

Monetary Policy, Liquidity, and the Central Bank Balance Sheet

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Abstract

In response to the COVID-19 pandemic, the Reserve Bank deployed a number of monetary policy tools, including some new measures, to support the economy and address disruptions to the smooth functioning of financial markets. This new mix of policy tools has changed how the Reserve Bank implements monetary policy, and has significantly increased the size of the Bank's balance sheet and the amount of liquidity in the banking system.

Monetary policy before the pandemic

Before March 2020, the Reserve Bank implemented monetary policy by setting a target for the cash rate and closely managing the supply of system-wide Exchange Settlement (ES) balances to achieve that target.^[1] ES balances are at-call deposits held at the Reserve Bank that banks use to settle their payment obligations with each other. The cash rate is the interest rate at which banks lend ES balances to each other on an overnight unsecured basis. If the supply of ES balances exceeds demand, banks have an incentive to lend their surplus cash in the overnight cash market below the target cash rate, while a shortage of cash would put pressure on the cash rate rising above the target (Domestic Markets Department 2019).

Transactions between the Reserve Bank (and its clients) and commercial banks (and their clients) change the supply of ES balances on a daily basis. For example, the Reserve Bank is the banker for the Australian Government and large flows such as tax receipts or government expenditures give rise to large changes in daily ES balances, even though the impact of government finances on system liquidity is broadly neutral over a longer horizon (as government inflows are ultimately broadly matched by government outflows).

In an environment of relatively low system liquidity, to ensure that the level of ES balances remained consistent with demand at the cash rate target and to avoid potential volatility in the cash rate or

disruptions in the overnight cash market and payments system, the Reserve Bank would offset large flows through its daily liquidity operations. Reverse repurchase agreements (repos) contracted in open market operations (OMO) and foreign exchange (FX) swaps were used to inject liquidity when ES balances were projected to fall, and drain liquidity when they were projected to rise.

The pandemic response: using existing policy tools to address a surge in liquidity demand ...

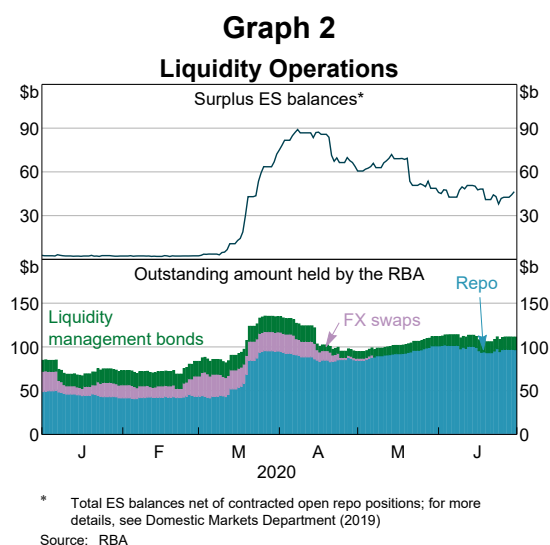
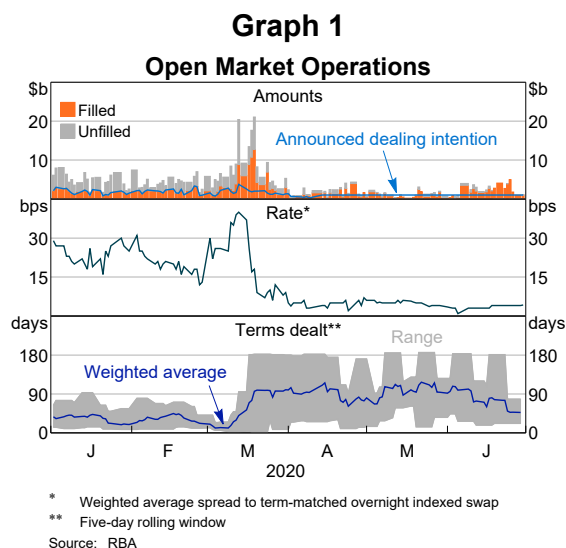
In late February and through March 2020, the spread of COVID-19 led to the emergence of stresses in global and Australian financial markets as uncertainty rose and downside risks to the economic outlook intensified (RBA 2020). Volatility rose sharply for the prices of many financial assets and signs of dysfunction arose in key financial markets, most notably in government bond markets (Debelle 2020; Kent 2020a).

