

Bulletin

RAMPed up:

RBNZ's Additional Monetary Policy toolkit.

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Reserve Bank of New Zealand *RAMPed up: RBNZ's Additional Monetary Policy toolkit*

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Key points

- The Reserve Bank of New Zealand – Te Pūtea Mātua responded decisively to the arrival of COVID-19 in New Zealand and its associated economic headwinds. Given the low interest rate environment coming into 2020 and the operational constraints associated with cutting the OCR into negative territory, we rapidly developed and introduced additional monetary policy (AMP) tools.
- This article summarises our current thinking and understanding of each of these tools, building on the analysis expressed in our 2018 *Bulletin* on AMP. It demonstrates how we applied our principles when considering the use of these tools.
- With continued uncertainty ahead, the Reserve Bank keeps the range of AMP tools under consideration. They remain essential for us to achieve our purpose – Toitū te Ōhanga, Toitū te Oranga – to enable the economic wellbeing and prosperity of all New Zealanders.

1. Introduction¹

On 10 March 2020 Reserve Bank Governor Adrian Orr delivered a speech assessing the context of low interest rates, the potential need to go beyond using the Official Cash Rate (OCR) to provide stimulus, and outlining what other monetary policy tools might look like.²

Just six days later, in response to rising negative economic implications of COVID-19 the Monetary Policy Committee (MPC) agreed to drop the OCR 75 basis points to 0.25 percent, and introduced New Zealand's first additional monetary policy (AMP)³ tool – forward guidance – by committing to keeping the OCR at 0.25 percent for at least 12 months. A week later, in response to significant market dysfunction and the need for greater stimulus, we introduced the Large Scale Asset Purchase (LSAP) programme, where we purchased New Zealand government bonds to bring down longer-term interest rates and restore market functioning. This was subsequently expanded in May and August 2020. Then in the November *Monetary Policy Statement*, in considering the weak and uncertain forward outlook, we announced the Funding for Lending Programme (FLP), implementing it in December. This provided low cost, secured, medium-term funding to banks to support lower retail interest rates. Together, these three tools supported the New Zealand economy as it navigated its way through COVID-19.

¹ This article draws heavily on internal analysis and feedback from Cameron Haworth, Chris Bloor, David Craigie, Eric Tong, Evelyn Truong, John Knowles, Liza Reiderman, Michael Callaghan, Michael Thornley, Mike Coghlan, Rebecca Williams, Ross Kendall, Sandeep Parekh, and Severin Bernhard. It also draws on internal analysis of former employees Isaac Heron, Lucy Greig, and Paul Hutchinson. The author thanks these and the many other RBNZ staff that contributed to this article.

² See Orr (2020).

³ We have renamed these tools as additional monetary policy tools from alternative monetary policy tools, to emphasise all the tools are equally a part of our toolkit, and each have certain contexts where they would be particularly effective.

The New Zealand economy has recovered strongly since the relaxation of the health-led lockdowns of mid-2020. As a result, the MPC announced that it would start reducing the level of monetary stimulus in the July 2021 Monetary Policy Review by halting additional asset purchases under the LSAP programme. However, these three tools remain in our toolkit along with other AMP tools to respond to future economic conditions.

The aim of this paper is to review our experience and give the public a greater understanding of AMP tools and how we apply our framework to the use of these tools. This improves transparency, enables greater accountability, and makes our tools more effective, as greater understanding leads to greater credibility. Credibility is essential to anchor inflation expectations and ensure our policy signalling is responded to appropriately.

The objectives of monetary policy are to keep prices stable and support maximum sustainable employment. These objectives support the economic wellbeing of New Zealanders by giving businesses and households confidence to invest in their future, and enables a robust and healthy job market for workers and employers. AMP tools do this in similar ways to the OCR, by influencing interest rates and exchange rates to increase or decrease monetary stimulus. AMP tools provide us more options to respond effectively to different economic and financial contexts when facing various constraints.

This paper builds on initial work on the AMP tools by Drought, Perry, and Richardson (2018). It maps our updated analysis for each tool against our governing principles as explained in our [Unconventional Monetary Policy - Principles and Tools](#) document and summarised below. Most of these tools have been used overseas, allowing us to draw on empirical evidence of their effectiveness.

Monetary Policy Committee remit principles

Effectiveness	Tools are designed to provide a strong influence over inflation and employment, to ensure that the monetary policy objectives are achieved.
Efficiency	The Committee takes into account the distortionary impact of the tools on the efficient allocation of resources within the economy, including between various groups and sectors of the economy.
Financial system soundness	The Committee takes into account the impact of the tools on financial system risks, to avoid the costs of financial crises.

Operational principles

Public balance sheet risk	The Committee takes into account the financial risks that the tools create for the Reserve Bank and Crown balance sheets, to protect public funds and central bank independence.
Operational readiness	Use of the tools take into account the operational readiness of each tool, to ensure the transmission channels function as expected. This includes the readiness of the Reserve Bank to implement each tool and the readiness of financial markets and the New Zealand public to respond appropriately to the tools.

The six AMP tools we consider are described below. The first three tools have already been used in New Zealand, the final three have not yet been used but remain under consideration.

Additional monetary policy tools

Large Scale Asset Purchase (LSAP) programme	LSAPs, also called Quantitative Easing (QE), are central bank purchases of assets, usually government bonds, in order to decrease medium-to-long-term interest rates. They were introduced in New Zealand in March 2020 and have involved us buying up to a limit of \$100bn ⁴ in New Zealand Government Bonds (NZGB), Local Government Funding Authority (LGFA) Bonds, and New Zealand Government Inflation-Indexed Bonds (IIB). The MPC <u>agreed</u> at the July 2021 Monetary Policy Review to halt additional purchases under the LSAP programme.
Term lending programmes	Term lending programmes are central bank offerings of low cost, secured, medium-term funding to banks in order to support lower retail interest rates. Our term lending programme, the Funding for Lending Programme (FLP) was introduced in December 2020. It offers lending of up to 4 percent of the participant bank's eligible loans ⁵ , with an additional allocation of 50 cents for every dollar of net growth in eligible loans in the period commencing 1 November 2020, up to a maximum of 2 percent. The additional allocation acts as an incentive for banks to increase the size of their loan books, supporting the supply of new lending to the economy.
Forward guidance	Forward guidance as an AMP tool is considered a pre-commitment to a certain monetary policy stance with the aim of changing expectations of future interest rates. Forward guidance can be either for a pre-specified time period, or until a certain outcome has occurred. In March 2020, we used time-based forward guidance, committing to keep the OCR at 0.25 percent for at least 12 months.
Negative Interest Rate Policy (NIRP)	NIRP refers to cutting the OCR below zero percent. It's not a different tool from our conventional OCR tool, but has different characteristics making it useful to consider uniquely. We have considered this tool operationally ready since our February 2021 <i>Monetary Policy Statement</i> .
Transacting Interest Rate Swaps (TIRS)	Interest rate swaps are derivative contracts used by banks to manage interest rate risk, and these 'swap rates' are an important benchmark for the setting of fixed-term lending rates. By transacting in interest rate swaps, we would aim to reduce swap rates at various maturities which should transmit to lower interest costs for households and businesses.
Purchases of Foreign Assets (PFA)	This is the purchase of foreign currency assets to reduce the NZD exchange rate and, if desired, to increase NZD liquidity.

The next section summarises the channels through which the AMP tools transmit through the economy to our inflation and employment objectives. We then discuss each of the six tools individually. While considered individually for simplicity, it must be stressed that in setting the monetary policy stance, the MPC consider which combination of tools would most effectively and efficiently meet the MPC's mandate. We reflect on some of these interactions and other matters in the concluding section.

⁴ This limit was successively increased to \$100bn over time.

⁵ Eligible loans measured as at 31 October 2020.

