ANZ Research

NZ Insight – The last days of the LSAP

2 July 2021

This is not personal advice nor financial advice about any product or service. The opinions and research contained in this document are provided for information only, are intended to be general in nature and do not take into account your financial situation or goals. Please refer to the Important Notice.

☎ Contact

David Croy for more details.

The last days of the LSAP

Summary

- In this Insight we discuss the outlook for the RBNZ's Large Scale Asset Purchase (LSAP) programme.
- There is no doubt that the LSAP had a meaningful impact on markets when it was introduced last March, and the programme played a vital and necessary role in the overall response to the COVID crisis. However, there is evidence to suggest that the NZGB market doesn't really need the RBNZ's support at the moment. Indeed, increased use of the RBNZ's bond lending facility suggests that more QE could harm rather than help market functioning.
- Given improved market functioning and reduced volatility, we don't think the market is likely to react adversely if the RBNZ continues to wind back the pace of LSAP purchases. With OCR hikes coming early next year (or possibly even later this year), we think it makes sense for the RBNZ to wind up purchases sooner than later, and to put some time between the end of purchases and the start of hikes.
- Ceasing purchases soon may sound radical, and some in the market probably like the idea that the RBNZ has their backs, so to speak. But it is difficult to show that the reduction in purchases to date has had a meaningful impact on bond yields.
- There are a number of paths the RBNZ might take from here. In our view, the most logical path is to reduce the LSAP by $20m per week until purchases cease during the last week of August/first week of September.
- The pace of purchases is a staff decision, under delegated authority from the MPC, and given that the decision to slow purchases reflects good market functioning, we don't expect the market to be unduly affected by the RBNZ stepping back in this way. At the margin yields will likely rise a touch, but we don't expect the impact to be significant or long-lasting.
- To be clear, we do not expect the LSAP programme to be cancelled. Rather, we expect purchases to be phased out (a staff decision) with the programme remaining in place in the background (an MPC decision), and for the MPC to remind the market that the capacity to re-enter the market remains in place, and can be called upon at any time between now and the end of June 2022.

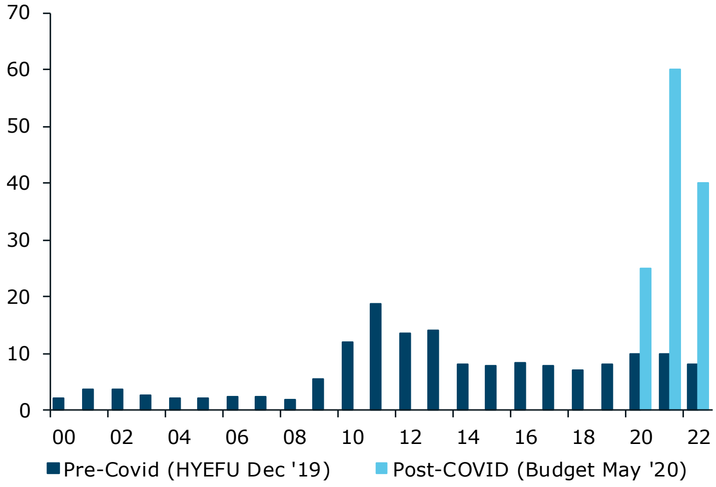
Historical background

We have written several papers on the RBNZ's LSAP programme, and if things go as we expect, this is likely to be the last substantive paper we write. The LSAP has served its purpose very well, but it is now time to close the book on that particular chapter of New Zealand's monetary history (at least until the next crisis comes along).

As we have noted in earlier Insights, the LSAP had a significant impact on the market, lowering bond yields, flattening the yield curve, and cushioning the market against fears that it might capitulate in the face of a surge in bond issuance. Indeed, when we look to where issuance projections stood.

at last year’s Budget, compared to the way things looked pre-COVID (Figure 1), the possibility of capitulation was very real. For a precedent, one only has to go back as far as the 2010/11 fiscal year, when bond-swap spreads literally buckled (as bond yields rose above swap rates) following the Treasury’s announcement that it would dramatically ramp up issuance in the wake of the Canterbury earthquakes, which eventually saw the Treasury issue a record $20bn of bonds that year.

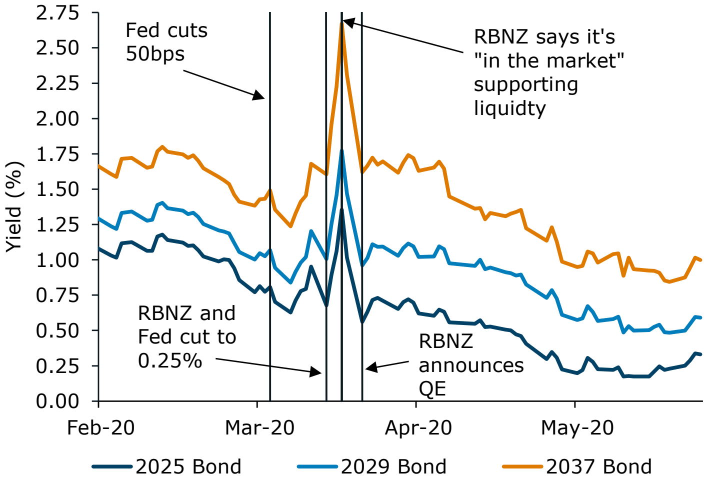
Figure 1: NZGB Issuance history and forecasts – before and after COVID hit NZ



Source: NZDM, ANZ Research

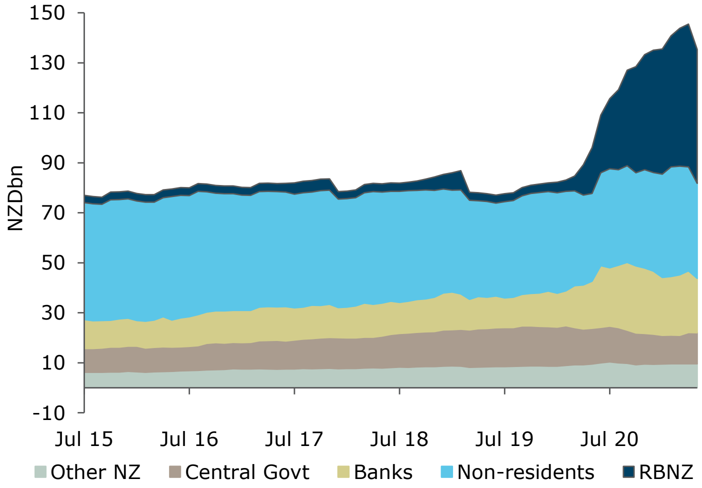
Given the scenario in front of the market when COVID struck, there was no question that something needed to be done, and an LSAP was the logical choice. The key elements of the scheme were its rapid implementation and its size. We think the RBNZ was right to be bold with it at the depth of the crisis, especially as this was the RBNZ’s first foray into unconventional policy (in modern economic history at least). The impact of the programme was highly evident at the time of its introduction, not just in the government bond market (Figure 2), but also in credit markets which became trickle-down beneficiaries as government and LGFA bond yields fell, and the level of settlement cash (SCL) rose.