These stresses led to a sharp rise in the demand for liquidity (Bank for International Settlements 2020; RBA 2020). In Australia, counterparties bid for significantly larger quantities of repo funding at OMO and at higher rates (Graph 1). Had this additional demand gone unfilled, financial conditions would have tightened further. To mitigate this risk, the focus of the Reserve Bank’s OMO shifted to providing liquidity support to the financial system. In the first 3 weeks of March, the Reserve Bank’s repo operations injected around \$45 billion more than what was required to maintain a stable supply of ES balances – a marked departure from the pre-pandemic framework of tight liquidity management (Graph 2). Market operations were also conducted at much longer tenors to provide greater funding stability for the financial system in a period of elevated economic and financial market uncertainty. The Reserve Bank committed to offer one-month and 3-month OMO repos daily and a 6-month term at least weekly, as long as warranted. These actions alleviated funding pressures in the banking system and met the increase in precautionary demand for liquidity.

... and introducing a broader policy toolkit to support the economy and market functioning

In addition to providing liquidity support to the financial system through its liquidity operations, the Reserve Bank deployed a number of measures to provide wider support to the economy and address dysfunction in financial markets arising from the pandemic (RBA 2021; Debelle 2021). Since their introduction, these measures have been adjusted in response to the changing outlook for the economy. The Reserve Bank’s policy actions have included:^[2]

- A reduction in the cash rate target from 0.75 per cent to 0.5 per cent in early March, followed by an additional cut to 0.25 per cent in mid March. In November 2020, the cash rate



target was lowered further to 0.10 per cent. The Reserve Bank Board also committed to not increase the cash rate target until ‘progress is being made towards full employment and it is confident that inflation is sustainably within the 2–3 per cent target band’.

- A target for the yield on the 3-year Australian Government bond of around 0.25 per cent, introduced in March 2020, and cut to 0.1 per cent in November 2020. The Reserve Bank has committed to purchase Australian Government Securities (AGS) as required to achieve this target. The 3-year yield target reinforces the Board’s forward guidance on the cash rate target and helps to lower borrowing costs for businesses and households.
- A commitment to purchase government bonds to support market functioning as required. These purchases are in addition to those made as part of the Reserve Bank’s other policy actions.
- A term funding facility (TFF) announced in March 2020 to provide 3-year repo funding for the banking system, with particular support for credit to small and medium-sized businesses. Initial funding allowances equal to 3 per cent of each eligible institution’s total credit outstanding could be drawn down by the end of September 2020. Institutions could also access an additional allowance if they increased their lending to small and medium-sized businesses and, from October 2020, a supplementary allowance (equal to 2 per cent of their outstanding credit). The deadline for drawing down the additional and supplementary allowances is 30 June 2021.
- A program of longer-term government bond purchases. Under the bond purchase program (BPP), the Reserve Bank buys AGS and bonds issued by the state and territory borrowing authorities (semis) with residual terms to maturity of around 5 to 10 years. The initial program was \$100 billion in size and commenced in November 2020. In February 2021, the Board announced that an additional \$100 billion of bonds would be purchased

when the initial program concluded in April 2021.

