

NZ Insight: Negative OCR – an introduction

8 July 2020



This is not personal advice. It does not consider your objectives or circumstances. Please refer to the Important Notice.



Contact

Liz Kendall for more details.

What would a negative OCR mean in practice and how likely is it?

Summary

- Trend declines in interest rates over recent decades, combined with the advent of the current crisis, have raised the very real possibility that a negative OCR could be seen next year. The RBNZ and financial market participants are readying themselves for the possibility.
- For households and most firms, interest rates on savings and borrowing wouldn't be negative if the OCR were negative – but deposit and borrowing rates would likely fall further, helping to stimulate the economy. The exchange rate is also likely to fall.
- There are risks associated with a negative OCR, and reasons for the RBNZ to be cautious. At some point, a lower OCR can impair financial market function, and costs start to outweigh benefits. There are better options that we think the RBNZ would use before a negative OCR.
- But it pays to be prepared. If the economic situation was dire enough, other tools had been exhausted, and the benefits were deemed to outweigh the costs, the RBNZ could choose to deploy a negative OCR next year. We don't think it is probable, but the possibility cannot be ruled out.

The view

With the Official Cash Rate (OCR) having trended down over recent decades and the advent of the current [deep recession](#), the possibility of a negative OCR has become very real. The RBNZ has committed to leaving the OCR at its current level of 0.25% until at least March 2021. However, the RBNZ is looking to expand its toolkit, and has asked banks and financial market participants to prepare for negative interest rates from next year just in case.

Why is that? What would it mean? And how likely is it?

Why is a negative OCR on the table?

Monetary policy works by influencing financial conditions (the supply of money, interest rates and the exchange rate) faced by those in the economy. To adjust monetary policy settings, central banks like the RBNZ typically vary their policy rates (the OCR in New Zealand).

Monetary policy settings stimulate (or rein in) activity with a lag, such that the labour market and inflation are guided to levels that are sustainable and promote the long-term prosperity of New Zealanders. The OCR serves as a benchmark rate that influences the money supply, a broad range of interest rates in the economy and the exchange rate.

We went into this crisis with little room to cut the OCR...

When the OCR is sufficiently high, monetary policy settings can be changed very rapidly at the onset of an economic downturn by the RBNZ slashing the OCR. For example, after the Global Financial Crisis (GFC) the RBNZ eased the OCR 5.75%pts (from 8.25% to 2.50%) in the space of less than 12 months. Many other countries cut their policy rates by a similar amount.

By contrast, New Zealand went into the COVID-19 crisis with the OCR at just 1% (some other countries' cash rates were even lower). This gave the RBNZ little room to lower the OCR and ease monetary policy in the traditional sense to cushion the blow of the deep economic downturn currently underway.

...due to structural forces

This lack of conventional policy space to lower the OCR is a consequence of a long-term downward trend in interest rates due to structural forces.

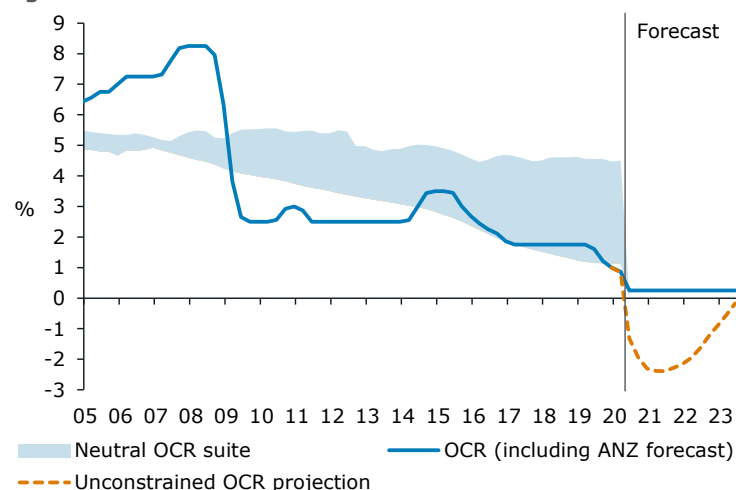
When the RBNZ varies the OCR to stimulate (or rein in) the economy, it sets the OCR relative to an estimate of its equilibrium, often called the "neutral interest rate". The neutral interest rate is the level of the OCR that would be consistent with neither contracting nor stimulating the economy, with the labour market and inflation stable at target.

The neutral interest rate is broadly determined by the amount of saving taking place (the supply of funds) relative to investment (the demand for funds). The balance between these two forces determines the equilibrium amount of borrowing in the economy and its price (the interest rate) in real terms. Over the past few decades, supply of funds has increased relative to demand and lowered equilibrium interest rates. There are a few reasons for this: current and required saving in the future have increased; weak productivity and investment growth have dampened demand for funds; and the population is ageing, meaning less investment is required in future.