Figure 2. Yields on selected New Zealand government bonds over early 2020



Source: Bloomberg, RBNZ, ANZ Research

Figure 3. Ownership of (Gross) Outstandings of NZGBs, Linkers and T-Bills



Source: RBNZ, ANZ Research

In the end, the LSAP helped head off the crisis, with the RBNZ absorbing the bulk of the increase in bond issuance to leave the trajectory of outstandings reasonably stable (Figure 3). By the end of June 2021, after just over 15 months of purchases, and with a year to go before the programme's official end date of 30 June 2022, the RBNZ's LSAP portfolio stood at around $55bn (if you include LGFA bonds and the cash from matured May 2021 bonds).

The longest bond in the portfolio is a 2041 bond, and given that it is a hold-to-maturity portfolio, that means that the programme will have a long legacy, and the portfolio will need to be managed. Some reinvestment of coupons and maturing principal will likely be needed (among other things, because the odds are slim that the maturity profile of the portfolio will perfectly match the rate which the RBNZ might want to run down banking system liquidity). How these types of issues are managed will be a topic for later on, and in time, the RBNZ will likely publish a document outlining the principles it will follow (as has the US Federal Reserve). But the immediate question is the outlook for purchases, rather than rollovers, and we think the need for purchases is drawing to a close.

As an aside, we have not sought to quantify the precise impact the LSAP has had on the bond market, nor on the NZD, as that would certainly be more art than science. But it is intuitive to suggest that as with bond yields, without it, the NZD would likely have been higher. So it has helped cushion the blow for exporters too, even if measuring that impact directly is difficult.

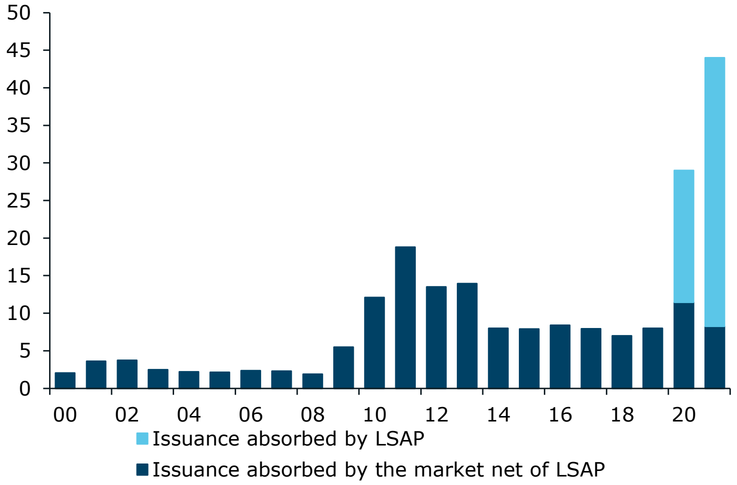
Is the LSAP still needed?

We think the short answer is no, but it's nuanced. We say that because it is difficult to precisely measure the impact of the LSAP on bond yields, or the slope of the yield curve, or the exchange rate, let alone the economy itself. So it's correspondingly hard to have strong confidence about what its removal will do. Does a flat yield curve even matter? Most households don't fix their mortgage rates for more than 1-2 years, let alone 5 years or longer. However, bigger borrowers like the Crown and large councils and corporates (who provide many of the services and products the economy needs to function smoothly) borrow for much longer terms, and it is crucial that the flow of financing for these entities continues through a crisis – especially one with a fiscal response at the heart of it. The one thing all investors crave is confidence, and the LSAP was able to provide that by standing behind the government bond market, which is like a foundation for all market borrowing. But as time has gone on, it has become increasingly clear that the market has been able to stand on its own feet.

If we consider some broad numbers at a high level, it is not clear that what was asked of the market (in net terms) during the fiscal year just ended was particularly onerous compared to, say, the years immediately following the Canterbury earthquakes and the GFC.

Over the 15 or so months since the LSAP was introduced, the Treasury has sold around $66bn of NZGBs and the RBNZ has bought around $53bn of them (in the secondary market, not directly off the Treasury). That means that the market has only had to absorb around $13bn of bonds, net of LSAP purchases. Split by fiscal year, the net absorption (which is a tad higher owing to issuance before the LSAP was introduced) was around $11.5bn in 2020 and $8.5bn in 2021. Neither of those figures is significantly different to pre-COVID funding projections of $8-10bn over each of the next 4 years (figure 4).

Figure 4. NZGB Issuance history (net of, and including LSAP purchases)



Source: NZDM, RBNZ, ANZ Research

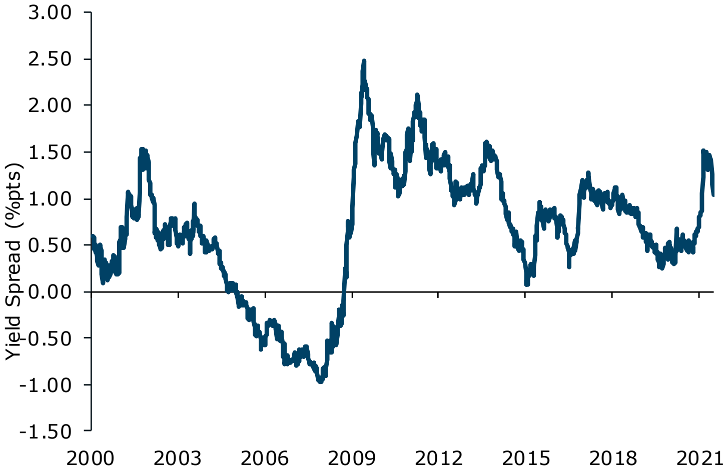
The task of absorbing net issuance in the current fiscal year (during which the Treasury expects to issue $30bn of bonds) will clearly be bigger (and a record in net terms) if that issuance target is met. But there are some mitigating factors:

- it follows a relatively small $13bn task last year;
- it comes shortly after the repayment of a $11.3bn bond maturity (paid out just 6 weeks ago);
- there is more cash in the banking system, not just locally, but globally too, which is important, given offshore participation in our market;
- there is a good chance that the $30bn bond programme gets downgraded at the half-year update in December, given the stronger economy and better-than-expected tax take, and already-high level of liquid assets that NZDM holds (that could be run down if desired).