2. Transmission channels

In this section we describe our understanding of how these tools transmit to inflation and employment. At its core, monetary policy works by raising and lowering interest rates faced by households and firms in order to increase or decrease aggregate demand and thus change inflation and employment pressures accordingly. Globally, central banks have relied on adjusting short-term interest rates to achieve the intended effects. However, at times there are operational constraints or limits to the effectiveness of further reductions in short-term rates. Additional Monetary Policy (AMP) tools are used in response to these constraints and are different ways to achieve the same goal of changing inflation and employment pressures.

For simplicity, we'll describe what occurs if we use the tools to stimulate the economy, i.e. when we want to increase inflationary and employment pressures. Specifically, stimulus occurs when we cut the OCR, or when we introduce or increase the size of any of the other AMP tools. Raising the OCR or decreasing the use of the other tools would be a monetary tightening, and its effects would be the opposite of what's described in this section.

This section only outlines the theory of the transmission channels, without judging a tool's potency through a channel. This will be considered in the subsequent sections on each tool. Figure 2.1 (at end of this section) is a stylised representation of how the six AMP tools are linked and transmit to inflation and employment. This is described below as we explore transmission through the banking sector, financial markets, exchange rate, and inflation expectations.

Transmission through the banking sector



Banks supply the majority of credit in New Zealand, making them an integral component of monetary policy transmission. Monetary policy lowers the interest rates banks face, with the intention of banks passing on those lower rates to their customers. Lower funding costs should transmit to lower lending rates, but the degree of pass-through depends on constraints imposed by the prevailing market conditions.

All AMP tools are expected to transmit through the banking sector through policy signalling, by lowering expectations for future interest rates. This is because the OCR (and its future rate) directly affect the cost of bank funding and therefore lending rates. Term lending programmes (like the FLP) also directly target bank funding costs by offering low cost medium-term funding to banks and alleviating medium-term funding pressure. The FLP design also has an incentive mechanism for increasing lending, which can decrease lending rates through the **competition channel**. That is, in order to access additional low cost funding from the FLP, banks will lower their lending rates to increase their loan book by competing with other banks.

Lower deposit and lending rates encourage households to save less and borrow and spend more. Lower levels of saving and higher levels of consumption and investment spending increases aggregate demand and therefore inflation and employment pressures.

Transacting Interest Rate Swaps (TIRS) can also be understood as transmitting through the banking sector. Banks can use interest rate swaps to hedge against interest rate risk. A large proportion of banks' funding is on floating or short-term fixed rates, whereas a large proportion of banks' lending is on fixed rates. By decreasing swap rates (either through policy signalling, or through directly intervening in the market with the TIRS tool), we decrease the cost for banks to provide fixed-rate loans, allowing banks to lower their lending rates. This increases spending and inflationary and employment pressures.

Transmission through financial markets



Stimulatory monetary policy also lowers financial market rates. These rates affect financial market participants such as large corporations or investors outside of the banking sector. Here we consider three main mechanisms.⁶

1. The policy signalling channel. We believe all AMP tools transmit through this channel to some degree.
2. The portfolio rebalancing channel. We believe all AMP tools except FLP transmit through this channel.
3. The market functioning channel. We believe LSAPs and PFA transmit through this channel.

The **policy signalling channel** in this context refers to the AMP tool's ability to signal the future path of the OCR, or a more expansionary desired monetary policy stance in general. Forward guidance does this explicitly by telling the market about our intentions. Other tools do this more implicitly (and potentially unintentionally). Increasing the stimulus provided from any of the AMP tools signals to the financial markets that the OCR is unlikely to rise for some time. This is important because most interest rates reflect the market's expectation of future short-term interest rates (i.e. the future OCR) along the maturity of the instruments plus some margin.

The **portfolio rebalancing channel** refers to investors rebalancing their investment portfolio into other assets, or other maturities of the same asset, when our tools alter interest rates or introduce additional liquidity into the financial system.⁷ This can occur with various AMP tools, but might be most apparent with LSAP purchases. If the RBNZ purchases a government bond the supply of bonds is reduced (which increases the bond's price and lowers the bond's yield). Other market participants may shift into government bonds of different maturities, other assets with a higher risk profile, or foreign assets. This would reinforce our impact on the yield curve, lower corporate yields and lead to wealth effects (households feeling wealthier or less constrained may increase their consumption), or put downward pressure on the NZD exchange rate, respectively.

⁶ For LSAPs, these mechanisms are in addition or complementary to the direct effect they have on government bond yields. By purchasing government bonds they decrease the outstanding supply, raising the price, and lowering the yield.

⁷ Underlying rationales include that the investors have a preferred allocation of their assets, and/or seek higher returns after a decline in market rates.

The **market functioning channel** refers to an amplified impact LSAPs (or PFA) can have on interest rates (or exchange rates) in times of market stress/dysfunction. A dysfunctional market occurs when buyers and sellers are unable to trade at prices they see as reasonable (or there are no opportunities to trade at all). In a bond market (something similar could be seen in the foreign exchange market), this is an increase in liquidity risk, which essentially is the risk that bond holders can't sell a bond at appropriate prices. LSAP purchases provide a source of demand with certainty, and thus decrease liquidity risk, allowing bond yields to return to more suitable levels.

Exchange rate channel



Monetary policy also transmits through the exchange rate. PFA involves direct interventions in foreign exchange markets, while the other tools impact the exchange rate more indirectly through the signalling or portfolio rebalancing channel.

A lower exchange rate generally makes our exports more competitive and our imports less so, collectively increasing our net exports. This increases aggregate demand and thus inflation and employment pressures. Additionally, the higher import prices feed directly into higher CPI inflation.

