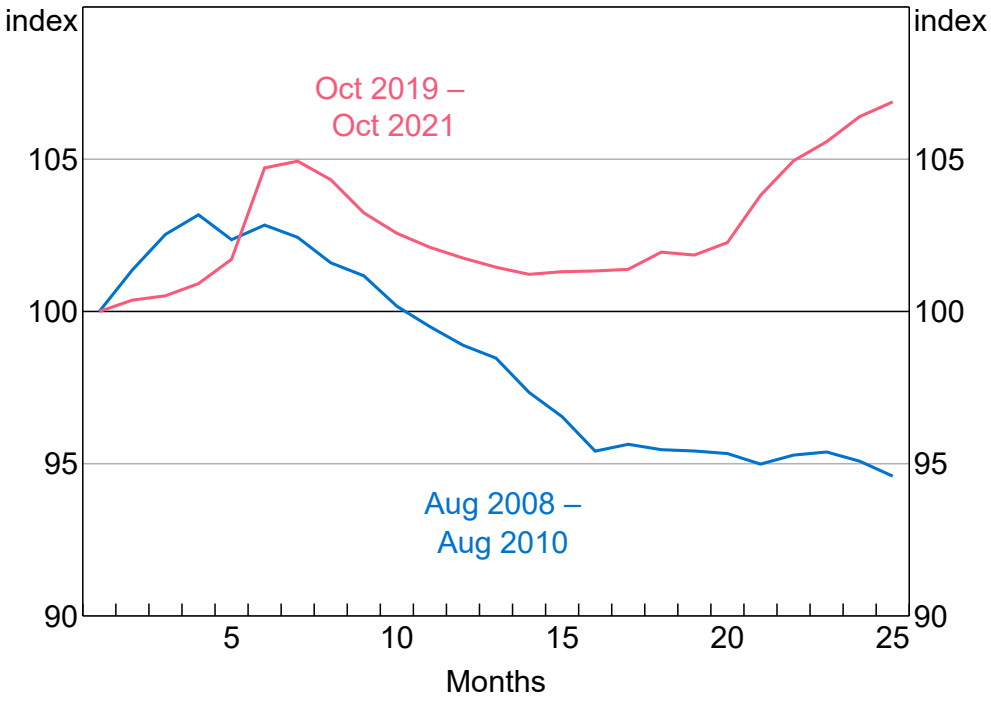
Overall, the effectiveness of the TFF in encouraging business lending is difficult to assess. Our econometric estimates found that there were no statistically significant effects of the TFF on bank credit growth for SMEs compared with large businesses,[24] and mixed results when comparing aggregate business credit growth for TFF-eligible banks against ineligible non-banks (Lai *et al* 2022). We also found no statistically significant effects on aggregate business credit growth for eligible banks that accessed the TFF compared with banks that did not draw down. However, the confidence intervals are wide, and it is difficult to control for other important factors that influenced the demand for business credit such as government support that boosted cashflows and the uncertain economic environment.

Nevertheless, business credit held up better during the sharp downturn in economic activity in 2020 than during the GFC and earlier recessions, which tended to be accompanied by a significant decline in SME lending (Graph 22). At least part of this difference may be attributable to the incentives to lend to businesses under the TFF, with the average outstanding lending rates for small businesses declining by more than those for large businesses.

Graph 22

Business Credit*

Pre-crisis levels indexed to 100



* Seasonally adjusted and break-adjusted.

Sources: APRA; RBA.

5. Financial impacts of the Term Funding Facility

The TFF increased the size of the RBA's balance sheet.

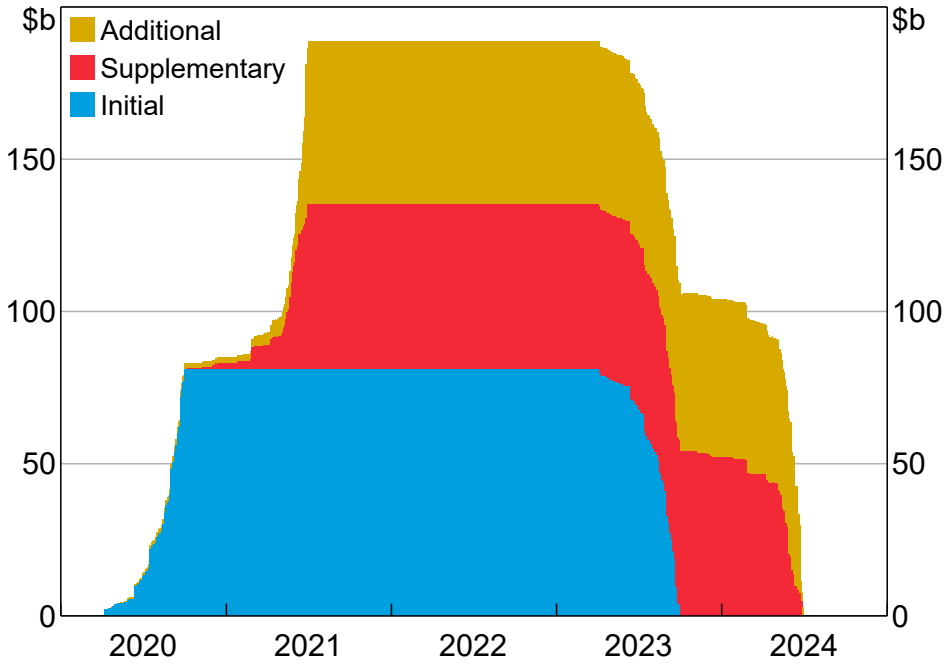
Central banks can manage their credit and interest rate risk exposures from term funding facilities in various ways. The extent to which a central bank can minimise its risks can at times be a trade-off with the degree of support provided to the economy.

The RBA's balance sheet increased substantially as a result of the TFF (Graph 23). The increase in funds lent under the TFF on the assets side was matched by an increase in liabilities in the form of Exchange Settlement (ES) balances. (With the final repayments of the TFF in mid-2024, the size of the RBA's balance sheet has decreased, with a reduction in both assets and the level of ES balances in the banking system.)