In that light, it's not clear the market really needs an LSAP. We think the market can absorb upcoming issuance without much trouble, and the RBNZ would be better off keeping the LSAP up its sleeve should it suddenly be needed later – for example if we were to go into lockdown again and issuance had to be hastily increased.

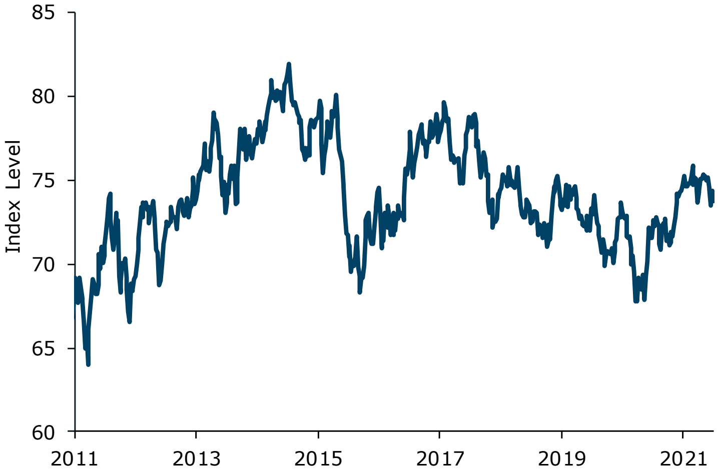
That is of course all very big-picture and somewhat subjective. But the idea that the LSAP isn't really needed is also supported by a high-level analysis of the three main benefits of QE that the RBNZ cited when it introduced QE: a flatter-than-otherwise yield curve, a lower-than-otherwise NZD and increased settlement cash level (SCL). At the moment you can probably tick all three of those boxes. Without a counterfactual, strictly speaking we can't actually say that the yield curve is flatter or the TWI is lower than otherwise. But it is true that the yield curve isn't particularly steep compared to post-GFC peaks (especially given the low starting point for the OCR – figure 5), and the TWI isn't particularly elevated (figure 6). And SCL is definitely higher (figure 7) and it almost certainly wouldn't have been had the LSAP not been launched.

Figure 5. Spread between NZ 2yr and 10yr swap rates



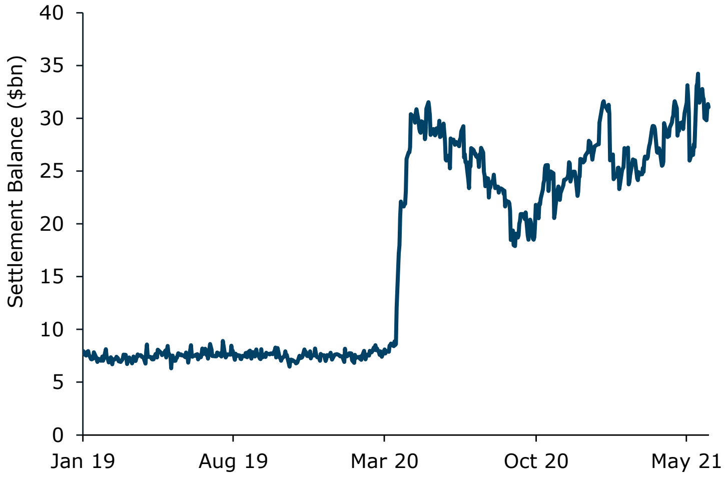
Source: Bloomberg, ANZ Research

Figure 6. New Zealand Dollar Trade Weighted Index (TWI)



Source: Bloomberg, ANZ Research

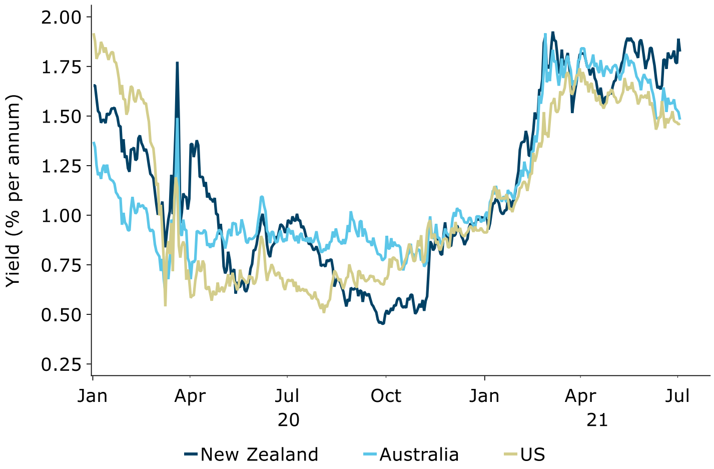
Figure 7. Level of RBNZ Settlement Cash (SCL)



Source: RBNZ, ANZ Research

Digging deeper still yields a similar vibe. If, for example, you were going to build a case against reducing the pace of asset purchases, a good place to start might be try and demonstrate that reduced purchases placed upward pressure on yields. But it doesn't seem to have, and we've seen the local bond market remain joined at the hip with US and Australian bond yields (figure 8), even as the RBNZ reduced the pace of asset purchases while the Fed and RBA largely avoided any talk of tapering.