Inflation and inflation expectations have also fallen, reducing equilibrium interest rates in nominal (rather than real) terms. And funding spreads have widened, which means equilibrium interest rates in the economy are associated with a lower OCR.

The RBNZ sets the OCR, but does not control where the neutral interest rate is (assuming they take their mandated inflation target seriously). They have to treat it as given – and it has trended down over time, including recently. As the neutral interest rate has fallen, the OCR has had to trend down too.

Figure 1: RBNZ's estimates of the neutral interest rate and unconstrained OCR



Source: RBNZ, ANZ Research

The neutral interest rate is unobservable, but there are ways to estimate it. Figure 1 shows the RBNZ’s neutral interest rate suite; we think the true level of the neutral interest rate is at the lower end of this range. That means scope to lower the OCR significantly has been eroded and it has been necessary to move into “unconventional” policy territory. Figure 1 also shows the RBNZ’s estimate and projection for the “unconstrained” OCR, which is the OCR that would deliver current and expected monetary stimulus in the economy, taking into account unconventional measures. Relative to the neutral interest rate range, monetary policy appears quite stimulatory.

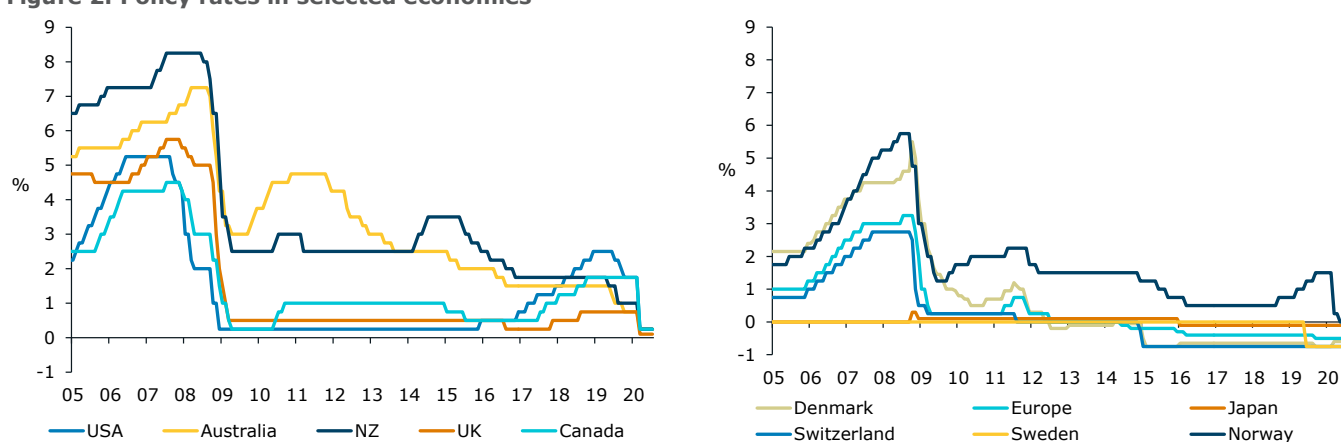
The RBNZ has launched QE and other options are on the table, including a negative OCR

After the COVID-19 crisis hit, the RBNZ lowered the OCR to 0.25% and committed to keep it there. It has then moved into “unconventional” territory, using alternative monetary policy tools to provide stimulus. The RBNZ launched a “quantitative easing” (QE) programme in March, called the Large-Scale Asset Purchase Programme (or LSAP). We have written about how QE works in detail [here](#) and [here](#), and we think [more is on the way](#).

There are limits to the RBNZ’s QE programme given that there is a limited pool of assets for it to buy. We think that the QE programme will need to be expanded in size, lengthened in its duration, and widened to include more assets. Reflecting these limits, the RBNZ are working on adding a range of other “alternative” monetary policy tools to their toolkit should they be needed, including a term lending facility, foreign asset purchases, and reductions in the OCR – potentially into negative territory. See [here](#) and [here](#).

The RBNZ is not alone in considering taking the OCR negative. A negative policy rate might sound strange, but they aren’t rare. Following the GFC, some other central banks around the world eventually found themselves in a situation where it was deemed necessary to take their policy rates to zero or into negative territory, such as in Europe and Japan (figure 2). Each of these central banks judged that it would be worth any potential risks given a poor economic outlook.

Figure 2: Policy rates in selected economies



Source: Bloomberg, ANZ Research

What would it mean?

A negative OCR would work in the same way as lowering the OCR to any other level, by lowering broader interest rates in financial markets and the exchange rate.

A negative OCR means interest rates would generally be lower, but not negative

A lower OCR would mean wholesale inter-bank lending rates would be lower. Banks would be charged to hold cash overnight in settlement accounts at the RBNZ. Holding cash is something banks are required to do, and increasingly so with QE having expanded cash balances (for more on that see [here](#)). In this way, negative rates on cash would impose a cost to the banking system, but they would also incentivise wholesale (market) interest rates more broadly to decline. This would have widespread effects in terms of lowering interest rates in the economy.