Graph 23

Term Funding Facility

Drawdown by allowance



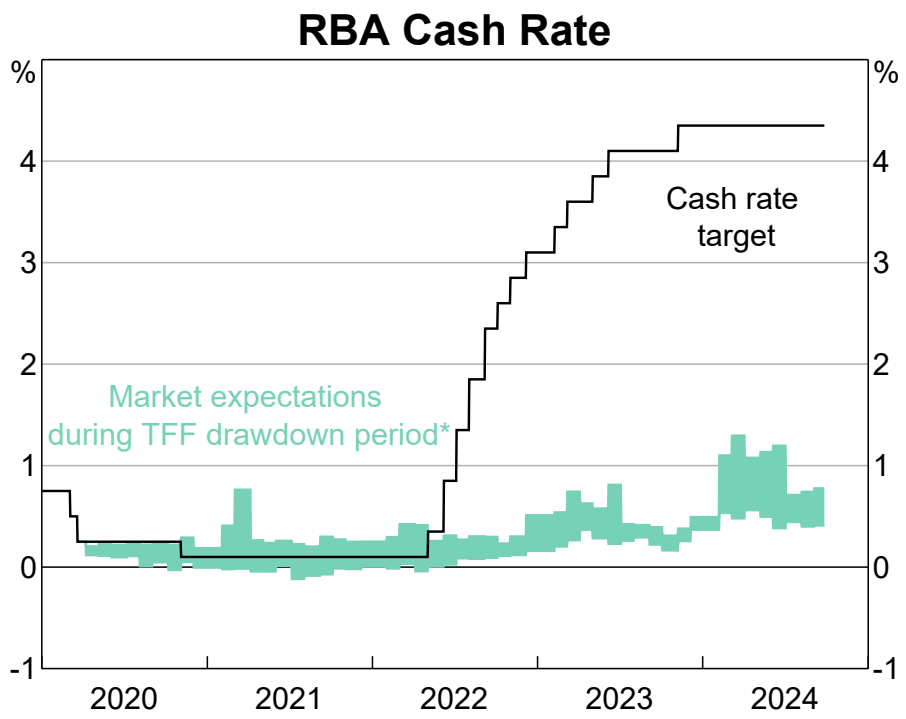
Source: RBA.

The RBA was exposed to interest rate risk because the TFF was provided at a fixed rate.

The fixed-rate nature of the TFF reinforced the yield target and forward guidance, but it meant that the TFF would come at a financial cost to the RBA if economic outcomes were more favourable than expected. This cost depended on the path of policy rates, since the RBA lent to banks at a fixed rate and paid a variable rate on the ES balances created. Initially, the TFF added to the RBA's net interest income: it earnt 25 basis points on TFF funds lent and paid 10 basis points on ES balances. But this turned to a cost when the interest rate on ES balances increased by 425 basis points, alongside the equivalent increases in the cash rate, but the TFF's fixed rate was unchanged (at 25 basis points for the initial allowance and 10 basis points on funds lent under the TFF extension). In total, the TFF cost the RBA around $9 billion, which is equivalent to around ½ per cent of GDP.[25]

It was understood that the TFF would come at a financial cost if economic outcomes were more favourable than expected, but in the circumstances the Board focused on the need to avoid extremely adverse economic outcomes. If economic outcomes were as expected and policy rates had remained low, the cost of the TFF would have been minimal. (In fact, a profit of around $1 billion would have been earned from the TFF.) As it turned out, the economic and inflation outcomes – and the resulting increases in policy rates and the associated direct financial cost to the RBA of the TFF – were well beyond even the upside economic scenarios considered by staff during 2020 and what most economists had predicted at that time (Graph 24). The scale of the losses from the TFF stemmed from both its fixed-rate exposure and the large take-up. The decision to extend the TFF in September 2020 led to the RBA facing greater interest rate exposure; the extension accounted for nearly half of the (*ex post*) costs to the RBA. Variable-rate pricing is often used in other advanced economy central banks' term funding schemes, entailing a lower exposure to financial losses as policy rates increased (see Box A: International experience of funding-for-lending schemes).

Graph 24



* Minimum and maximum cash rate path; implied by OIS from 19 March 2020 when the TFF was first announced to 30 June 2021 when the TFF was closed to new drawdown.

Sources: Bloomberg; RBA.

As noted in the reviews of other unconventional tools, the Board has agreed to strengthen the way it considers the full range of scenarios when making monetary policy decisions, especially where they involve UMP. In relation to any future TFF, this scenario analysis should include the benefits and potential costs of the policy under a wide range of paths for the cash rate, with separate costings for each unconventional tool, in addition to earnings at risk from the combined policy package.

For the broader public sector balance sheet, there have been some offsetting financial benefits from the TFF. By contributing to stronger economic outcomes than otherwise, the TFF – together with the other measures in the policy package – contributed to an improved position for federal and state and territory budgets, with higher tax revenue and lower support payments to households and businesses than would otherwise have been the case. These benefits to government finances are difficult to quantify.

Households and businesses benefited by not facing interest rate risk over the fixed-rate loan term.

In the event, the *ex-post* $9 billion cost to the RBA from bearing the interest rate risk of the TFF was a transfer to the private sector. It is difficult to quantify who received this benefit, but we estimate that much of it flowed to households and businesses that took out cheap fixed-rate loans. These households and businesses faced lower interest payments on their loans than they would have if they had taken out variable-rate loans, given the tightening of monetary policy since 2022 (Lovicu *et al* 2023).