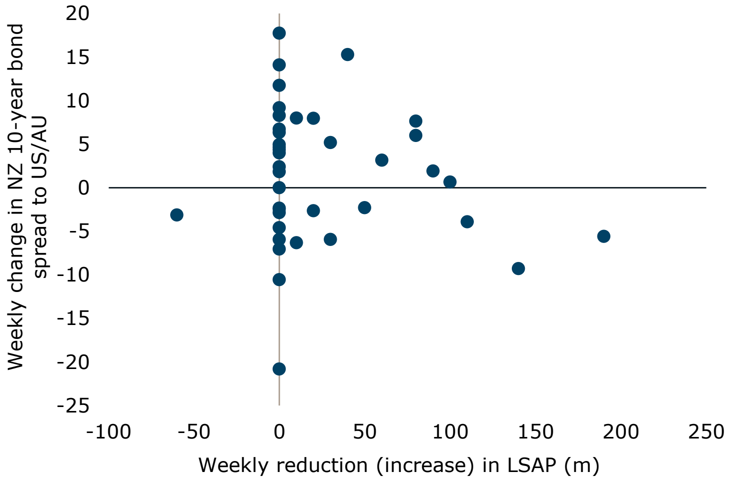
Figure 8. New Zealand, Australian and US 10-year Government bond yields



Source: Macrobond, Bloomberg, ANZ Research

When we examine changes in the spread between NZGBs and their US and Australian equivalents since the end of last August (ie after the LSAP was increased to $100bn), we can't see any correlation between NZGB underperformance and LSAP tapering. (figure 9). There isn't enough data here for statistical rigour, but this quick analysis doesn't support the argument that a reduction in the pace of LSAP purchases would put significant upward pressure on local interest rates. If anything, we're tempted to suggest that the cause and effect is the other way around: the RBNZ has often reduced its purchases after NZGBs have outperformed, and that is logical given that it is financial market staff, who are more concerned with market functioning, rather than the Monetary Policy Committee, who determine the pace of asset purchases. Indeed, the RBNZ doesn't like to refer to their reduction in purchases as "tapering" for that reason – it's not been a deliberate tightening of monetary conditions, but rather an opportunistic reduction in purchases where that's been possible without significantly impacting monetary conditions.

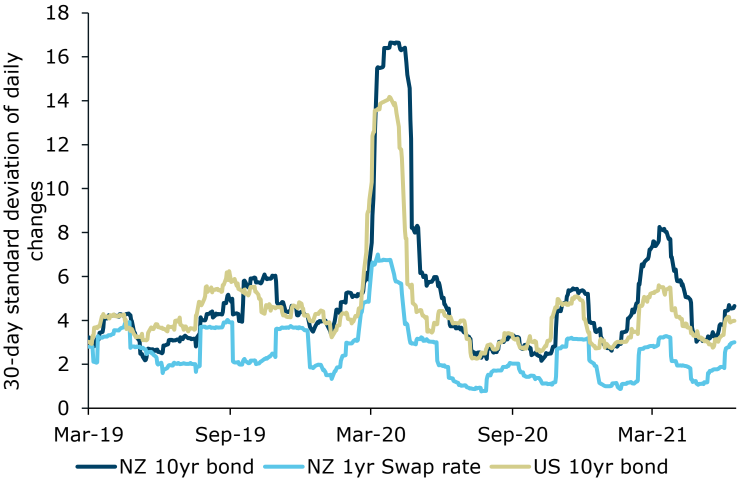
Figure 9. Change in LSAP vs Change in Average NZGB Spread to US/AU Bonds



Source: RBNZ, Bloomberg, ANZ Research

There has of course been some volatility in long-term interest rates in New Zealand. This was particularly true during March 2020, after the OCR was cut but before the LSAP was introduced. Thereafter, periods of heightened 10-year government bond yield volatility have tended to coincide with periods of volatility in US interest rates, and/or periods of volatility in 1-year swap rates, which are sensitive to market expectations for the OCR (figure 10). Those are the usual drivers, and measured volatility has also been perfectly normal since around August 2020.

Figure 10. Interest rate volatility

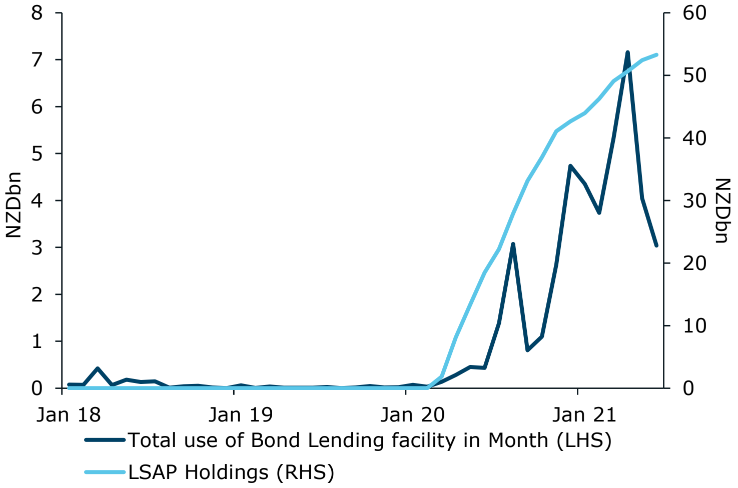


Source: Bloomberg, ANZ Research

More harm than good? Maybe, if things carry on as they are

One good question to ask is, if the LSAP isn't having a discernible positive impact, is it having a detrimental impact? That too is a tricky question to answer, where it's difficult to put any real statistical rigour into it given everything that's going on. But what we do know is that since the LSAP was launched, there has been a huge jump in the use of the RBNZ's bond lending facility (figure 11). This facility us used by banks who find themselves short a particular bond on any given day, because they have sold it, on-lent it, or don't expect a deal to settle, and increased use of the facility could signal congestion that could in turn possibly be due to the RBNZ's high holdings of some bonds.

Figure 11. Use of RBNZ Bond Lending Facility and Size of RBNZ LASP Portfolio

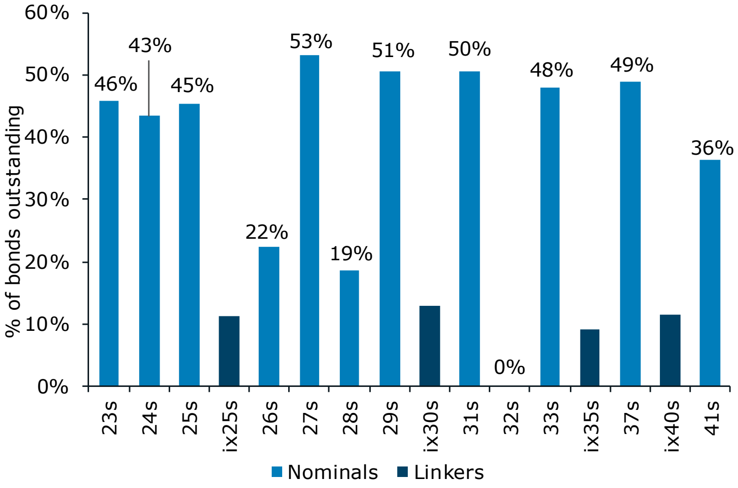


Source: RBNZ, Bloomberg, ANZ Research

Although use of the facility (measured in calendar month aggregates) has fallen from its peak in April, it's still very high. Usage in June totalled $3.04bn for the month, versus an average of just $60m per month over the two years prior to the LSAP.