Inflation expectations channel

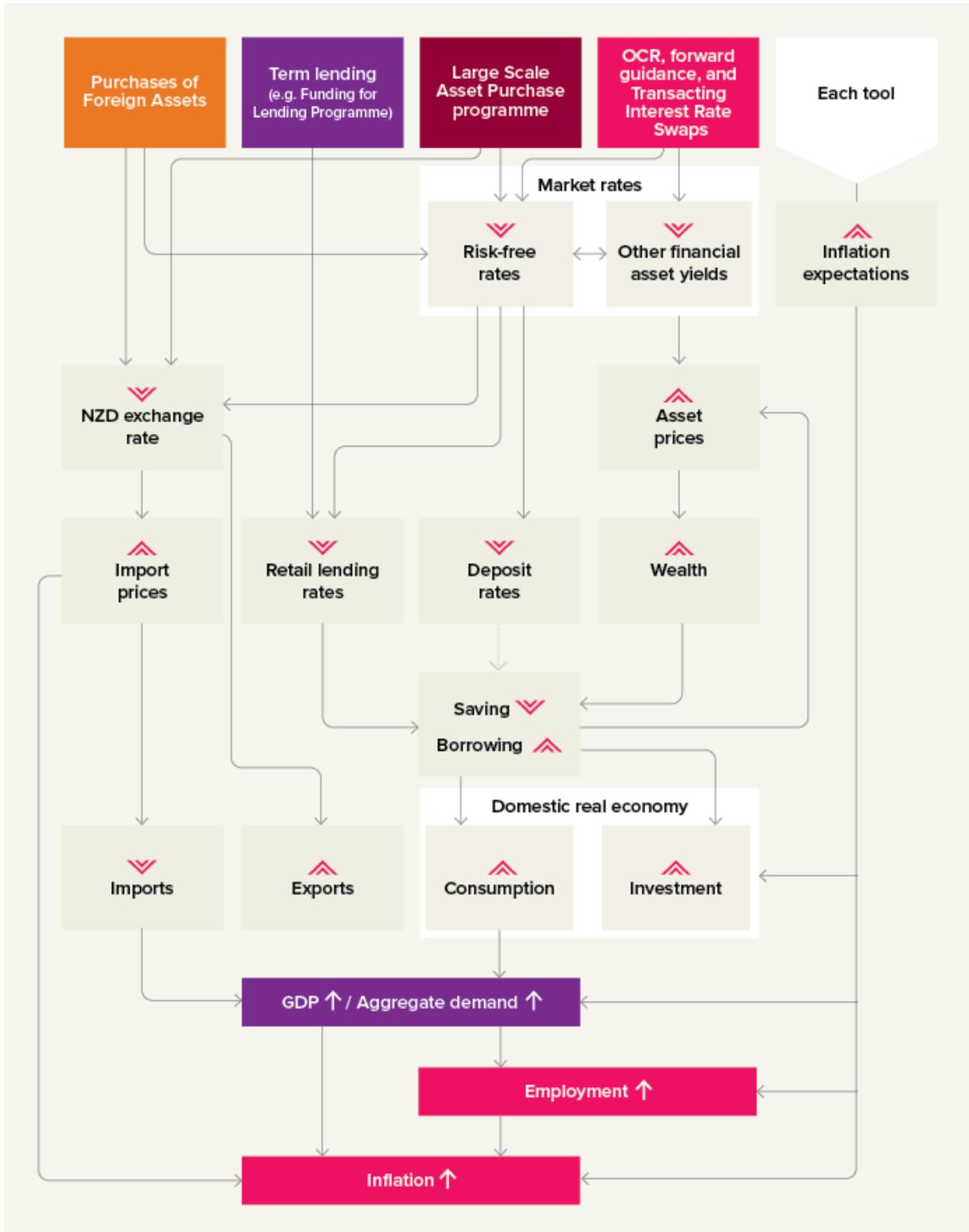


A final important channel is inflation expectations. Any use of our tools when done credibly at targeting our objectives can influence inflation expectations, by either keeping them anchored close to 2 percent in the medium term, or shifting expectations towards 2 percent. This channel essentially reinforces any policy move we make by shaping wage and price setting behaviour in line

with the desired direction of monetary policy.

The next six sections explore each of our AMP tools individually, and consider them in relation to our principles.

Figure 2.1: How monetary policy transmits to inflation and employment.



3. Large Scale Asset Purchase (LSAP) programme



Assessment against principles

- **Effectiveness:** LSAPs are effective at lowering interest rates and at incentivising investors to take more risk, by lowering the yield on risk-free assets (the 'portfolio re-balancing channel'). LSAPs are most effective in periods of significant market dysfunction, such as that seen in New Zealand government bond markets in March 2020. LSAPs may be less effective than lowering the OCR at providing stimulus in normal times.
- **Efficiency:** LSAPs primarily act through lowering interest rates, therefore any differential effects on parts of the financial system and economy should be similar to that of the OCR. However, there are a few additional areas to monitor. For instance, if we buy too many bonds, we may cause a scarcity of bonds in the market, leading to a deterioration in market functioning.
- **Financial system soundness:** The LSAP programme improves financial soundness in the near term as it improves liquidity and lowers borrowing costs. Its impact on soundness is more significant when responding to significant market dysfunction, as it did in March 2020. Longer term, similar to an OCR reduction, there is a risk that asset prices are higher than otherwise due to the programme, which may pose the risk of a future correction.
- **Public balance sheet risk:** The Reserve Bank may make losses on the portfolio of bonds purchased under LSAPs depending on the evolution of interest rates over the life of the programme. These losses are borne by the Crown under an indemnity. Any such costs for the Crown are at least partially offset by lower-than-otherwise funding costs. This is due to lower interest rates on government bonds, and the improved economic conditions that monetary stimulus provides, leading to increased tax revenues from higher incomes and more spending.
- **Operational readiness:** This tool has been successfully implemented.

On 23 March 2020 we launched LSAPs⁸ with an initial limit on the quantity of bond purchases of \$30bn, which was subsequently expanded to \$60bn in May 2020 and \$100bn in August 2020. The bonds purchased include nominal New Zealand Government Bonds (NZGBs), New Zealand Government Inflation-Indexed Bonds (IIBs), and Local Government Funding Agency (LGFA) Bonds, all on the secondary market (i.e. not directly from the bond issuer). The MPC in the July 2021 Monetary Policy Review agreed to halt additional purchases under the LSAP programme in response to the strength of the New Zealand recovery. This leaves our current holding of government bonds at just under \$54bn as at 23 July 2021.

⁸ Also referred to as Quantitative Easing (QE).

Summary of transmission

The Reserve Bank purchases bonds under the LSAP programme by way of regular auctions, in which market participants submit competitive offers to sell bonds to the RBNZ. At each auction the RBNZ undertakes to purchase a pre-announced quantity of bonds. By adding materially to demand for these bonds, LSAPs increase the price of bonds and thus lower their yields. This leads to portfolio rebalancing as market participants are incentivised to purchase higher yielding assets. This raises the price (and lowers the yield) on other assets such as corporate bonds and equities – making it cheaper for companies to raise funding via these sources.

The effectiveness of LSAPs appears to be greater in times of market dysfunction, as the programme reduces liquidity risk by providing a guaranteed buyer when other market participants are unwilling to trade.

LSAPs may also act to lower the exchange rate, as investors are attracted to relatively higher foreign interest rates due to the lowering of local interest rates. In particular, the sellers of NZD denominated assets in the LSAPs may decide to convert their proceeds into another currency, thereby putting downward pressure on the NZD. This is most likely to occur if sellers of bonds are non-resident investors. Since LSAPs were introduced, non-residents' share of NZGB holdings has declined, suggesting the programme has had some effect through the exchange rate channel.

LSAPs may also transmit through the policy signalling channel, as it signals that the stance of monetary policy will likely remain accommodative for an extended period.

There is sometimes a misperception that proceeds from LSAPs are used by registered banks to fund new lending. This is generally not the case. LSAPs do lead to an increase in liquidity for banks, which could support lending if banks were liquidity constrained. However, the banking system had ample liquidity when LSAPs were introduced and liquidity is usually not the binding constraint on bank lending. Other constraints such as the availability of profitable lending opportunities, bank risk appetite, and prudential capital requirements, may play a greater role at various times in influencing the quantity of bank lending.

Collectively, these channels allow LSAPs to lower interest rates and the exchange rate, thereby raising aggregate demand, inflation and employment.

International experience

International experience has shown that LSAPs are effective in providing monetary stimulus. When we introduced LSAPs in New Zealand, they had already been introduced in the euro area, Japan, Sweden, the UK and the US, and had widely been found to lower long-term interest rates and exchange rates, helping to support economic growth and inflation.

On average, studies found that government bond purchases equivalent to 10 percent of GDP have lowered average 10-year government bond yields by around 45-55 basis points (table 3.1). This result has been reasonably consistent across economies, although the range of estimates across programmes and studies is wide. The fall in yields has mostly occurred on the announcement of purchases (or their expectation) rather than when the purchases have been conducted, a phenomenon known as 'the anticipation effect'.

Table 3.1: Fall in 10-year yields due to government bond purchases⁹*(Basis points per 10 percent of GDP purchased; survey of 28 studies)*

Economy	Median	Range of estimates	
		Min	Max
Euro area ¹	44	41	45
Japan	21	17	24
Sweden	68	-	-
UK	47	34	78
US	57	15	240

¹ Estimates shown for German government yields. Italian yields estimated to fall as much as 132 basis points.

Part of the stimulus provided by LSAPs has come through the exchange rate channel. One study examining LSAP programmes across countries, found that exchange rate depreciation was the main channel through which purchases led to higher inflation and inflation expectations.¹⁰ The largest currency effects (a depreciation in the range of 4-6 percent) were seen following some of the LSAP programmes of the US, UK, euro area and Japan.¹¹ In Sweden, government bond purchases lowered the exchange rate by slightly more than would normally be expected for the given fall in yields.¹²

There is general agreement that LSAPs have also been effective in increasing GDP and inflation, although there is considerable uncertainty around the size of these effects (table 3.2). For the US and some other countries, research suggests that government bond purchases of 1.5 percent of GDP provide similar stimulus as a 25 basis points cut in the policy rate.¹³ We anticipate the effectiveness in New Zealand is lower for three reasons. Firstly, aside from an initial period of market dysfunction, longer-term interest rates have been relatively low over the period of LSAPs implementation in New Zealand, so further reductions are constrained by the market's expected lower bound on interest rates. Secondly, long-term yields are less important in New Zealand relative to other countries (such as the US). This is because our mortgage rates tend to have shorter fixed durations (e.g. usually 1-3 years, compared to much longer-term fixed rates in the US) and long-term wholesale funding markets are relatively small in New Zealand. Finally, to a lesser degree, the fact that government bond yields are less important as benchmark interest rates in the New Zealand financial system than swap rates (which have a greater influence over mortgage rates in particular) may reduce the effectiveness of LSAPs. Swap rates and NZGB yields are closely related (and tend to move in the same direction) but do not always move in sync.