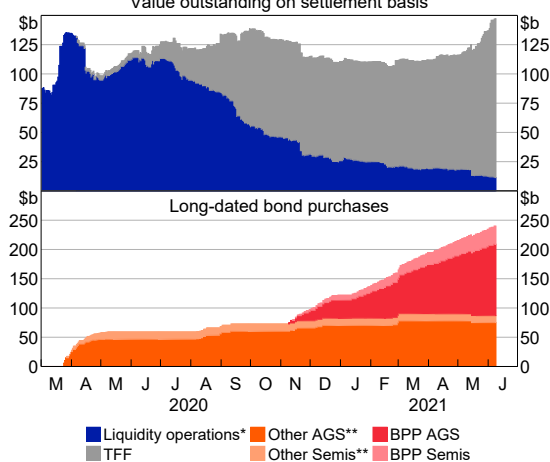
Reflecting the broader range of policy measures, the size and composition of the Reserve Bank’s operations in financial markets has changed significantly over the past year (Graph 3). Take-up of the TFF was initially gradual but accelerated in the lead-up to the deadline for initial allowance drawdowns (Alston *et al* 2020). Ahead of the deadline to draw down additional and supplementary TFF allowances, take-up of the TFF has begun to pick up again.

Since March 2020, the Reserve Bank has purchased around \$240 billion in government bonds, expressed in market value terms. In the early stages of the pandemic, the Reserve Bank purchased around \$60 billion of AGS and semis to address market dysfunction and achieve the 3-year yield target. Since then, another \$30 billion of AGS have been purchased to keep the 3-year yield around the target. To date, around \$155 billion of bonds have been purchased under the Bank’s BPP.

The new monetary policy measures have significantly added to system liquidity (discussed further below). The Reserve Bank chose to provide more monetary stimulus than otherwise by leaving this additional liquidity in the banking system instead of conducting offsetting market operations (Kent 2020b). A consequence of this is that the size

Graph 3

Monetary Policy Operations
Value outstanding on settlement basis



* Liquidity injections net of drains and maturities; mainly contracted in OMOs and FX swaps
 ** Purchased for market functioning and 3-year yield target (AGS only)
 Source: RBA

of liquidity operations is no longer set to target a particular level of ES balances each day. Instead, since April 2020 daily OMO have provided repo funding in full to all participants who submit bids for the Reserve Bank’s preferred terms at or above a stable rate (since November 2020, this has been 0.10 per cent, consistent with the new cash rate target and 3-year yield target announced at the November Board meeting). While the size of these operations initially rose sharply, since the middle of 2020 they have been significantly below pre-pandemic levels, reflecting the increase in liquidity in the banking system and substitution towards longer-term TFF funding (Graph 3). Because the liquidity impact of large government flows does not need to be managed as closely as previously, the Reserve Bank has not contracted any FX swaps for this purpose since March 2020.

The Reserve Bank’s policy measures have led to a large increase in liquidity in the banking system

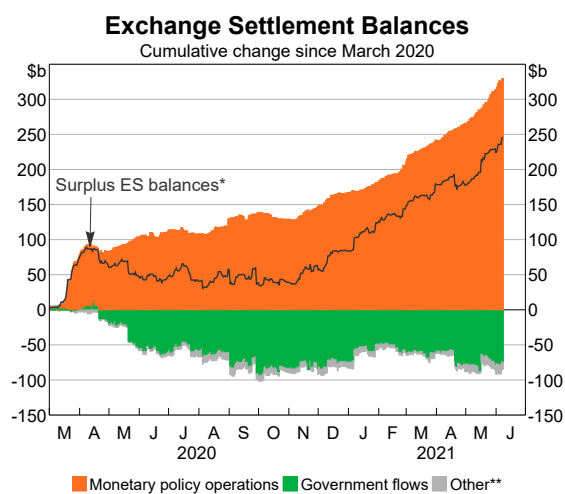
The policy measures introduced by the Reserve Bank since the start of the pandemic have contributed to a significant increase in liquidity in the banking system (Graph 4). The supply of surplus ES balances has risen to around \$250 billion compared to a pre-pandemic average of \$2–3 billion. TFF drawdowns and the Reserve Bank’s bond purchases have injected around \$380 billion of liquidity, more than offsetting a \$60 billion liquidity withdrawal due to the decline in the amount of outstanding OMO repos and FX swaps.