Some rise in bond lending was always on the cards given the chunky size of some of last year's bond syndications and the hedging flows around those types of deals. But such a meteoric rise is also suggestive of a market that is unable to meet repo demands on its own, given the RBNZ's outsized holdings of some bond lines (figure 12). That doesn't necessarily mean that the LSAP is hindering market functioning, but if we were to see RBNZ ownership of some bond lines increase further, it might. Indeed, the RBNZ have themselves informally noted that international research suggests that market functioning is at risk of deteriorating when central banks own more than 60% of the market, and we're not far off that in some lines.

Figure 12. RBNZ holdings of individual NZ Government Bonds (NZGBs)

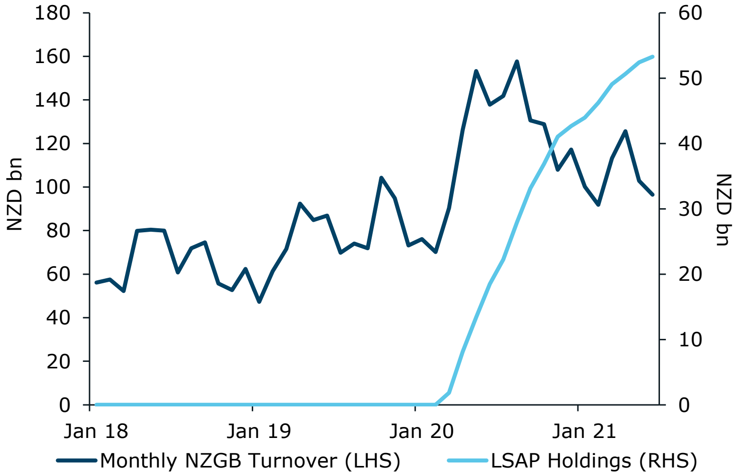


Source: RBNZ, Bloomberg, ANZ Research

Turnover has improved slightly since the LSAP was introduced, but it has retreated from peaks seen last year (figure 13). Again, the data is patchy, and inconveniently, the RBNZ's bond turnover data no longer separates non-repo turnover (ie a proper change in risk asset ownership) from non-repo turnover.

But you would have to mount a strong case for repo turnover to have collapsed (and we doubt it has) if you were going to argue that the LSAP has promoted a significant lift in non-repo (ie outright) bond turnover, which would be a good thing if it was true. But equally, there's no evidence that the LSAP has caused bond turnover to plummet – that's also a good thing.

Figure 13. Monthly bond turnover and Size of RBNZ LSAP Portfolio



Source: RBNZ, Bloomberg, ANZ Research

Where to now then?

There are no strict rules when it comes to quantitative easing, be it how you get into it, what assets you buy, how you get out of it, and how you sequence it with other policies. That's because it's all pretty novel and there isn't a lot of history to draw on, and in practice, central banks are always going to end up feeling their way and making it up as they go along.

However, to the extent that QE is "unconventional", it's probably safe to say most central banks would prefer to not be doing it. Furthermore, it is likely that they would prefer that conventional and unconventional policy were tilted in the same direction at any point in time, to avoid mixed messages (and potentially, minimise mark-to-market losses).

As we detailed in an earlier Insight, when the Fed went to normalise policy, the sequencing went as follows:

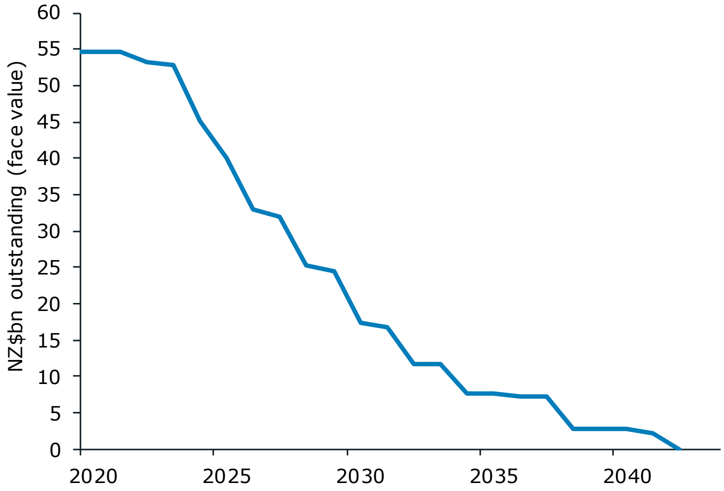
- First, the pace of asset purchases was gradually slowed. In December 2013 the Fed signalled that, starting in January 2014, the pace of purchases would reduce by around $10bn per month (from $85bn per month over most of 2013). Purchases ceased in October 2014.
- Just before purchases ceased, the Fed issued a paper detailing the principles it would follow as it looked to "normalise" its balance sheet.
- A little over a year later, in December 2015, the Fed hiked the Fed funds rate by 25bps.
- Around 18 months later, in July 2017 the Fed indicated that it would allow the size of its asset portfolio to run down slowly. This began in October 2017, three years after the cessation of asset purchases.

This was a logical sequence to follow as it allowed the Fed to re-engage in QE if it needed to, either before hiking, or after it started hiking. The gradual nature of tapering (which was well signalled) gave markets plenty of time to adjust, and gave the scope the Fed to alter course had the recovery faltered. And similarly, by publishing its normalisation principles towards the end of the tapering of purchases, the Fed was able to give the market plenty of warning of what was coming in the next stage, when the balance sheet would be run down. We expect the RBNZ to follow a similar sequence here.

Within that sequencing, there are a number of paths the RBNZ could take, and maintaining purchases at current levels for a few more weeks is one of them. But if there is no real demonstrable merit in these interventions (by which we mean for market functioning, rather than lower yields, which would seem incongruous with the RBNZ's clear tightening bias), we think maintaining purchases at current levels risks confusing the market and creating a false sense of security. It also uses up optionality that might useful later, given downside risks are absolutely still real. In short – there's limited ammo left; it's not needed at the moment, so it's better to put it back in the bag.