The effectiveness of LSAPs depends on the prevailing state of the economy and financial system. For example, early rounds of these central banks' purchases, which were conducted during a period of heightened market stress, were generally more effective in lowering long-term yields.¹⁴

⁹ Source: Gagnon (2016).

¹⁰ See Beck *et al.* (2019).

¹¹ See BIS (2019A).

¹² See De Rezende, Kjellberg and Tysklind (2015).

¹³ See Gagnon and Sack (2018).

¹⁴ Haldane *et al.* (2016) find that, in the US and UK, LSAPs were around twice as effective in raising output and around 1½ times as effective in raising inflation when markets were stressed. See also Broadbent (2018) and Gagnon (2016).

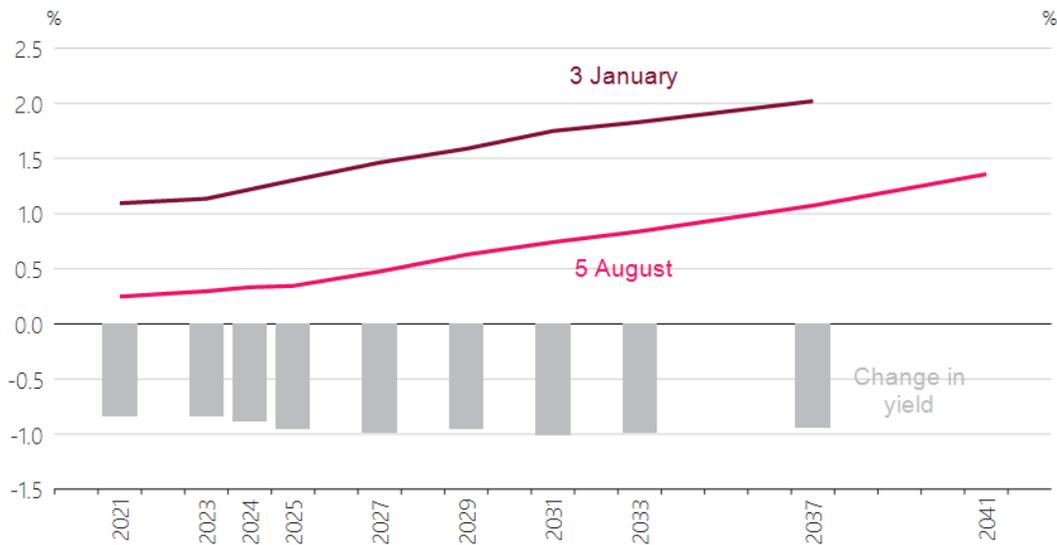
Table 3.2: Macroeconomic effects of bond purchases¹⁵*(Peak percentage point increase per 10 percent of GDP purchased; average of 25 studies)*

Economy	Real GDP	Inflation
Euro area	1.7	1.8
Japan	0.5	0.5
UK	1.3	0.6
US	2.2	2.0

New Zealand experience

We believe the peak impact of the LSAP programme occurred around the time of the August 2020 *Monetary Policy Statement (MPS)*, as this was when the market's expectation of the total size the LSAP programme would reach was at its highest (i.e. closest to the \$100bn limit). As the economy improved and the New Zealand Treasury reduced its forecast of debt issuance, the market reasonably assessed that it was less likely that total purchases would reach the \$100bn limit.

Considering this, in our August 2020 *MPS* we noted that NZGB yields were down around 95 basis points on average in the year to July (figure 3.1). We estimated that NZGB yields were at least 50 basis points and potentially more than 100 basis points lower than they would have been without the LSAP programme.

Figure 3.1: New Zealand Government Bond (NZGB) yield curve

Source: Bloomberg. Originally appeared as figure 3.1 in our August 2020 *MPS*.

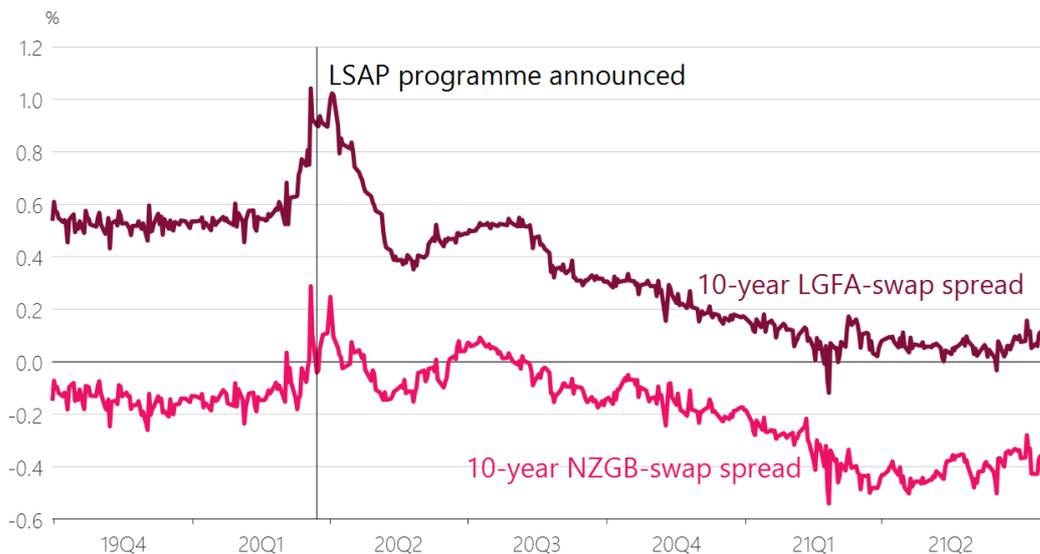
¹⁵ Source: BIS (2019A); RBNZ staff calculations.

We also noted the spread between corporate bonds (and Kāinga Ora Bonds) and NZGBs had declined, the price of New Zealand equities and other financial assets had risen since March, and swap rates declined on average by around 100 basis points during the year. These may be partially attributed to the portfolio rebalancing and policy signalling channels of the LSAPs.

These channels should have also led to a depreciation of the exchange rate. While noting the difficulty of identifying the LSAPs' impact on the exchange rate, we saw depreciations after the announcement of our LSAP programme decisions, and estimated the exchange rate was 4-10 percent lower than it would have been without the LSAP programme.

Finally, floating mortgage rates had declined by 75 basis points between January and August, in line with the reduction in the OCR, while longer-term fixed mortgage rates had fallen by more – driven by the larger falls in longer-term funding costs. These falls were supported by LSAPs.

Figure 3.2: NZGB-swap and LGFA-swap spreads



Source: Bloomberg.

The impact of the LSAP programme was supported by the market functioning channel. Government bond and LGFA markets were dysfunctional for a period in March 2020, as evidenced by a significant increase in bond spreads to 10-year interest rate swaps (figure 3.2). The LSAP programme was able to improve the functioning of markets, reducing these spreads, in turn strengthening LSAPs' impact on the NZGB yield curve and exchange rate.