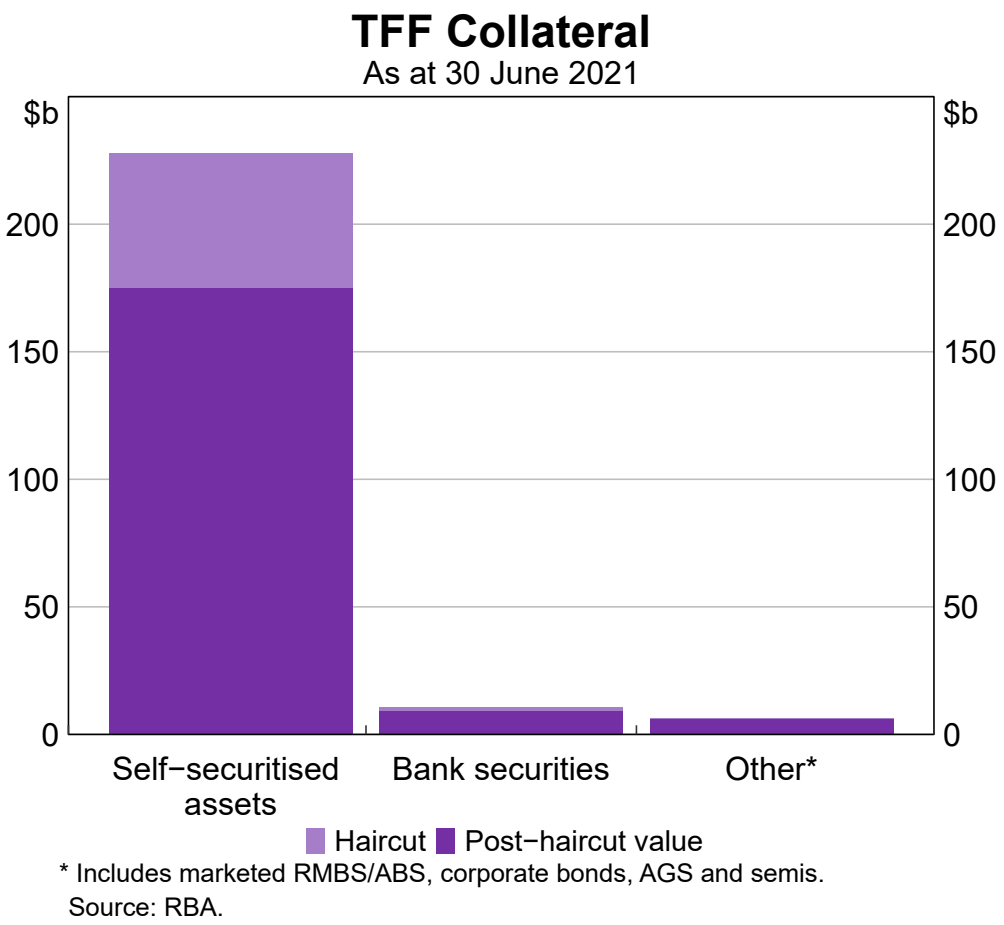
Banks mostly hedged the interest rate risk from the TFF funding (generally by lending at fixed rates, and to a lesser extent through derivatives); in this way, the interest rate risk benefit was passed through to borrowers, and to a lesser extent to counterparties on the other side of the derivative trades.[26]

The RBA managed the credit risk for the TFF through collateral.

As with all central bank funding, TFF funds were lent against high-quality collateral and with appropriate haircuts to minimise credit risk to the RBA. Self-securitisations constituted over 90 per cent of collateral pledged for the TFF by value. Self-securitisations allow banks to transform (via the central bank) illiquid assets on their balance sheets into liquid assets: they are structured pools of assets, such as residential mortgages, created by banks specifically to use as collateral to access liquidity from the RBA. In contrast to their ineligibility for repo funding in the RBA's open market operations, self-securitisations were eligible to be used as collateral for TFF funding (Cole and de Roure 2020). This worked well as many banks were operationally ready. It also ensured the banking system would have sufficient collateral to access the TFF at scale without having to pledge large amounts of other securities to the RBA, which might have otherwise disrupted these markets.[27]

Self-securitisations were generally the most cost-effective collateral eligible for banks to use for the TFF, as this type of collateral involves banks pledging AAA-rated notes backed by loans that are already on their balance sheets, rather than other, lower-yielding securities. As a result, those banks with self-securitisations available used them as much as possible (and some banks created new self-securitisations to access the facility) (Graph 25). Conversely, those banks without self-securitisations generally accessed less TFF funding, using other collateral such as Australian Government Securities, semi-government bonds, bank bonds issued by other banks or marketed RMBS.

Graph 25



While the use of highly rated collateral and conservative haircuts helped to limit credit risk to the RBA, it is important to understand how this risk may have played out under a different scenario. Self-securitisation prices are set by the RBA using a model, as these securities are not traded in the market. The RBA froze these modelled

prices in March 2020 for three years to ensure that any volatility in these prices did not result in a large number of margin calls (Kearns 2022; RBA 2024). Had a severe and prolonged downside economic outcome eventuated, this design choice could have resulted in losses for the RBA from insufficient collateralisation – in the event that a bank failed to repay its TFF loans – and required a large number of margin calls when these prices were unfrozen in early 2023.

Internationally, many term funding schemes had collateral requirements that were aligned with a central bank's eligible collateral policy for repo funding through open market operations (Lai, Lane and Nunn 2022). Some central banks expanded their collateral requirements as part of their wider COVID-19 monetary policy measures, such as the ECB and the BoE. Like in Australia, some central banks accepted a wider range of collateral for these facilities than typically accepted for open market operations. Other central banks allowed banks to post certain types of loans as collateral, such as those made through government loan programs or made to select sectors.

6. Some lessons and observations

The TFF worked broadly as intended – but as with any policy initiative there are lessons to be drawn to help guide any future deployment. Of course, the specific features of any future exceptional event – and hence the most appropriate policy response – are likely to differ from those during the pandemic in ways that are hard to predict in advance.

Lesson #1 – The design of a term lending facility such as the TFF involves trade-offs between the degree of support provided to the economy and flexibility if conditions change, as well as the potential costs to the central bank.

Some design parameters can be chosen to increase the effectiveness of a term lending scheme by providing households and businesses with greater certainty, such as longer loan maturities and/or providing fixed-rate lending rather than variable rates. The flipside to such commitments is (by design) that they are inflexible in the face of changing economic conditions. Evidence suggests that when the policy rate is at the effective lower bound and there are significant downside risks to the economy, a powerful policy tool is desirable.[28] Policy makers also always have the ability to raise the cash rate target later if circumstances change for the better.

Term funding facilities can be fixed rate or variable rate.