The LSAP is going to be with us for at least the next 20 years (figure 14); more purchases now will only further complicate that.

Figure 14. How quickly does the RBNZ's QE Portfolio run-off?



Source: RBNZ, Bloomberg, ANZ Research

Given the risks of earlier OCR hikes, the RBNZ may as well "get on with it" and wind purchase back to zero in fairly short order. This week's pace of purchases was $200m and next week's is likely to fall to $180m. If the RBNZ continues reduce purchases by $20m a week, the LSAP could be wrapped up by early September, giving the RBNZ ample time to observe the impact on financial conditions, and to publish a principles paper before it embarks on OCR hikes in February (or November, if hikes are needed earlier). Of course they could delay the next reduction by a few weeks to see how markets respond to larger bond tenders from this week, and/or trim the pace of purchases by less than $20m per week, but we think they may as well get started now, and we think the market can handle tapering of $20m per week. If they choose to wait, we don't think they will wait for than a few weeks, and expect further reductions to begin soon.

Reducing the pace of purchases is a staff decision, and given that their rationale for doing so is more related to market functioning (which is generally good but could deteriorate if the RBNZ was to own more of the market), we don't think markets will respond adversely to the RBNZ stepping back from the market. The impact thus far has been muted; the LSAP is now more of a side show (which is a good thing) and our sense is that most participants in the market expect purchases to cease fairly soon anyway.

However, we should make it clear that we don't expect the LSAP programme to be cancelled, but rather for purchases to slow and eventually cease. Cancelling the programme would be an MPC decision, and at the moment it makes no sense to remove it – doing so only reduces the option of resuming purchases if they are needed. As such, we expect the $100bn programme to remain in place, albeit in the background, and for the MPC to remind the market that the purchases could resume at any time should markets became dysfunctional again or economic conditions unexpectedly deteriorate (although a negative OCR would arguably be the next cab off the rank if things really went downhill, with the RBNZ stating in May that the OCR is their preferred tool from here for either adding or removing stimulus).

Strictly speaking, we think it would be tidier for the RBNZ to only re-engage in fresh LSAP purchases (using "newly printed" money) if the economy soured and more stimulus was needed. If market functioning is the issue, it would be better to enter the market under the auspices of the Bond Market Liquidity Support Programme (BMLS) – especially if the issue was technical and temporary, and not fuelled by macroeconomic concerns. To our knowledge, the BMLS has only been used on a handful of occasions (on 3 days in March 2020 and 2 days in April 2020, when the RBNZ bought bonds, and one day in June this year, when the RBNZ sold down a small volume of bonds as yields fell). We think they can afford to be more active than that (in both directions), given how patchy liquidity in NZGBs can be at times.

We did ponder the question of how it might "look" to have an LSAP programme that was in place, but not being used, and we acknowledge that the optics of that might be a bit odd. But as in the case of things like FX intervention capacity, often it's the capacity to act, or the signalling of an ability to act that gives as much confidence as actually acting, and we think that's how markets will view an "unemployed" LSAP programme.

It is worth noting that in our most recent LSAP Insight we noted that we expected that the pace of purchases to be dictated more by the path for SCL, and that the LSAP would become less of an influence on the shape of the curve and level of long bond yields. That was in part due to our expectation that the LSAP would continue to tilt towards shorter bonds, which would in turn provide the RBNZ with more flexibility in future (shorter-dated bonds can be rolled, or not, whereas longer-dated bond purchases can't be "un-purchased").

However, our thinking on the LSAP has evolved (as has our view on the monetary policy outlook).

The bond market is functioning well, and doesn't need RBNZ support. And whereas before we thought the RBNZ might want to drive SCL up smoothly and gradually in order to minimise the volatility of short-end rates, we have now come to the view that the variability of SCL currently isn't having a meaningful impact on short-end pricing. Basically, the system is now so flooded with cash that within reason, it doesn't really matter what happens to SCL, so long as it remains elevated (perhaps above $25bn).

In addition, now that the Treasury has built up a substantial cash buffer, the risk is we see a reduction in bond issuance or an increase in government spending as that buffer is reduced. Both of these influences will likely deliver further SCL growth from current levels regardless of what the LSAP does (SAL was around $30bn as at 30 June).

Looking into the distant future, we still expect the RBNZ to continue buying bonds, but that is likely to take the form of rolling over maturing bonds, not using "newly printed" money to buy bonds, and will be purely technical in nature.

Contact us

Meet the team

We welcome your questions and feedback. Click here for more information about our team.

Sharon Zollner
Chief Economist

Follow Sharon on Twitter
@sharon_zollner

Telephone: +64 27 664 3554
Email: sharon.zollner@anz.com

General enquiries:
research@anz.com

Follow ANZ Research
@ANZ_Research (global)

David Croy
Senior Strategist

Market developments, interest rates, FX, unconventional monetary policy, liaison with market participants.

Telephone: +64 4 576 1022
Email: david.croy@anz.com

Susan Kilsby
Agricultural Economist

Primary industry developments and outlook, structural change and regulation, liaison with industry.

Telephone: +64 21 633 469
Email: susan.kilsby@anz.com

Liz Kendall (maternity leave)
Senior Economist

Research co-ordinator, publication strategy, property market analysis, monetary and prudential policy.

Telephone: +64 27 240 9969
Email: elizabeth.kendall@anz.com

Miles Workman
Senior Economist

Macroeconomic forecast co-ordinator, fiscal policy, economic risk assessment and credit developments.

Telephone: +64 21 661 792
Email: miles.workman@anz.com

Finn Robinson
Economist

Macroeconomic forecasting, economic developments, labour market dynamics, inflation and monetary policy.

Telephone: +64 21 629 553
Email: finn.robinson@anz.com

Kyle Uerata
Economic Statistician

Economic statistics, ANZ proprietary data (including ANZ Business Outlook), data capability and infrastructure.

Telephone: +64 21 633 894
Email: kyle.uerata@anz.com

Natalie Denne
PA / Desktop Publisher

Business management, general enquiries, mailing lists, publications, chief economist's diary.

Telephone: +64 21 253 6808
Email: natalie.denne@anz.com

Important notice

Last updated: 9 April 2021

This document is intended for ANZ's Institutional, Markets and Private Banking clients. It should not be forwarded, copied or distributed. The opinions and research contained in this document are (a) not personal advice nor financial advice about any product or service; (b) provided for information only; and (c) intended to be general in nature and does not take into account your financial situation or goals.