4. Term lending programmes



Assessment against principles

- **Effectiveness:** Term lending programmes are effective, but constrained in their potential size and therefore impact. This is because there is a limit to how much central banks can directly fund banks without adversely impacting financial system soundness.
- **Efficiency:** There may be a negative impact on efficiency by advantaging larger banks ahead of other lenders. This is because larger banks are more likely to have sufficient eligible collateral (such as residential mortgage backed securities) needed to access the programme. We see this effect as mild as we expect the indirect channel to improve funding costs for all lenders. There may also be efficiency issues around term lending programmes only transmitting through the banking sector, and not the financial markets or exchange rate.
- **Financial system soundness:** There are both positive and negative effects on soundness. On the upside, bank profitability may increase and support healthy capital levels, bank liquidity risk should decrease, and future loan losses should be reduced by a recovering economy. On the downside, the tool may make banks too reliant on central bank funding, which places them at risk when this funding is no longer available. Additionally, there is an increase in the proportion of their assets that are held as security by third parties (as the funding is provided on a collateralised basis), which can make it harder to raise debt in times of stress.
- **Public balance sheet risk:** The public balance sheet risk can be managed by offering the term lending at a variable rate (the OCR) and by requiring collateral, to limit both interest rate and credit risk.
- **Operational readiness:** This tool has been successfully implemented.

The MPC instructed the Reserve Bank to establish a term lending programme, the Funding for Lending Programme (FLP), in November 2020. The FLP is an offer by the Reserve Bank of low-cost 3-year funding to banks, in return for high quality collateral¹⁶ being pledged. It has an initial allocation of 4 percent of a bank's eligible loans,¹⁷ and an additional allocation of 50 cents for every dollar of net growth in eligible loans in the period commencing 1 November 2020, up to a maximum of 2 percent. The additional allocation acts as an incentive for banks to increase lending to households and businesses, which boosts economic activity. The programme started on 7 December and runs until 6 June 2022 for the initial allocations, and until 6 December 2022 for the additional allocations.

¹⁶ For information on what collateral is eligible see: www.rbnz.govt.nz/markets-and-payments/domestic-markets/repo-eligible-securities-and-haircuts.

¹⁷ As at 31 October 2020.

Summary of transmission

The FLP directly targets the banking sector in three ways. First, it directly lowers the funding costs of banks that access the FLP. Second, it indirectly lowers funding costs for all banks (and non-bank deposit takers) by reducing demand for other funding sources. Finally, it can create competition for lending (which reduces loan rates) by directing some FLP funds to banks with positive lending growth.

Collectively, these decrease the interest rates facing households and firms, leading to an increasing in borrowing, spending, aggregate demand, and thus inflation and employment.

International experience

Overall, international experience shows that term lending programmes like the FLP are effective in raising real output and inflation, through lower interest rates in the banking channel. This has been seen in initial evidence from the Term Funding Facility (TFF) implemented by the Reserve Bank of Australia.¹⁸ In particular, banks have drawn down a substantial portion of the funds pledged by the TFF, enabling them to borrow at a cost significantly lower than the market rate. In turn, banks are able to reduce bond issuance, which indirectly lowers the cost of funding for non-bank borrowers. More broadly, rates paid by households and businesses have fallen as they are able to refinance their loans at lower rates offered by banks. In the UK, researchers found that the £42 billion Funding for Lending Scheme (FLS) raised real GDP and inflation by 0.8 and 0.6 percentage points respectively.

Studies show that term lending programmes can lower bank funding costs via both the direct and indirect channels but the competition channel appears weak. These studies use various techniques to identify the causal impacts of providing low cost term lending in crisis periods when in the presence of other policies and rapidly developing economic conditions.¹⁹

New Zealand experience

The FLP was first proposed as a preferred policy tool by MPC in the August 2020 *Monetary Policy Statement (MPS)*, initially as part of a package with a negative OCR. At the subsequent September Monetary Policy Review it was announced that staff were instructed to look at deploying FLP on a standalone basis. The MPC announced the FLP at the November 2020 *MPS*, and the programme was implemented in December 2020.

We chose not to target the incentive mechanism of FLP to lending to a specific sector (e.g. small-to-medium enterprises). This was in order to maximise the effectiveness of the programme and based on evidence that targeted schemes were not effective at supporting lending in those sectors.

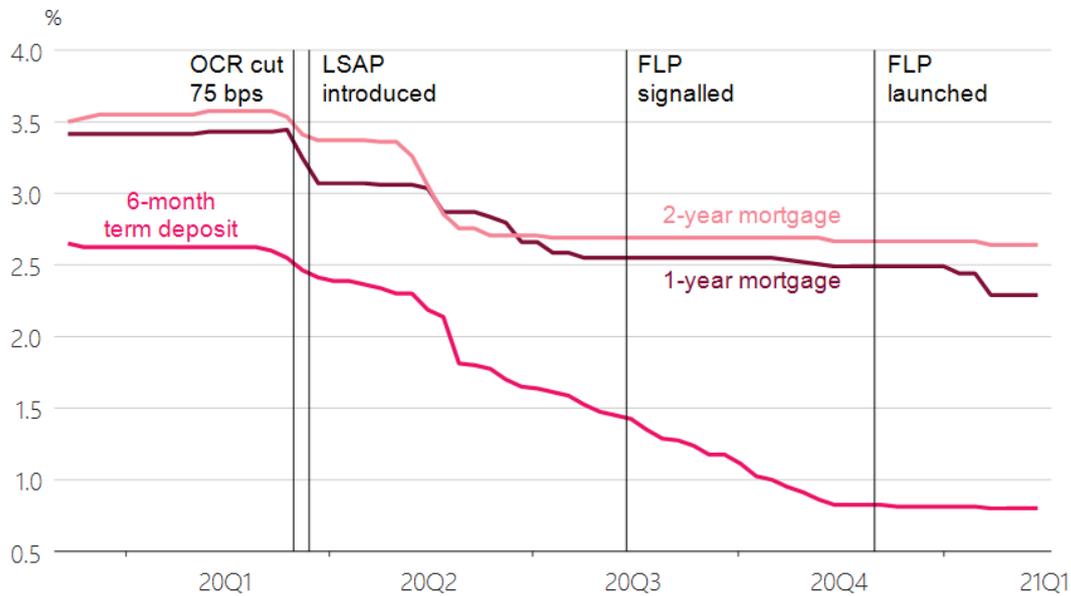
Identification of the FLP's unique effect on financial markets is difficult as it was used in conjunction with LSAPs and forward guidance. Global conditions had also started showing improvement in late 2020, lifting the market's expectation of future interest rates in New Zealand.

¹⁸ See Kent (2021). TFF and FLP share many similar design features and principles.

¹⁹ Sources for international evidence subsection: Churm *et al.* (2015), Harimohan *et al.* (2016), Havrylychuk (2016), Cahn *et al.* (2018), Daetz *et al.* (2018), Andreeva and Garcia-Posada (2019), Bats and Hudepohl (2019), Laine (2019).

However, we are able to see signs that the FLP has been effective at providing stimulus. Mortgage and deposit rates fell following the announcement of FLP (figure 4.1), consistent with international evidence of the ‘announcement effects’ of monetary policy. Lending rates to businesses have also declined.

Figure 4.1: Retail deposit and mortgage rates



Source: interest.co.nz, RBNZ. Originally appeared as figure 3.4 in our February 2021 MPS.

Of note, 1 and 2-year mortgage rates declined between when FLP was signalled and early 2021, in spite of swap rates rising substantially (which normally would increase banks’ funding costs) over the corresponding period. This development suggests the FLP has been effective at holding down banks’ funding costs.

An important feature of the FLP is that it was effective at reducing bank funding costs and retail rates even before banks drew down on FLP funding. This is due to the relative strength of the FLP’s indirect influence on bank funding costs. The indirect influence reduced funding costs for all deposit takers, not just the banks eligible to drawdown on the FLP.

Just over \$3.5bn has been drawn down on FLP (as at 15 July, 2021). Usage of the FLP suggests it has been effective as an alternative funding source for banks. We expect this number to rise over the next year as we get to the end of the initial allocations period in June 2022.

5. Forward guidance



Assessment against principles

- **Effectiveness:** Forward guidance as an AMP tool is effective at providing stimulus when conventional policy faces operational constraints or severe limits in effectiveness.
- **Efficiency:** We consider forward guidance to be as efficient as conventional policy.
- **Financial system soundness:** There is some soundness risk, as a result of forward guidance being a commitment to an easier-than-otherwise monetary policy setting in the future. This can lead to riskier borrowing which increases the risk of default when monetary policy tightens.
- **Public balance sheet risk:** There is no obvious balance sheet risk posed by forward guidance, to the extent that it doesn't increase losses on use of the FLP, PFA, or LSAPs.
- **Operational readiness:** This tool is enduringly ready.