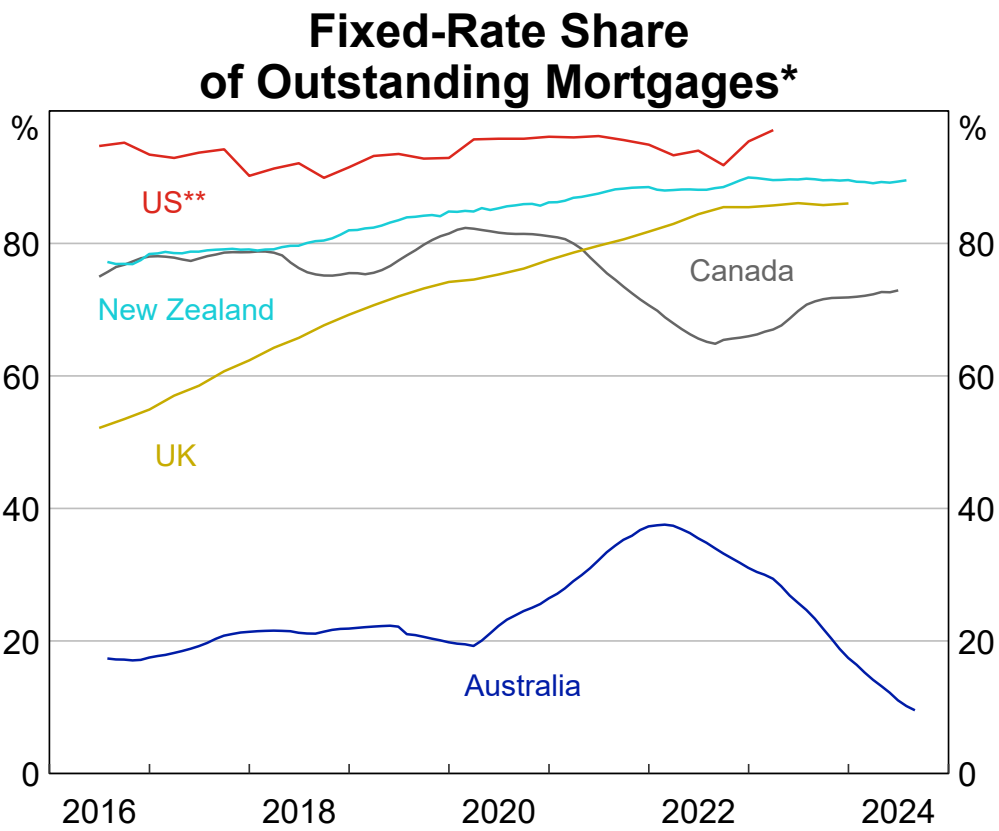
Central banks can reduce their interest rate risk by providing variable-rate lending, and many overseas central banks chose this option in the COVID-19 period in light of the specific features of their economies and policy settings (see Box A). In Australia, the three-year TFF was designed as a fixed-rate lending facility to reinforce other parts of the COVID-19 policy package, particularly the three-year yield target and forward guidance. It is difficult to isolate the effects of the various UMP tools, but the reinforcing aspect of the policy package contributed to its effectiveness. And that, coupled with the decisions made by banks to target fixed-rate lending to households and the take-up of these loans by households, resulted in a material increase in low fixed-rate borrowing that boosted aggregate demand through the usual transmission channels.

A variable-rate term lending scheme would be more feasible in future scenarios if it were not accompanied by a yield target and forward guidance.[29] Of course, banks, households and companies might respond in different ways to such variable-rate funding. Banks hedged most of their fixed-rate TFF exposures by lending at fixed rates, with liaison suggesting that it was cost effective for the banks at the time.

Some other central banks that introduced variable-rate term lending schemes during COVID-19 discussed this design choice within the context of minimising risks to the public balance sheet and facilitating pass-through of policy rate decreases to lending rates.[30] There is some tentative evidence that the fixed-rate nature of the TFF

boosted fixed-rate borrowing in Australia for some time. But when comparing the TFF with the outcomes of funding schemes in other countries, it is difficult to disentangle the interaction of different design features, the different policy packages and the importance of different institutional lending features (Graph 26).

Graph 26



* Most common residual terms of outstanding fixed-rate mortgage stock are less than one year in Australia and New Zealand, five years in the United Kingdom, more than five years in Canada, and 30 years in the United States.
** Share of newly originated mortgages.
Sources: Bank of Canada; FCA; FHFA; RBA; RBNZ.

The three-year term of the TFF did not materially impede the transmission of tighter monetary policy when economic conditions changed.

In the recent monetary policy tightening phase, transmission to outstanding lending rates and borrowers' cash flows was effective, but it was a bit slower than in the past. The slower pass-through occurred because of the increased share of fixed-rate housing loans, including an increase in the share of borrowers fixing for terms longer than two years.[31] These dynamics were anticipated, and the Board was able to take this into account in its policy decisions. The higher cash rate still transmitted quickly to most loans, because: the majority were still variable-rate loans; the fixed-rate period on most loans was less than two years; and some fixed-rate borrowers appeared to have adjusted their spending in advance of their fixed rate expiring (e.g. by saving more in anticipation of higher future required loan payments). Pass-through to outstanding mortgage rates is expected to reach a similar proportion to that seen in previous tightening phases, with most of the fixed-rate loans taken out during the pandemic expiring by the end of 2024.

Lesson #2 – It is important to put in place effective contingency plans, risk management and governance.

Throughout 2020, the Board was focused on supporting the Australian economy and providing insurance against what could have been very bad outcomes, including by supporting the financial system in response to strains in global financial markets. After the initial phase of the pandemic, the economic news was generally better and the economy more resilient than had been expected. Even so, there were periodic outbreaks of new strains of the virus, renewed restrictions of movement affecting significant shares of the population, and ongoing uncertainty about the rollout of vaccines and their effectiveness against new strains. These developments meant that significant downside risks remained. At the time, the Board gave considerable weight to these downside risks in its deliberations in the knowledge that if the upside scenarios prevailed it could adjust its policies, particularly given the context of inflation having been below target for a lengthy period prior to the pandemic. If the downside prevailed, there would have been much less scope for corrective action.