This document may be restricted by law in certain jurisdictions. Persons who receive this document must inform themselves about and observe all relevant restrictions.

Disclaimer for all jurisdictions: This document is prepared and distributed in your country/region by either: Australia and New Zealand Banking Group Limited (ABN11 005 357 522) (**ANZ**); or its relevant subsidiary or branch (each, an **Affiliate**), as appropriate or as set out below.

This document is distributed on the basis that it is only for the information of the specified recipient or permitted user of the relevant website (**recipients**).

This document is solely for informational purposes and nothing contained within is intended to be an invitation, solicitation or offer by ANZ to sell, or buy, receive or provide any product or service, or to participate in a particular trading strategy.

Distribution of this document to you is only as may be permissible by the laws of your jurisdiction, and is not directed to or intended for distribution or use by recipients resident or located in jurisdictions where its use or distribution would be contrary to those laws or regulations, or in jurisdictions where ANZ would be subject to additional licensing or registration requirements. Further, the products and services mentioned in this document may not be available in all countries.

ANZ in no way provides any financial, legal, taxation or investment advice to you in connection with any product or service discussed in this document. Before making any investment decision, recipients should seek independent financial, legal, tax and other relevant advice having regard to their particular circumstances.

Whilst care has been taken in the preparation of this document and the information contained within is believed to be accurate, ANZ does not represent or warrant the accuracy or completeness of the information Further, ANZ does not accept any responsibility to inform you of any matter that subsequently comes to its notice, which may affect the accuracy of the information in this document.

Preparation of this document and the opinions expressed in it may involve material elements of subjective judgement and analysis. Unless specifically stated otherwise: they are current on the date of this document and are subject to change without notice; and, all price information is indicative only. Any opinions expressed in this document are subject to change at any time without notice.

ANZ does not guarantee the performance of any product mentioned in this document. All investments entail a risk and may result in both profits and losses. Past performance is not necessarily an indicator of future performance. The products and services described in this document may not be suitable for all investors, and transacting in these products or services may be considered risky.

ANZ expressly disclaims any responsibility and shall not be liable for any loss, damage, claim, liability, proceedings, cost or expense (Liability) arising directly or indirectly and whether in tort (including negligence), contract, equity or otherwise out of or in connection with this document to the extent permissible under relevant law. Please note, the contents of this document have not been reviewed by any regulatory body or authority in any jurisdiction.

ANZ and its Affiliates may have an interest in the subject matter of this document. They may receive fees from customers for dealing in the products or services described in this document, and their staff and introducers of business may share in such fees or remuneration that may be influenced by total sales, at all times received and/or apportioned in accordance with local regulatory requirements. Further, they or their customers may have or have had interests or long or short positions in the products or services described in this document, and may at any time make purchases and/or sales in them as principal or agent, as well as act (or have acted) as a market maker in such products. This document is published in accordance with ANZ's policies on conflicts of interest and ANZ maintains appropriate information barriers to control the flow of information between businesses within it and its Affiliates.

Your ANZ point of contact can assist with any questions about this document including for further information on these disclosures of interest.

Country/region specific information: Unless stated otherwise, this document is distributed by Australia and New Zealand Banking Group Limited (**ANZ**).

Australia. ANZ holds an Australian Financial Services licence no. 234527. For a copy of ANZ's Financial Services Guide please or request from your ANZ point of contact.

Brazil, Brunei, India, Japan, Kuwait, Malaysia, Switzerland, Taiwan. This document is distributed in each of these jurisdictions by ANZ on a cross-border basis.

Cambodia. The information contained in this document is confidential and is provided solely for your use upon your request. This does not constitute or form part of an offer or solicitation of any offer to engage services, nor should it or any part of it form the basis of, or be relied in any connection with, any contract or commitment whatsoever. ANZ does not have a licence to undertake banking operations or securities business or similar business, in Cambodia. By requesting financial services from ANZ, you agree, represent and warrant that you are engaging our services wholly outside of Cambodia and subject to the laws of the contract governing the terms of our engagement.

European Economic Area (EEA): ***United Kingdom.*** ANZ is authorised in the United Kingdom by the Prudential Regulation Authority (**PRA**) and is subject to regulation by the Financial Conduct Authority (**FCA**) and limited regulation by the PRA. Details about the extent of our regulation by the PRA are available from us on request. This document is distributed in the United Kingdom by Australia and New Zealand Banking Group Limited ANZ solely for the information of persons who would come within the FCA definition of "eligible counterparty" or "professional client". It is not intended for and must not be distributed to any person who would come within the FCA definition of "retail client". Nothing here excludes or restricts any duty or liability to a customer which ANZ may have under the UK Financial Services and Markets Act 2000 or under the regulatory system as defined in the Rules of the Prudential Regulation Authority (**PRA**) and the FCA. ANZ is authorised in the United Kingdom by the PRA and is subject to regulation by the FCA and limited regulation by the PRA. Details about the extent of our regulation by the PRA are available from us on request.

Fiji. For Fiji regulatory purposes, this document and any views and recommendations are not to be deemed as investment advice. Fiji investors must seek licensed professional advice should they wish to make any investment in relation to this document.

Hong Kong. This publication is issued or distributed in Hong Kong by the Hong Kong branch of ANZ, which is registered at the Hong Kong Monetary Authority to conduct Type 1 (dealing in securities), Type 4 (advising on securities) and Type 6 (advising on corporate finance) regulated activities. The contents of this publication have not been reviewed by any regulatory authority in Hong Kong.

India. If this document is received in India, only you (the specified recipient) may print it provided that before doing so, you specify on it your name and place of printing.

Important notice

Myanmar. This publication is intended to be general and part of ANZ's customer service and marketing activities when implementing its functions as a licensed bank. This publication is not Securities Investment Advice (as that term is defined in the Myanmar Securities Transaction Law 2013).

New Zealand. This material is for information purposes only and is not financial advice about any product or service. We recommend seeking financial advice about your financial situation and goals before acquiring or disposing of (or not acquiring or disposing of) a financial product.