While the Reserve Bank’s policy measures have led to an increase in liquidity, the outstanding amount of surplus ES balances is also affected by other transactions. As previously mentioned, the most significant of these transactions for system liquidity (outside policy transactions) tend to be made by the Australian Government. Between March and September 2020, government transactions reduced liquidity by about \$90 billion as the pace of AGS issuance increased by more than (net) spending by the government. More recently, government flows have injected around \$15 billion in liquidity as AGS issuance has slowed and government spending has picked up.

Because of the design of the Reserve Bank’s policy measures, the increase in the supply of ES balances will not be permanent. Funding provided to banks under the TFF will need to be repaid to the Reserve Bank 3 years after it is received (or earlier if the banks choose), which will result in a reduction in banks’ ES balances. And when the Reserve Bank’s holdings of semi mature, funds are debited from the accounts that state and territory governments hold at commercial banks. In turn, these banks will pay the Reserve Bank by transferring ES balances, resulting in an overall decline in the supply of ES balances.

When the Reserve Bank’s holdings of Australian Government bonds mature, there is ultimately also a decline in ES balances, although the timing of this effect is less straightforward than it is for semis. Because the Reserve Bank is the banker for the Australian Government, all principal and interest payments on Australian Government bonds are funded through the government’s deposits held at the Reserve Bank. When these payments are made to the Reserve Bank, the size and composition of the Reserve Bank’s balance sheet will change: when Australian Government bonds mature, assets will decline because the bonds that the Bank once held have matured and liabilities will fall, reflecting a reduction in the size of government deposits. Because none of these flows reach the commercial banking sector, there is no direct impact on ES

Graph 4



* Total ES balances net of contracted open repo positions; for more details, see Domestic Markets Department (2019)
 ** Includes net banknote issuance and other RBA client flows
 Source: RBA

balances. However, these AGS maturities will still lead to a reduction in ES balances. The Australian Government currently has around \$60 billion in deposits at the Reserve Bank, while the Bank holds around \$180 billion of Australian Government bonds. As such, the Australian Government will ultimately need to raise additional funds to repay these bonds, either by issuing new AGS to the private sector or via increased revenue and/or reduced expenditure. All these options would result in a net increase in cash flow from the private sector to the government and so lead to a decline in ES balances.

The Reserve Bank balance sheet

The size and composition of the Reserve Bank’s balance sheet has changed significantly since the onset of the pandemic, reflecting the Bank’s recent policy measures. Accordingly, these balance sheet changes can provide insights on the Reserve Bank’s policy stance (Kent 2020b). This is different to the pre-pandemic period when the size of the balance sheet was largely independent of the stance of policy.

Before the pandemic, changes in the balance sheet were largely driven by liabilities ...

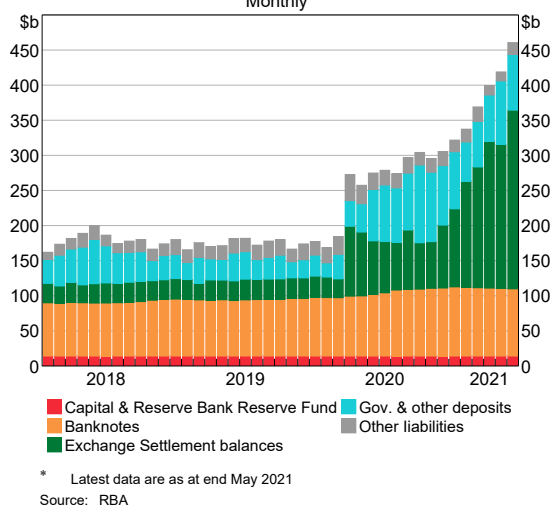
Before the pandemic, variations in the size of the balance sheet were largely driven by changes in liabilities that were beyond the Reserve Bank’s control (Graph 5 and Graph 6). For example, the Australian Government and other clients of the Reserve Bank decide upon the size of their deposit balances, and the stock of banknotes in circulation changes in line with the demand for physical cash. Changes in the size of these liabilities have a liquidity impact.^[3] To ensure that the supply of ES balances remained consistent with demand at the cash rate target, the Reserve Bank would offset these changes by transacting repos, FX swaps and outright purchases of securities close to maturity. In other words, material changes in liabilities were externally determined and the Reserve Bank would decide on the mix of assets to hold that would best meet its monetary policy objectives.^[4] Over time, the composition of assets between repos, FX swaps