Central banks (including us) have used the term 'forward guidance' to refer to any communication from the central bank of the projected future of the monetary policy stance. Generally this forward guidance has been conditional on how the economy develops, and is used to increase transparency and to help financial markets understand how we will respond to evolving conditions. In this article, we specifically refer to forward guidance as an AMP tool when it is used to increase stimulus by altering market expectations of future interest rates. This differs from traditional forward guidance in that it provides a pre-commitment to an easier-than-otherwise policy stance.

There are many ways to provide forward guidance, each with various levels of effectiveness in a given context. There is a trade-off between effectiveness and future flexibility. Most commonly, forward guidance is a time-based (e.g. 12 months) or outcome-based commitment (e.g. until the CPI is above 2 percent for two quarters) from the MPC regarding the future outlook for monetary policy. Generally, but not always, this is used in situations where the OCR is facing severe limits in effectiveness. We have used time-based forward guidance thus far, but we note we will consider a variety of methods when setting monetary policy in the future.

Summary of transmission

Forward guidance, when credible, lowers the market's expectation of future interest rates. This leads to lower interest rates and yields through financial markets and the banking sector. It also depreciates the exchange rate and raises inflation expectations. Collectively, these increase borrowing, spending, aggregate demand, and thus inflation and employment.

International experience

International evidence suggests that forward guidance is effective in influencing market interest rates and providing more monetary stimulus.²⁰ However, forward guidance has typically coincided with the use of other AMP tools, making it difficult to empirically identify how effective it has been in isolation.

New Zealand experience

In March 2020 we used a time-based commitment to keep the OCR at 0.25 percent for at least 12 months. Estimating the amount of stimulus forward guidance provided is hampered by the fact its introduction coincided with a 75 basis points OCR cut. However, we are confident that forward guidance supported the LSAP programme in lowering medium and long-term interest rates, and was an important component of the monetary stimulus we provided last year.

In the future, we note forward guidance may be used on our other AMP tools (e.g. committing to holding our stock of LSAPs for a certain period of time) and there is flexibility in how we word the communication.

²⁰ There is a very large literature regarding forward guidance. For more background information and assessment of its effectiveness as an AMP tool see Campbell *et al.* (2012), Woodford (2013), den Haan (2013), Swansson and Williams (2014), Moessner *et al.* (2017) and Potter and Smets (2019).

6. Negative Interest Rate Policy (NIRP)



Assessment against principles

- **Effectiveness:** We expect cutting to a mildly negative OCR will be largely as effective as OCR cuts to positive levels, although there may be diminishing effectiveness the more negative the OCR goes. The exchange rate, inflation expectations and financial market transmission should be just as strong. Transmission through the banking sector will likely diminish as more retail deposit rates hit zero and banks will be unlikely to lower them further – which constrains banks’ ability to take lending rates lower.
- **Efficiency:** There are limited impacts on efficiency at mildly negative rates. Constraints on retail deposits will likely reduce banking system efficiency as rates go more negative.
- **Financial system soundness:** There may be mild impacts on bank profitability. This risk could be partially offset with an exemption tiering strategy that shields a portion of bank settlement balances with the Reserve Bank from negative rates.
- **Public balance sheet risk:** There is minimal balance sheet impact compared to other AMP tools. A lower OCR lowers government borrowing costs. Exemption tiering may have some costs, but we have control over the size of the cost.
- **Operational readiness:** This tool is operationally ready. Since late 2019, we have been engaging with registered banks and reviewing our own systems to ensure we were collectively ready for the implementation of NIRP. As of February 2021, we are confident that our banking system could operate effectively if the Official Cash Rate were lowered to or below zero (see [our NIRP webpage](#)).

Summary of transmission

A NIRP transmits through the same channels as a cut to a positive OCR. That is, it lowers interest rates facing businesses and households, depreciates the exchange rate, and increases inflation expectations, all leading to increased aggregate demand, and thus inflation and employment.

Difference from conventional cut

It is likely that OCR cuts to negative rates will have at least as much impact through financial markets as positive OCR cuts, but transmission through the banking sector may be constrained.

The impact through financial markets could be even stronger than a conventional OCR cut for two reasons. First, taking the OCR negative may have a signalling effect. This is because it provides markets with new information about the central bank’s appetite to use negative rates in the future, shifting the perceived lower bound and market expectations of future

rates. Second, negative rates strengthen the incentives for investors to move into longer maturities, which further lowers longer-term interest rates.

The transmission through the banking sector may be constrained because bank funding costs may not drop as much as the OCR. This is because deposit rates are constrained due to cultural and contractual factors which may prevent banks from passing on below-zero interest rates to depositors. Interest rates on customer deposits are already low, with call accounts and some savings accounts close to zero. If banks' funding costs aren't lowered as much as the OCR cut, they may not lower their lending rates by as much.

Figure 6.1: Interest and swap rates



Source: RBNZ, Bloomberg, interest.co.nz.

This means the marginal impact of each OCR cut may be less and less, as more deposits reach their limits (e.g. first on-call accounts, then 3-month term deposits, then 6-month term deposits, etc).²¹

If banks keep lowering their lending rates by more than their deposit rates, their profits will fall and in an extreme case this may impact the soundness of the financial system. Additionally, there are efficiency concerns that this may disproportionately impact financial institutions that are more reliant on deposits (often smaller banks and non-bank lenders).

NIRP transmission is supported by the FLP, because the FLP allows banks to be less reliant on retail deposits and NIRP lowers the cost of FLP funding (which is tied to the OCR). Alternatively, we could strengthen pass-through to lending rates by incorporating an exemption tiering strategy into the design of the NIRP. This would exempt a certain level or percentage of bank settlement cash accounts from the negative OCR.

Additionally, banks could introduce or increase account fees on deposit accounts which would compensate losses made on paying for funding, while allowing borrowing rates to vary with the OCR.

²¹ However, deposits hitting zero limits has already been happening since an OCR of around 1 percent in New Zealand, and despite this, we are yet to see any empirical evidence that transmission is weakening in a measurable way.

International experience

International evidence suggests that NIRP has similar effects to conventional cuts. Theoretical negative side effects have failed to materialise or have turned out to be less relevant than expected, at least for the levels and timeframes that NIRP has been conducted with so far.²² The experience has been consistent with the expectations and portfolio rebalancing channels being amplified with NIRP. For example, the European Central Bank found that taking interest rates negative reduced interest rates for all maturities, with a peak impact around the 5-year maturity.²³ Sweden experienced an economic recovery following the use of negative interest rates (used in tandem with Quantitative Easing), and saw higher inflation and inflation expectations, and lower unemployment.²⁴ In Japan, it is estimated that lowering the policy rate from 0.00 to -0.10 resulted in a 40 basis points reduction in the 10-year government bond yield.²⁵ Similarly, a number of studies suggest that asset prices and the exchange rate respond more strongly to reductions in negative interest rates than positive interest rates.²⁶

While we don't have explicit estimates in New Zealand of the relative importance of the transmission through financial markets compared to the banking sector, the Bank of England's models suggests that transmission through the financial markets account for 1/3 – 2/3 of the impact on output, and 1/2 – 3/4 of the impact on inflation.²⁷ An important corollary of this finding is that even if transmission via the banking system was diminished, we would still expect considerable pass-through via other channels.

²² See IMF paper from Brandao-Marques *et al.* (2021).

²³ See Schnabel (2020).

²⁴ See Erikson and Vestin (2019).

²⁵ See Honda and Inoue (2019).

²⁶ See Bräuning and Wu (2017), results of Gräb and Mehl (2015) cited in Eisenschmidt and Smets (2019).

²⁷ See Tenreiro (2021).