Oman. ANZ neither has a registered business presence nor a representative office in Oman and does not undertake banking business or provide financial services in Oman. Consequently ANZ is not regulated by either the Central Bank of Oman or Oman's Capital Market Authority. The information contained in this document is for discussion purposes only and neither constitutes an offer of securities in Oman as contemplated by the Commercial Companies Law of Oman (Royal Decree 4/74) or the Capital Market Law of Oman (Royal Decree 80/98), nor does it constitute an offer to sell, or the solicitation of any offer to buy non-Omani securities in Oman as contemplated by Article 139 of the Executive Regulations to the Capital Market Law (issued vide CMA Decision 1/2009). ANZ does not solicit business in Oman and the only circumstances in which ANZ sends information or material describing financial products or financial services to recipients in Oman, is where such information or material has been requested from ANZ and the recipient understands, acknowledges and agrees that this document has not been approved by the CBO, the CMA or any other regulatory body or authority in Oman. ANZ does not market, offer, sell or distribute any financial or investment products or services in Oman and no subscription to any securities, products or financial services may or will be consummated within Oman. Nothing contained in this document is intended to constitute Omani investment, legal, tax, accounting or other professional advice.

People's Republic of China (PRC). This document may be distributed by either ANZ or Australia and New Zealand Bank (China) Company Limited (**ANZ China**). Recipients must comply with all applicable laws and regulations of PRC, including any prohibitions on speculative transactions and CNY/CNH arbitrage trading. If this document is distributed by ANZ or an Affiliate (other than ANZ China), the following statement and the text below is applicable: No action has been taken by ANZ or any affiliate which would permit a public offering of any products or services of such an entity or distribution or re-distribution of this document in the PRC. Accordingly, the products and services of such entities are not being offered or sold within the PRC by means of this document or any other document. This document may not be distributed, re-distributed or published in the PRC, except under circumstances that will result in compliance with any applicable laws and regulations. If and when the material accompanying this document relates to the products and/or services of ANZ China, the following statement and the text below is applicable: This document is distributed by ANZ China in the Mainland of the PRC.

Qatar. This document has not been, and will not be:

- lodged or registered with, or reviewed or approved by, the Qatar Central Bank (**QCB**), the Qatar Financial Centre (**QFC**) Authority, QFC Regulatory Authority or any other authority in the State of Qatar (**Qatar**); or
- authorised or licensed for distribution in Qatar,

and the information contained in this document does not, and is not intended to, constitute a public offer or other invitation in respect of securities in Qatar or the QFC. The financial products or services described in this document have not been, and will not be:

- registered with the QCB, QFC Authority, QFC Regulatory Authority or any other governmental authority in Qatar; or
- authorised or licensed for offering, marketing, issue or sale, directly or indirectly, in Qatar.

Accordingly, the financial products or services described in this document are not being, and will not be, offered, issued or sold in Qatar, and this document is not being, and will not be, distributed in Qatar. The offering, marketing, issue and sale of the financial products or services described in this document and distribution of this document is being made in, and is subject to the laws, regulations and rules of, jurisdictions outside of Qatar and the QFC. Recipients of this document must abide by this restriction and not distribute this document in breach of this restriction. This document is being sent/issued to a limited number of institutional and/or sophisticated investors (i) upon their request and confirmation that they understand the statements above; and (ii) on the condition that it will not be provided to any person other than the original recipient, and is not for general circulation and may not be reproduced or used for any other purpose.

Singapore. This document is distributed in Singapore by the Singapore branch of ANZ solely for the information of "accredited investors", "expert investors" or (as the case may be) "institutional investors" (each term as defined in the Securities and Futures Act Cap. 289 of Singapore). ANZ is licensed in Singapore under the Banking Act Cap. 19 of Singapore and is exempted from holding a financial adviser's licence under Section 23(1)(a) of the Financial Advisers Act Cap. 100 of Singapore.

United Arab Emirates (UAE). This document is distributed in the UAE or the Dubai International Financial Centre (**DIFC**) (as applicable) by ANZ. This document does not, and is not intended to constitute: (a) an offer of securities anywhere in the UAE; (b) the carrying on or engagement in banking, financial and/or investment consultation business in the UAE under the rules and regulations made by the Central Bank of the UAE, the Emirates Securities and Commodities Authority or the UAE Ministry of Economy; (c) an offer of securities within the meaning of the Dubai International Financial Centre Markets Law (DIFCML) No. 12 of 2004; and (d) a financial promotion, as defined under the DIFCML No. 1 of 200. ANZ DIFC Branch is regulated by the Dubai Financial Services Authority (**DFSA**) ANZ DIFC Branch is regulated by the Dubai Financial Services Authority (**DFSA**). The financial products or services described in this document are only available to persons who qualify as "Professional Clients" or "Market Counterparty" in accordance with the provisions of the DFSA rules.

United States. Except where this is a FX- related document, this document is distributed in the United States by ANZ Securities, Inc. (**ANZ SI**) which is a member of the Financial Regulatory Authority (**FINRA**) (www.finra.org) and registered with the SEC. ANZSI's address is 277 Park Avenue, 31st Floor, New York, NY 10172, USA (Tel: +1 212 801 9160 Fax: +1 212 801 9163). ANZSI accepts responsibility for its content. Information on any securities referred to in this document may be obtained from ANZSI upon request. This document or material is intended for institutional use only – not retail. If you are an institutional customer wishing to effect transactions in any securities referred to in this document you must contact ANZSI, not its affiliates. ANZSI is authorised as a broker-dealer only for institutional customers, not for US Persons (as "US person" is defined in Regulation S under the US Securities Act of 1933, as amended) who are individuals. If you have registered to use this website or have otherwise received this document and are a US Person who is an individual: to avoid loss, you should cease to use this website by unsubscribing or should notify the sender and you should not act on the contents of this document in any way. Non-U.S. analysts: Non-U.S. analysts may not be associated persons of ANZSI and therefore may not be subject to FINRA Rule 2242 restrictions on communications with the subject company, public appearances and trading securities held by the analysts. Where this is an FX-related document, it is distributed in the United States by ANZ's New York Branch, which is also located at 277 Park Avenue, 31st Floor, New York, NY 10172, USA (Tel: +1 212 801 916 0 Fax: +1 212 801 9163).

Vietnam. This document is distributed in Vietnam by ANZ or ANZ Bank (Vietnam) Limited, a subsidiary of ANZ.

This document has been prepared by ANZ Bank New Zealand Limited, Level 10, 171 Featherston Street, Wellington 6011, New Zealand,
Ph 64-4-576 1022, e-mail nzeconomics@anz.com, http://www.anz.co.nz