In retrospect and with the benefit of hindsight about subsequent developments in the labour market and inflation, a greater consideration of upside risks could have led to a decision not to extend the TFF or the yield target, to have structured the TFF as a floating-rate loan, or to have offered a shorter extension on the TFF. Moreover, the lack of drawdown by banks until close to the deadline potentially signalled that they did not need additional funding. In its decision-making at the time to extend the TFF, the Board considered the need for strong action when interest rates were near zero, the value of coordinating with fiscal responses, the extreme uncertainty about the impact of the virus on the economy and of the impending end of the JobKeeper scheme, and the way the TFF reinforced other monetary policy tools in place. The concern was that not extending could have diluted the RBA's messaging about providing economic support, especially when other countries were focused on providing additional monetary stimulus. But, after that decision had been made and the realised economic outcomes began to shift to the upper end of the distribution of possible economic outcomes, the three-year nature of the TFF meant it was not well suited to respond to changing circumstances. *Ex post*, the decision to extend the TFF was costly, accounting for around $4 billion – or nearly half – of the TFF's total financial costs to the RBA.

As part of the upcoming design of a framework for additional monetary policy tools, we will consider the ways that improved governance processes, risk assessment and enhanced information can support decision-making. Experience with the TFF and other UMP tools has also highlighted the importance of being operationally ready and considering issues ahead of time to be able to quickly respond in a fast-moving crisis with effective risk management and governance.

- **The Board has agreed that the supporting material for any future policy decisions involving UMP should be strengthened to consider a broad range of scenarios that might crystallise during the lifetime of the policy**, as noted in the RBA's reviews of its other UMP tools. This scenario analysis would include the benefits and potential costs of the policy, as well as how to judge appropriate exit paths for any future use of UMP tools (as has been identified as a key design issue in many jurisdictions). These lessons on risk management are consistent with the RBA Review findings and the forward-looking risk uplift (including additional lines of risk challenge and assessment) that we have underway at the RBA.
- **Forward planning can help prioritise any pre-emptive operational work and ensure there are various design options available in a crisis.** For example, while possible, it would have been operationally challenging for the RBA and the banks to undertake variable-rate repos within the confines of the system in place before the pandemic, had the policy decision been for a variable-rate (rather than fixed-rate) TFF. Subsequently, the RBA's systems have been upgraded and the operational capacity to easily undertake either floating- or fixed-rate repos is now in place. Relatedly, forward planning can guide improved risk management (e.g. revisiting the freezing of haircuts on self-securitisation collateral).

- **The TFF was able to be stood up quickly by relying on existing practices that were well understood by the industry.** For example, the TFF was essentially long-term repo funding and the banks were experienced in undertaking these through the RBA's open market operations. The TFF also made use of existing data collections to calculate allowances.[32] Further, most banks had a readily available stock of self-securitisations that were able to be used to expand collateral options quickly to provide a large amount of funding to the banking sector, without impacting the functioning of other securities markets. At the same time, the speed at which the TFF was set up necessarily limited the RBA's ability to consider potential issues and risks to the same extent that would have been the case outside of a crisis. Better forward planning – including on risk management and operational issues in addition to policy considerations – should allow more informed use of UMP tools when warranted by the circumstances.
- **The relatively simple design of the TFF allowed for rapid development and launch.** The fixed allowances were easy to understand, and the price of the facility aligned to the cash rate and three-year yield targets. More complex features (such as the price incentives tied to lending or repayment penalties used by some other central banks) may have created more operational issues than benefits, and potentially delayed development and deterred take-up. Having said that, by considering design features ahead of time, the costs and benefits can be effectively weighed up while considering ways to manage risks (e.g. by considering enforcing a smoother drawdown to prevent concentrated maturities).

Lesson #3 – The design of term funding schemes can have implications for competition.

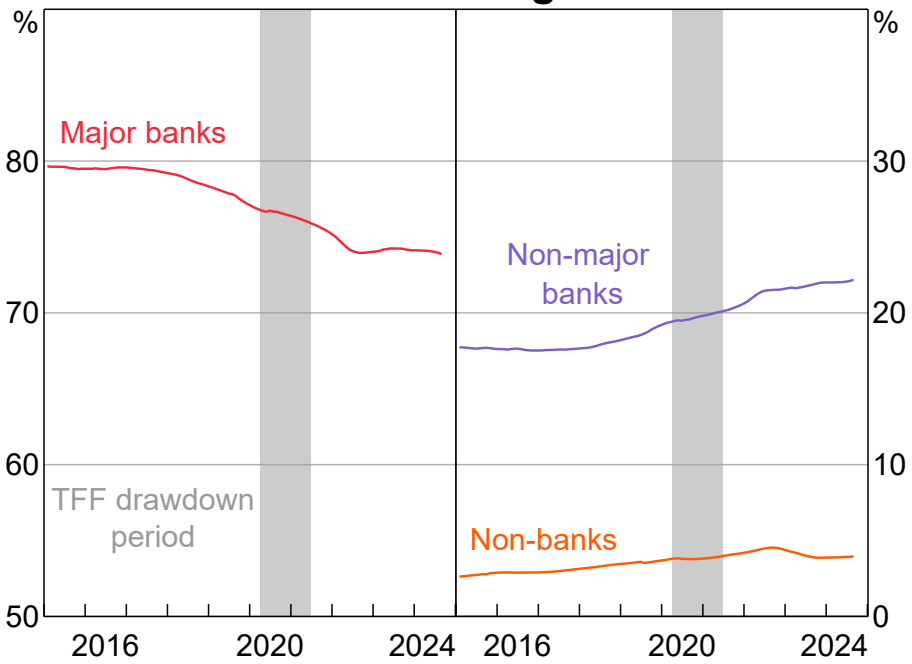
Term funding schemes can be designed in different ways to provide support to various sectors, depending on the purpose of the intervention. These design features can have implications for competition, some of which may be mitigated by the interaction with other government support programs targeted at different sectors. It is helpful to consider competitive implications ahead of time so as to be aware of potential implications when responding in a fast-moving crisis; these issues will be considered as part of the framework review of UMP tools.[33]

The TFF was accessible for all banks, and so was relatively neutral in terms of its effect of competition among banks. At the margin, the operating models of different banks had some impact on their ability to access TFF funding. Some small banks needed to create new self-securitisations for cost-effective access to the TFF. However, some foreign banks could not create self-securitisations due to their business models and so had to pledge other, less cost-effective collateral. Also, the additional allowance that provided further funding for increases in business lending was advantageous for banks focused on business lending (by design). But these influences were minor, and overall a large and diverse group of banks accessed the facility.