and securities would vary in response to pricing, market functioning and other policy considerations.

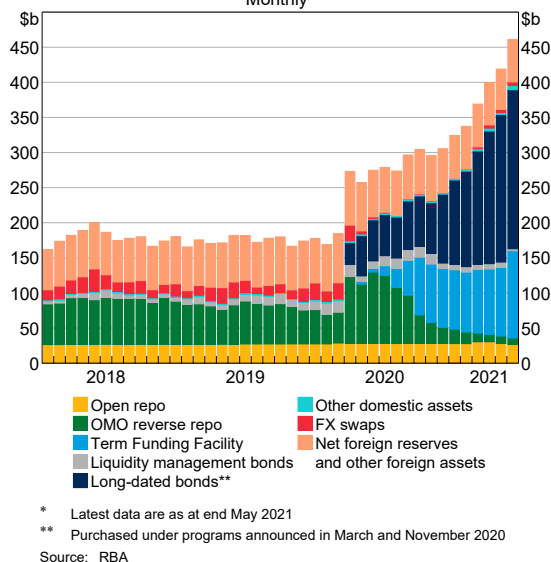
... but now, strong growth in assets is driving changes in the balance sheet

Since the introduction of the Reserve Bank’s policy measures in early March 2020, the balance sheet has nearly tripled in size from around \$170 billion to more than \$460 billion. This increase is equivalent to around 15 per cent of GDP. In contrast to the decade prior to the pandemic, the Reserve Bank’s policy measures have directly influenced the size of its balance sheet. Accordingly, the size and

Graph 5
Reserve Bank Liabilities
Monthly*



Graph 6
Reserve Bank Assets
Monthly*



composition of the balance sheet can reveal how these policy measures have been used, and provide insights into the Reserve Bank’s policy stance.

Reflecting the initial policy response to the pandemic, the Reserve Bank’s balance sheet grew by around \$90 billion between early March and early April 2020. The stock of outstanding OMO repos (also known as the OMO repo book) doubled in size to \$100 billion, and accounted for as much as 37 per cent of the Reserve Bank’s assets in June 2020 (compared to around 25 per cent before the pandemic). More recently, the OMO repo book has fallen to around \$10 billion, its lowest level since 2013. The Australian dollar FX swap book has decreased in size as previously contracted swaps rolled off and no new FX swaps have been contracted for liquidity management purposes since March 2020. At the same time, the TFF has grown to \$127 billion and comprises around 27 per cent of total assets.