7. Transacting Interest Rate Swaps (TIRS)



Assessment against principles

- **Effectiveness:** If the swap curve doesn't align with our forward guidance, we judge TIRS in the form of 'swap curve control' as an effective way of increasing stimulus by strengthening the credibility of our forward guidance. The total stimulus TIRS could provide would be limited to the difference between the swap curve and the forward guidance of the OCR track.
- **Efficiency:** Swap curve control acts in the same way as the OCR but impact interest rates at slightly longer terms (1-3 years). Therefore, we expect swap curve control to be largely as efficient as the OCR.
- **Financial system soundness:** Swap curve control carries the same risk as forward guidance in that by committing to a certain OCR path, we are less flexible to respond to significant inflation pressures should they occur. Additionally, this policy decreases interest rate risk for banks, which could lead to looser lending standards.
- **Public balance sheet risk:** Swap curve control may require us to transact a substantial quantity of interest rate swaps. This may expose us to loss if economic conditions change.
- **Operational readiness:** This tool can be made operationally ready rapidly if necessary.

Interest rate swaps are a contract in which two parties exchange their interest payments on a specified notational principle amount – typically one party pays a floating rate, and the other pays a fixed rate. Banks use these contracts to manage the risks associated with providing loans at fixed interest rates. As a result, the 'swap rate' (the fixed interest rate banks agree to pay over the term of the swap) is an important benchmark for the pricing of fixed rate loans offered by banks.

A TIRS programme would involve us trading in interest rate swaps in order to influence the swap rate. We would receive the fixed swap rate for a given term, in exchange for quarterly floating rate payments, putting downward pressure on swap rates. Currently, we judge this tool most useful in the form of 'swap curve control' where we target a certain rate for swaps of short-term tenors. Swap curve control is used in unison with forward guidance, for the purpose of strengthening the guidance's credibility.

Figure 7.1: TIRS and forward guidance

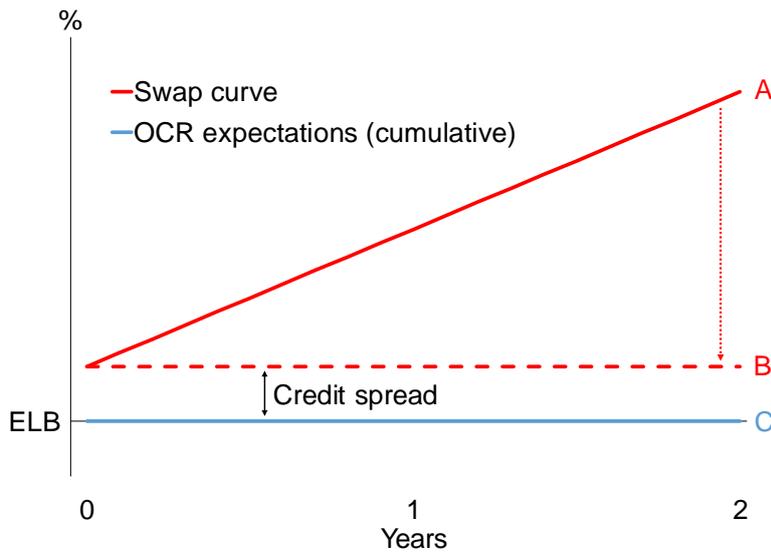


Figure 7.1 demonstrates the case where we would use swap curve control and how it would seek to impact the swap curve. If we ran out of space to lower the OCR,²⁸ TIRS could provide additional stimulus by supporting forward guidance. For example, we could state that we expect to keep the OCR unchanged for at least 2 years (line C in figure 7.1). Swap curve B is consistent with this guidance – the gap between lines B and C reflects the credit spread inherent in swap rates. However, if forward guidance is ineffective in bringing down market interest rates (as in line A), we could lower these rates to better align with our forward guidance by ‘receiving’ 2-year swaps.²⁹

Summary of transmission

This lower swap curve has two primary transmission channels. First, it lowers the cost to hedge against interest rate risk for banks, which can allow them to lower their lending interest rates. Second, it should have a strong policy signalling effect, as we are ‘putting our money where our mouth is’ by taking a financial position which may be loss-making if we were to raise the OCR before the end of the forward guidance window. These effects lead to lower interest rates, increased borrowing, spending, aggregate demand, and thus inflation and employment.

Expectation of effectiveness

A tool like TIRS has not been used elsewhere before, so we have no international evidence of its empirical impact. We expect we could be successful in controlling the swap curve, based on other countries’ success with controlling the yield curve (see later sub-section). We estimate that lowering the 2-year swap rate by around 20 basis points provides equivalent stimulus to cutting the OCR by 25 basis points.³⁰

²⁸ In other words, there were severe limits to the transmission of an OCR cut; see NIRP section for explanation. Figure 7.1 refers to this theoretical point as the ELB; that is, the effective lower bound of OCR cuts.

²⁹ Note that this tool would not attempt to narrow the credit spread.

³⁰ Using a sign-restricted VAR as described in Culling *et al.* (2019).

Conceptually, we expect swap curve control would have a strong policy signalling effect, with wide transmission through financial markets (including exchange rates) and the banking sector. However, there is uncertainty about the dollar amount of swaps we would need to transact, in order to achieve the desired reduction in the swap rate. This will depend on the credibility of the MPC's forward guidance and the amount of financial risk required to increase that credibility.

Another consideration in the effectiveness of the tool is the total amount of stimulus that it could provide, which relates to the slope of the swap curve. The maximum potential stimulus is equal to the difference between the 2-year swap rate (or another chosen tenor) less the credit spread and the OCR we committed to in our forward guidance (i.e. the difference between line A and B at the 2 year point in figure 7.1, shown as the dotted line).

In terms of public balance sheet risk, the Bank would make losses on swaps it received if floating interest rates (specifically the bank bill benchmark rate; BKBM) averaged higher than the fixed swap rate over the life of the swap. As the BKBM rate is mostly comprised of the OCR (plus a relatively small credit spread), the most likely reason BKBM would increase is if we raised the OCR.

Exiting from the programme may be operationally difficult, as seen when the US tried to exit from yield curve control (see below). We will continue to evaluate these risks should we seek to introduce TIRS in this form in the future.

Yield curve control

The previous assessment considered the use of short-term swap curve control (tenors of 1-3 years) to support forward guidance. An alternative approach that supports our forward guidance is to use yield curve control (YCC). This is analogous to swap curve control as presented in figure 7.1, but it involves targeting government bond yields (and buying bonds if necessary), as opposed to targeting swap rates. YCC would involve telling the market we would target specific yields across certain bonds (most likely 1-3 years). We would then purchase those bonds (if necessary) until their yields align with our target.

YCC transmit in the same way as LSAPs, through the policy signalling and portfolio rebalancing channels, transmitting through the banking sector, financial markets and through raised inflation expectations. It may be marginally more effective than LSAPs, as the signal to markets is stronger. It should be largely as efficient as LSAPs except it may have more difficulties in returning to normal market functioning as we exit YCC. It also has the same financial system soundness concerns as LSAPs. The level of public balance sheet risk is more uncertain than LSAPs, as we may need to buy more or less bonds for the same amount of stimulus, depending on how much we have to defend our target. YCC could be operational ready at short notice.

Yield curve control has been used in the US (in the 1940s), Japan (since 2016), and Australia (since March 2020). In each case the central bank has been successful in achieving the target yields, but the US faced significant problems in exiting the programme. Exiting YCC can be more difficult than LSAPs, because it does not allow rates to respond to positive economic shocks which could otherwise smooth the exit from the programme. We preferred our LSAP programme for this reason, as well as because it presented lower balance sheet risk (if we had to defend our position against the market) and expected the improvements in effectiveness to be marginal. YCC in theory has a stronger impact through the signalling

channel, whereas the LSAP programme works more by reducing the risk premium on longer term assets.

In terms of comparing YCC to swap curve control, interest rate swaps are a more important benchmark for interest rates (e.g. mortgage rates) at short horizons in New Zealand. Also, the New Zealand Government Bond (NZGB) market is traded in much lower volumes at the 1-3 year terms, compared to interest rate swaps. However, one advantage of YCC is the public balance sheet risk is limited by the number of NZGBs the Crown has issued, whereas there is potentially no limit on the number of interest rate swaps we would have to transact to defend our swap curve target.