Because the TFF was designed to lower banks' funding costs and in turn lending rates to households and businesses, it was not available to non-banks. However, as discussed above, many non-bank financial firms benefited from powerful indirect support from the TFF. Investor demand for non-banks' securities rose, and funding costs fell as a result of the substantial reduction in bond issuance by banks. Non-bank lenders responded by issuing large volumes of RMBS. Although some non-banks raised competition concerns initially, a number noted later in liaison that they benefited from the lowest RMBS spreads since before the GFC. In particular, non-banks that specialised in non-prime lending (and hence did not typically compete with the banks) benefited. Non-banks' market share in housing lending increased from around mid-2020 to late 2022 (Graph 27).

Graph 27

Share of Housing Credit*



* Seasonally adjusted and break-adjusted.

Sources: ABS; APRA; RBA.

Non-banks were also able to draw on a range of government support provided to different sectors during the pandemic. The Australian Office of Financial Management's Structured Finance Support Fund (SFSF) was the non-bank counterpart to the TFF. The objective of the SFSF was to maintain access to reasonably priced finance in securitisation markets; it provided support to non-banks and smaller banks through public and private investments of $3.8 billion in the securitisation market. (A common business model for non-banks is to fund their operations by originating loans and pooling them into securities for sale in the securitisation market.) A distinction between the two programs was that the TFF was designed to lower banks' funding costs, whereas the SFSF was mandated to maintain access to reasonably priced finance. In liaison, some non-banks – particularly those that compete directly with banks in housing lending markets for prime borrowers – noted that this distinction meant that non-banks did not receive the same level of policy support as banks using the TFF, which was significantly cheaper than issuing in securitisation markets.

Overall, the potential for the TFF to have undesirable competition effects was partly ameliorated by its indirect effects in other markets, along with complementary government programs to support institutions that were not eligible for the TFF.

Lesson #4 – Open lines of communication between the RBA, APRA and industry, in combination with forward planning, contributed to the management of financial stability risks.

Information sharing and collaboration between the RBA and APRA, as well as APRA's prudential supervision of the banks, contributed to the management of financial stability risks associated with the end of the TFF and the roll-off of low fixed-rate mortgages. Open lines of communication with other government agencies were also important to manage risks and monitor market functioning.

TFF maturities were managed well despite being concentrated in two periods.

Banks faced a sizeable refinancing task from the TFF, and the concentration of TFF drawdowns towards the end of the borrowing windows meant that maturities were concentrated in late 2023 and mid-2024. From the outset of the TFF, the RBA had been in regular contact with APRA and the banks about this refinancing issue; APRA also engaged directly with banks to ensure appropriate liquidity management.

Banks were able to replace this funding without materially affecting market functioning because:

- conditions in wholesale funding markets were favourable[34]
- banks planned well ahead and smoothed their bond issuance over the lead up to the maturity of the TFF funding.[35]

The refinancing task could have been more challenging under less favourable market conditions.[36] Different design options such as enforcing smoother drawdown schedules could lower this risk.

Most other central bank term funding schemes also saw large repayments on specific maturity dates, with no major market dysfunction, though some central banks adjusted their lending timeframes or terms (e.g. by rolling old loans into new schemes) when they assessed that the maturation of loans would not have been conducive to desired economic or financial conditions.

Only a small share of borrowers with fixed-rate loans faced difficulty managing the large one-off increase in interest payments.

Households that had taken out fixed-rate mortgages during the pandemic faced a discrete jump in their mortgage payments as their loans rolled over to a much higher variable rate (Lovicu *et al* 2023). Scheduled loan repayments on most fixed-rate loans that expired from 2022 to 2024 were up to 60 per cent higher than when these loans were initially taken out.[37] Some commentators raised concerns of a 'mortgage cliff' because of the large volume of fixed-rate lending that had occurred.[38] However, the rollover of the fixed-rate loans occurred over a number of years, and although these increases were large, they were similar in size to the total increases in scheduled payments for variable-rate loans since the first increase in the cash rate in May 2022. Furthermore, the cumulative interest paid by these borrowers over the first three years of their loan was materially lower than if they had taken out variable-rate loans. The jump in mortgage payments was especially difficult for some borrowers, but most faced higher interest rates from a position of strength as they had time to prepare for the higher payments and had faced lower repayments during their fixed-rate period.

Only a very small share of borrowers struggled to meet the increase in their mortgage obligations at the end of their low fixed-rate loan period. In part, this was because banks contacted borrowers well ahead of the expiry of their fixed-rate period, giving advanced notice of the upcoming increase and, where appropriate, providing stressed borrowers with hardship arrangements (including temporary mortgage holidays, temporary switches to interest-only repayments, or extensions of loan terms). Also, many borrowers had substantial savings buffers, and the jump in scheduled mortgage payments occurred at a time of low unemployment and high participation in the labour market. The RBA and APRA monitored developments closely. Prudent lending standards helped mitigate financial stability risks. The borrowing capacity of this cohort at loan origination was assessed with an interest rate buffer of at least 250 basis points, later increased by APRA to 300 basis points in October 2021, which meant that they were assessed as being able to manage much of the impact of the subsequent 425 basis point increase to the cash rate (RBA 2021). Moreover, borrowers who had taken out new fixed-rate loans did not take on much more risk than those on variable rates.[39]

Concluding observations

Along with the other monetary policy measures announced in March 2020, the TFF helped to stabilise funding markets and provided banks with a degree of funding certainty that supported the provision of credit to households and businesses. It directly reduced funding costs for banks, and indirectly for other institutions issuing debt in wholesale funding markets. In turn, the TFF – along with the RBA's other policy measures – contributed to materially lower lending rates for households and businesses.