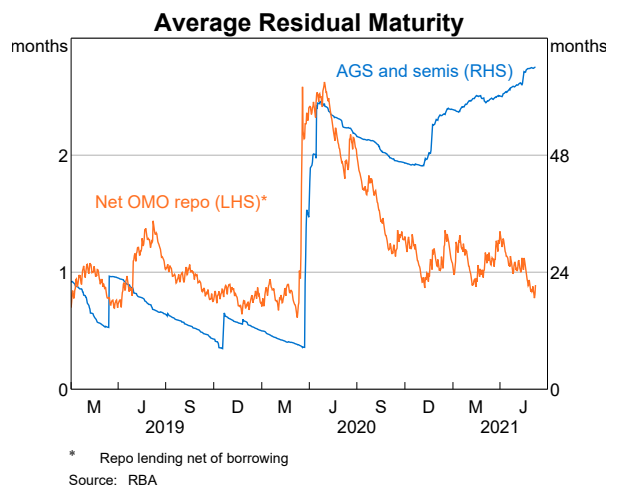
The Reserve Bank’s outright holdings of government bonds have risen by around \$230 billion, and now make up around half of total assets. Before the onset of COVID-19, the Reserve Bank’s holdings of government bonds were much smaller – typically making up between 5 and 10 per cent of total assets. As previously discussed, the Reserve Bank is purchasing government bonds with much longer residual maturities as part of its policy response to the pandemic. As a result, the average term to maturity of the Reserve Bank’s outright government bond holdings has increased to around 5 and a half years, from around 15 months previously (Graph 7).

An increase in the Reserve Bank’s assets is associated with a corresponding increase in liabilities. Recall from the earlier discussion that all transactions between the Reserve Bank and other market participants will change the supply of ES

balances. The Reserve Bank has funded the acquisition of assets from the private sector through the creation of ES balances, which are liabilities of the Reserve Bank.

The overall size of liabilities is now largely determined by growth in assets, over which the Reserve Bank now exerts a significant degree of control.^[5] However, the composition of liabilities remains largely outside of its control, because many of these liabilities remain determined by external factors. For example, during mid 2020, ES balances declined in spite of an overall increase in the size of the balance sheet because the Australian Government increased its deposits at the Reserve Bank. This has partly reversed since late 2020, leading to a decline in government deposits and an increase in ES balances. Separately, growth in the value of banknotes in circulation since the start of the pandemic has replaced around \$12 billion in ES balances, as the Reserve Bank deducts balances from commercial banks’ ES accounts as payment for these new banknotes (Guttman *et al* 2021).

Graph 7



Conclusion

In order to support the economy through the pandemic, the Reserve Bank has made significant changes to its monetary policy implementation. A number of new monetary policy tools have been introduced, complemented by the Reserve Bank's existing market operations. The use of this broad range of policy tools has led to a large increase in liquidity in the financial system. At the same time, these policy measures have also changed the size, composition and residual maturity of the Reserve Bank's balance sheet. Reflecting the introduction of

the TFF and the Reserve Bank's government bond purchases, the balance sheet has nearly tripled in size since the pandemic – to more than \$460 billion or around 23 per cent of GDP – and the residual term to maturity of the Bank's assets has significantly increased. These metrics show that the Reserve Bank's policy measures have provided a significant amount of support to the Australian economy, and will continue to do so for some time.



Footnotes

[*] The authors are from Domestic Markets Department.

[1] For more details on the relationship between the cash rate and other interest rates, see Atkin and La Cava (2017).

[2] For more details on these measures, see Debelle (2020), Kent (2020b) and Lowe (2021).

[3] For more details on the relationship between the Reserve Bank's liabilities and the supply of ES balances, see Robertson (2017).

[4] If the Reserve Bank did not conduct liquidity operations, movements in government deposits and banknotes would not change the size of the Reserve Bank's balance sheet. This is because changes in these liabilities result in an equal and opposite impact on ES balances, such that total liabilities remain unchanged. However, the Reserve Bank's operations kept ES balances relatively stable before

the pandemic (by changing the size of its assets). As a result, changes in these other liabilities would directly lead to a change in the size of the Reserve Bank's balance sheet.

[5] The size of the Reserve Bank's balance sheet will also change in response to changes in the market prices of assets held outright, including the prices of longer-term AGS and semis purchased as part of the Reserve Bank's policy actions. Since the balance sheet is measured in Australian dollars, its size will also change in response to movements in foreign exchange rates, which affect the Australian dollar value of the Bank's foreign currency assets.

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