8. Purchases of Foreign Assets (PFA)



Assessment against principles

- **Effectiveness:** International evidence shows purchases of foreign assets can be an effective way of putting downward pressure on the exchange rate and easing broader monetary conditions, if the programme is large enough and credible. The effectiveness (and risk) depends on the design and size of the programme. The pass-through of a lower exchange rate to aggregate demand and inflation is overall positive, but note that it might be temporarily lower in the current environment, as border closures dampen exports of services and tourism.
- **Efficiency:** There may be efficiency concerns around PFA transmitting most significantly through the exchange rate channels, and not as much through the banking or other financial markets. There is also some risk that large and sustained interventions may distort market functioning in exchange rate markets, but we expect that PFA could be managed to avoid this.
- **Financial system soundness:** We expect minimal impacts on financial system soundness from PFA.
- **Public balance sheet risk:** For PFA to be effective at depreciating the exchange rate materially, substantial purchases may be required. This could result in losses if the exchange rate subsequently appreciated.
- **Operational readiness:** The RBNZ currently has capability to intervene in the foreign exchange market. Some work would be required to set up a programme of sufficient scale to achieve AMP objectives, but this could be done at relatively short notice if required.

The Reserve Bank could purchase foreign assets instead of domestic assets, as in the case of the LSAP programme. The Reserve Bank could choose to run PFA to provide stimulus mainly through a lower exchange rate, but also if the available supply of New Zealand assets is limited.

Under a PFA programme, the Reserve Bank would create New Zealand dollars to purchase foreign currency, and use this foreign currency to buy other assets, e.g. foreign government bonds. This would put downward pressure on the exchange rate, and generally lead to more expansionary monetary conditions through other channels such as policy signalling or portfolio rebalancing due to the increased NZD money supply.³¹

³¹ Due to the increased bank settlement cash from the new NZD. However, this downward pressure on domestic interest rates due to the increased stock of NZD is likely to be somewhat limited under the current interest floor system we operate for settlement cash held at the Reserve Bank. Also see: [The Reserve Bank is committed to ensuring smooth market functioning - Reserve Bank of New Zealand \(rbnz.govt.nz\)](#).

Summary of transmission

A (successful) depreciation of the exchange rate affects the wider economy and our objectives through the exchange rate channel. It makes exports more price-competitive and imports less price-competitive, while increasing import prices in the CPI. This generally leads to higher net exports, aggregate demand, inflation and employment. We expect that pass-through would be lower, but still positive, in the current environment where border restrictions are hampering exports of services and tourism.

International experience

There are significant challenges to measuring the effectiveness of PFA (or Foreign Exchange Interventions (FXI), in the literature) on lowering the exchange rate. For one, data availability is often limited, because central banks often treat FXI data and analysis confidentially. Other factors that complicate the analysis include: that interventions are often in response to an appreciation of the exchange rate, difficulties in estimating where the exchange rate would have been in the absence of the FXI, and the relatively high volatility of exchange rates (making it harder to identify statistically significant impacts).

In spite of these difficulties, international analysis and experience suggests that PFA can be effective in altering the exchange rate, given sufficient size, successful communication, and supportive market conditions.³² Some cross-country studies suggest that quarterly annualised interventions of one percent of GDP (0.25 percent non-annualised) can lower the exchange rate by about 1.5-2 percent, but others provide a wide range around these estimates.³³ Results from the Bank of Israel lend support to these numbers; similarly scaled FXI were estimated to depreciate the currency by 1.8 percent.³⁴

The case for PFA in New Zealand

The depth and liquidity of foreign exchange markets – particularly for New Zealand, whose currency has one of the highest turnovers compared to the size of the economy – complicates the application of the international evidence to the New Zealand case.³⁵ We expect PFA could still be effective in the New Zealand case (in lowering the exchange rate) depending on the level of commitment we were willing to make. In turn, for any expected change in the exchange rate, the uncertainty about the required size of the programme and the associated risks to our balance sheet may be considerably higher than abroad.³⁶

There is also some uncertainty around the persistence and longevity of the impact of currency interventions, and their ability to influence the exchange rate for the length of time required to create pass-through to the real economy.

³² Such as those based on Fratzscher *et al.* (2019).

³³ See Blanchard, Adler and de Carvalho Filho (2015), Adler, Lisack and Mano (2019), or IMF's Chamon *et al.* (2019) for major cross-country studies providing point estimates.

³⁴ See Ribon (2017).

³⁵ See BIS (2019B).

³⁶ Besuyen *et al.* (2021) also support these hypotheses for the New Zealand case. The authors analyse one set of actual interventions in 2015 and two verbal interventions (through a Monetary Policy Statement, and a speech by Governor Wheeler), and find that the actual interventions and communication through the MPS were largely ineffective in moving the exchange rate significantly. The speech of Governor Wheeler had a significant impact, albeit results suggest that this impact was not persistent. We note that these results are based on selected events only, and that the interventions were conducted in a different environment. The overall size of a PFA could be substantially larger than the interventions permitted by the existing FXI framework, enhancing the credibility and signal of any intervention.

The size and style of a potential PFA programme can vary substantially, and largely depends on the objective of the programme. One extreme option would be to place a ceiling on the exchange rate. There would be substantial uncertainty around the required size of such a programme. Less extreme options would be:

1. Discretionary PFA: We would announce to the market that we will be purchasing foreign assets, and potentially substantially, but neither express a target size or limit, nor a duration or a desired exchange rate level.
2. Pre-announced PFA: We would announce to the market that we will be purchasing foreign assets to a certain size and over a certain time (a similar approach to our LSAP programme).

The choice between these options includes a trade-off between effectiveness and the risk to our balance sheet. The relatively larger signalling effect of the pre-announced PFA design would likely make it more effective than a discretionary design, provided the size was large enough to be seen as having a credible impact. At the same time, declaring our hand and setting a programme size could change the markets view of its credibility: there is considerable risk of the size being perceived by the market as too low and easily absorbed. The pre-announcement design would also (by its nature) reduce the flexibility of the MPC.

9. Concluding remarks

This paper provides an overview of our current thinking on AMP tools, and in particular on how we assess them against our principles. The aim is to improve the public's understanding of these tools and how they are additional ways for us to achieve our monetary policy objectives in situations where there are constraints on the use of the OCR. It helps us be transparent and accountable in how we use our AMP tools to achieve our purpose – Toitū te Ōhanga, Toitū te Oranga – to enable the economic wellbeing and prosperity for all New Zealanders.

It is important to re-emphasise that although for simplicity we assessed each of the tools individually in this paper, the MPC takes into account interactions and the complementary nature of these tools in introducing a portfolio of tools. This includes considering the optimal sequencing of different tools. For example, the OCR was reduced to 0.25 percent in March 2020 (which was considered its operational constraint at that time), before introducing LSAPs shortly after. In a similar manner in the future, a NIRP and LSAPs may complement each other as taking short-term rates lower allows more room for long-term rates to fall. Additionally, the FLP complemented LSAPs as the FLP allowed more transmission through the banking sector while LSAPs appeared to have stronger impacts through the financial markets and exchange rate.

In addition to assessing our AMP tools against our principles, we also consider it important to monitor the potential effects of monetary policy on different groups of people in the economy. We recently published an [Analytical Note](#) on the distributional effects of monetary policy that showed no conclusive international evidence for monetary policy either increasing or decreasing income or wealth inequality.³⁷ We are planning to publish further work aimed at better understanding the distributional effects of monetary policy in New Zealand.

We are constantly refining and updating our understanding of the tools, based on internal work and international experience. The assessment against our principles is also subject to change over time or with different economic or financial conditions. Each of the tools have contexts where they are more effective relative to other tools, and they all remain under active consideration in our toolkit.

³⁷ See Leong (2021). Differences in results may be due to differences in methodology, period studied, financial system and structures considered, existing distributions of wealth and income, or other public policies in place in the countries examined.

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