Many households took advantage of the very low fixed-rate loans on offer. Fixed-rate mortgage lending rose to its highest share on record, supporting household consumption, dwelling investment and the housing market more generally. There is less evidence that total business credit rose by more than would have been the case absent the TFF, though it still provided important support for businesses and business credit did not decline as had been the case in previous sharp economic downturns. Some banks increased their lending to SMEs and received additional funding from the TFF in line with this incentive. Business lending overall was little changed over the TFF drawdown window in an environment of soft demand for business finance with businesses' cashflows boosted by government support.

The TFF affected the aggregate public sector balance sheet in several ways. The TFF cost the RBA around $9 billion (equivalent to around ½ per cent of GDP), by lending to banks at a (low) fixed rate and paying a variable rate on the ES balances created. The interest rate on ES balances increased significantly, outside the upside scenarios predicted by economists at the time, as monetary policy was tightened from 2022 following the sharp increase in inflation here and globally. For the aggregate public sector balance sheet there were some offsetting financial benefits from the TFF. By contributing to stronger economic outcomes than otherwise, the TFF – together with the other measures in the policy package – also contributed to improved budget positions of federal, state and territory governments, with higher tax revenue and lower support payments to households and businesses than would otherwise have been the case. These benefits to governments' finances are difficult to quantify.

As noted in the reviews of other UMP tools, the Board has agreed to strengthen the way it considers a full range of scenarios when making policy decisions, especially when they involve UMP measures. In its decision-making at the time, the Board paid close attention to the downside risks to employment and inflation. In retrospect, a greater focus also on upside risks could have led to a decision not to extend the TFF (and yield target) in September 2020. In relation to any future TFF, scenario analysis would include the benefits and potential costs of the policy, recognising the difficulties in measuring these outcomes. A lesson from the experience of the pandemic is the importance of effective contingency planning, including ensuring operational readiness, to allow the RBA to respond quickly in a fast-moving crisis, with effective risk management and governance.

The Board remains of the view that it is appropriate to consider the use of UMP tools but only in extreme circumstances when the conventional monetary policy tool – the cash rate target – has been employed to the full extent possible. Overall, the TFF was effective in keeping credit flowing to the economy and in stimulating aggregate demand, as well as contributing to restoring confidence in financial markets. A facility of this type should be considered again if circumstances warranted it. In order to limit financial losses – if a similar facility was used in the future – the Board could consider extending funding at a variable rather than fixed rate and/or using shorter terms for funding, although such design choices would need to be weighed against any possible reduced effectiveness in supporting bank lending and underpinning economic activity.

Endnotes

1 See RBA (2022a); RBA (2022b); RBA (2022c).

2 See, for example, Reifschneider and Williams (2000), Svensson (2001) and Bernanke and Reinhart (2004).

3 Data on the drawdown amounts and allowances of the top 10 users of the facility were published with the August 2021 *Statement on Monetary Policy*; these accounted for almost 90 per cent of drawdowns from the facility. These banks include the four major banks as well as some smaller Australian banks that experienced strong growth in lending to businesses.

4 During the TFF drawdown period, there were around 145 banks registered with APRA, while only 134 were members of the Reserve Bank Information and Transfer System (RITS) for settlement of high-value payments and thus eligible counterparties for RBA financial market operations.

5 Banks must hold a minimum stock of high-quality liquid assets (HQLA), as defined by APRA; these include cash, balances held at the central bank (Exchange Settlement balances, or 'ES balances') and highly liquid marketable securities such as sovereign bonds (APRA 2018). The set of collateral accepted by the RBA for the TFF was wider than the set of APRA-defined HQLA, and included securities that are more cost effective for banks to pledge as collateral (e.g. self-securitisations; see below). As a result, banks borrowing under the TFF could satisfy APRA's liquidity requirements more cost effectively than otherwise, because drawn TFF funds become ES balances (which count as HQLA).

6 This was because the TFF represented a commitment by the RBA to provide liquidity to banks, in the form of three-year funding at a fixed price, in return for assets pledged as collateral.

7 In making this drawdown timing decision, banks would still be balancing other considerations, such as concentration of repayments and managing hedging flows.

8 For instance, see BIS (2023) on how complex program design and changing lending terms undermined take-up of some central banks' term funding schemes, and Volker (2022) on operational hurdles in the Fed's Paycheck Protection Program.

9 Central bank reviews of pre-pandemic term funding schemes include the ECB's Andreeva and García-Posada (2020), and the Bank of England's Ginelli Nardi, Nwankwo and Meaning (2018). While several central banks have discussed their experience post-pandemic in speeches and staff papers, only the RBNZ has so far released a formal review of its pandemic-era facility, finding empirical evidence that it decreased bank funding costs and mortgage rates (Nolan and Tong 2022).

10 In the absence of the TFF and the policy package, the cost of wholesale debt would have been even higher: prior to the announcement of the policy package, major bank domestic bond yields were around 1½ per cent. This indirect effect is discussed further below.

11 Much of the change in the composition of banks' funding has subsequently reversed with the maturity of the TFF. Banks have successfully returned to issuing higher volumes of wholesale debt and increased their long-term debt funding share by around 2 percentage points.

12 Some non-major banks did not use their entire TFF allotment and continued to issue wholesale debt over the TFF drawdown period. Most of these banks do not have self-securitised assets to use as collateral, making it more costly to access the TFF (Alston *et al* 2020).

13 The RBNZ estimates that the Funding for Lending Programme lowered the weighted-average funding spread of commercial banks in New Zealand versus Australian banks by about 15 basis points from the policy announcement date (12 August 2020) to the end of 2020 (Nolan and Tong 2022).

14 The RBA also injected substantial extra liquidity into the financial system through its daily market operations, particularly in the early stages of the pandemic. ES balances expanded materially, and with changes to the RBA's corridor system, money market rates fell sharply: they went from being near the top of the corridor to the bottom of the corridor. Hence, 'conventional' monetary easing was greater than the decline in the cash rate target alone. Combined with unconventional monetary policy, this contributed to the declines in banks' funding costs.

15 This was a key goal of the analogous Bank of England scheme (BoE 2020).

16 Non-bank lenders are finance providers that do not accept deposits, such as finance companies and money market corporations.

17 There was a range of government support provided to different sectors during the pandemic. This included a $15 billion Structured Finance Support Fund, run by the Australian Office of Financial Management, to supplement private-sector investments in structured finance markets to support smaller banks and non-banks. For more information on a range of government support to small businesses (Bank and Lewis 2021).

18 Variable-rate borrowers generally are offered, or negotiate, a discount relative to standard variable rates (also referred to as reference rates). As a result, a lender's change to reference rates flows through to the rates paid by existing borrowers (RBA 2019).

19 Their lending spreads (the difference between lending rates and funding costs) continued the downward trend since 2017 but the change over the pandemic period was less than in some other economies. Australian banks' use of hedging partly explains the relative stability compared to countries such as the United States, where hedging is less prevalent and banks are more exposed to changes in steepness of the yield curve (Brassil 2022). For more information, see De Zoysa *et al* (2024).

20 Banks also increased their holdings of liquid assets over the second half of 2021, in part to meet the upcoming changes to the Committed Liquidity Facility, which further compressed net interest margins.

21 It is again difficult to disentangle the contributions coming from the different elements of the policy package, the effects of other government support and shifts in demand for finance; the stock of credit outstanding is the intersection of supply (availability) and demand for finance.

22 An additional consideration is that business lending, for the purpose of the TFF, was defined to be consistent with banks' existing regulatory reporting requirements. This ensured that the facility could be rolled out quickly. The higher education section sector, which was particularly affected by the closure of borders, was excluded from this definition of business lending. This was likely to have reduced the incentives of banks to lend to the university sector.

23 If a version of an additional allowance is used in the future, consideration could be given to capping the allowance to manage refinancing risk.

24 These estimates are broadly consistent with the OECD's assessment of a similar incentive in the Bank of England's Funding for Lending scheme (Havrylchyk 2016).

25 While substantial, the cost of the TFF is well below the estimated cost of the bond purchase program, which involved bond purchases for longer maturities than the TFF and therefore carried greater interest rate risk. The program sizes also differed: under the bond purchase program, $281 billion of bonds were purchased, compared with TFF funding of $188 billion.

26 These counterparties bore interest rate risk and would have received a benefit from receiving the subsequently higher variable rate income stream when monetary policy was tightened.

27 While many banks had good access to self-securitisations, banks' ability to top-up at short notice varied. APRA has since issued updated guidance to ensure that banks can execute top-up processes efficiently in a timely manner, with some pre-positioning required (APRA 2022).

28 As above, see Reifschneider and Williams (2000), Svensson (2001) and Bernanke and Reinhart (2004). More recent literature, such as Eusepi *et al* (2022), expands on these themes.

29 Banks' hedging of the fixed-rate TFF in derivatives markets helped to reinforce the policy package: banks doing so (by 'receiving swap') has the same economic impact (via removing duration from the market and portfolio rebalance) as the RBA buying three year bonds. While a variable-rate TFF would not remove duration from the market, it could be paired with a bond purchase program that does.

30 As examples, there are discussions of term funding scheme design and pricing in policy announcements from the BoE (BoE 2020) and RBNZ (RBNZ 2020).

31 See Ung (2024). The three-year nature of the TFF meant that it contributed to lower funding costs to banks through to mid-2024 despite the RBA tightening policy from early 2022 (though some of this increase flowed through earlier to funding costs because some banks had hedged some of their fixed-rate TFF funding back to floating rates, which rose as the cash rate rose). Notably, the boost to mortgage lending occurred predominantly over the drawdown period (to mid-2021).

32 The TFF was set up based on the RBA's existing RITS agreement and used similar operational frameworks to the standing repo facilities. This meant that much of the legal, risk, and operational frameworks for the TFF were already in place. This sped up implementation and made the TFF simple for most banks to use.

33 Staff liaised with the ACCC during the set-up of the TFF.

34 Markets also functioned well amidst banks purchasing large volumes of government bonds (a form of HQLA) as the TFF was repaid and Exchange Settlement balances (also a form of HQLA) declined. The concentrated increase in purchases of HQLA by the banks could have been more challenging in a different environment, though these markets are relatively liquid and the RBA and APRA closely review developments in markets for HQLA to ensure that banks continue to have suitable options to manage their liquidity risk appropriately (Rustia *et al* 2024).

35 By the end of the maturity period, major banks had replaced TFF funding with more costly sources of funding, contributing around 15 basis points to their average funding costs. Some of this increase flowed through earlier to funding costs because some banks had hedged their fixed-rate TFF funding back to floating rates, which rose as the cash rate rose. While replacing low-cost TFF funding contributed to the 385 basis point increase in banks' funding costs, increases in the cash rate were the primary driver of bank funding costs as higher rates were paid on each funding component (De Zoysa *et al* 2024).

36 If market conditions had been less favourable, or if idiosyncratic shocks materialised around the time of the final repayments, staff had contingency plans to support markets through our open market operations.

37 How much the scheduled payment on an expiring fixed-rate loan increases depends on the loan's current fixed rate, the timing of the expiry of that rate and the loan's new interest rate. For more see Lovicu *et al* (2023).

38 As discussed in RBA (2022b), the fact that many people interpreted the RBA's forward guidance during the pandemic as 'a promise' that there would be no rate rises until 2024 (and made financial decisions based on that) led to reputational damage to the RBA.

39 Financial stability risks are more likely to eventuate if there are large numbers of borrowers with risky characteristics, including high levels of debt relative to income and assets, low income levels and low spare income after meeting loan payments and other essential expenses. On some of these metrics, borrowers with fixed-rate loans are more risky than those with variable-rate loans (who have seen large increases in their loan payments already and who to date have shown little evidence of increased

financial stress). Nevertheless, while fixed-rate loans tend to be newer and to a degree are expected to have more debt outstanding relative to income (since borrowers have not yet had time to pay down their loan) the differences have not been large. For more, see Lovicu *et al* (2023).

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