Lending and deposit rates faced by households and firms would also decline, but would not be negative apart from some possible exceptions, such as on very large corporate deposits. Retail interest rates are set at a margin above the OCR, reflecting bank funding requirements, risk assessments, and other costs of doing business. For the most part, the OCR would reach its lower limit (more on that later) well before retail rates went negative.

Competitive pressures would see mortgage rates come under more downward pressure than deposit rates, since banks have regulatory requirements to hold deposit rates that would put a floor under them. This would squeeze bank profits.

As with all aspects of monetary policy, there would be winners and losers; monetary policy is a blunt tool, aimed at stimulating or reining in the economy in aggregate. Some (such as high-income borrowers) would benefit a lot, while others (such as those reliant on term-deposit income) would have less cash flow. But ultimately, getting the economy on track is good for everyone, even if it is felt unevenly.

For retail borrowers and savers, lower interest rates would provide an incentive to spend, providing a boost to the economy, with knock-on flow on effects. The exchange rate would also be lower, potentially quite a lot lower, which would provide a boon for exporting and import-competing sectors of the economy. Where the exchange rate settled would depend on interest rates differentials with other countries, along with other factors like trade and export prices. There is no reason to believe that a negative OCR would provoke a disruptive adjustment in capital flows, assuming the exchange rate could adjust smoothly. But price adjustment via the exchange rate could be marked if a negative OCR caused interest rate differentials to widen markedly.

There are limits to how low the OCR you could go, and there are costs

While it is possible for the OCR to go into negative territory, there are limits on how far it could go. At some point, if interest rates on large deposits got low enough, it would be cheaper to withdraw deposits as cash and pay to store and insure them (roughly thought to be when the OCR reached -0.75%).

But before this point was reached, the effectiveness of a lower OCR could start to be impaired, and could even become counter-productive. This point, where the costs of a lower OCR start to outweigh the benefits, is known as the “effective lower bound”. Central banks can’t know for sure where the effective lower bound is. If it is well below zero, then negative policy rates are another possible policy option. But if it is close to zero, as we suspect, then there are reasons to be cautious.

Below the effective lower bound, squeezed bank margins might start to impact profitability to the point that mortgage rates no longer fall or, worse, increase. Squeezed margins can also reduce the amount of credit available, which can have contractionary effects, offsetting possible stimulatory impacts via a lower exchange rate for example. These problems can be particularly severe if there are any issues with market functioning, the health of the banking system, or

the availability of credit. In this case, the costs of taking the OCR negative could outweigh the benefits quite quickly, warranting increased caution. If a negative OCR was employed, it would be most effective when financial and credit supply risks have dissipated and the recovery is well underway, with firms ready to borrow to expand.

Given these costs and uncertainties, a negative OCR is not a preferred policy tool in our view. At some point it becomes less effective and becomes a big, counter-productive cost to the banking system. International evidence shows that impacts of negative policy rates on bank profits are a real problem, and that the effectiveness of negative policy rates is mixed.

Despite these costs, at some point the RBNZ could judge that the benefits outweigh the costs. In our view, this should only be considered if the outlook was sufficiently bad. And all other avenues for stimulus would have to have been exhausted for it to make sense, which is far from the case now. QE has more potential to provide stimulus, especially if LSAP purchases were front-loaded – and there are plenty of other options, as we have discussed [here](#) and [here](#).

But of course, the RBNZ may view a negative OCR policy more favourably than we do. A negative OCR can hamper the banking system, but it also has the potential to generate a big exchange rate impact, which the RBNZ could consider a priority, downplaying risks to credit supply. We expect the RBNZ to publish research on these issues soon.

How likely is it?

A negative OCR isn't happening this year; there are hurdles

Although there are reasons to be cautious, a move to a negative OCR next year can't be ruled out. However, we think other options would be used first, given the costs and uncertainties discussed above, and the fact that stimulus is likely to be most needed before a negative OCR is a viable option. That makes a negative OCR improbable, but not inconceivable.

Before a negative OCR is possible, the RBNZ needs to lay the groundwork by ensuring that the banking system could function smoothly – and also to ready the public, since negative interest rates are pretty mind-bending.

We think the following hurdles would need to be met:

- Banks and the financial infrastructure would need to be ready (and it currently isn't);
- Groundwork needs to be done to ready the public, especially given the impact that it would have on savers;
- Negative rates would need to be more acceptable internationally – it is still controversial as a policy tool. A number of central banks have recently raised concerns about negative policy rates as a tool, given concerns outlined above.¹
- The economic outlook would need to be materially worse and QE and other options would need to be perceived as having hit their limits, given that gains can still be made.

¹ US Federal Reserve Chairman Powell has said that he doesn't see negative policy rates as "an appropriate tool", citing that there is little evidence of their effectiveness and that they have negative impacts on the banking system. The RBA have come to a similar conclusion. The Bank of Canada has said that 0.25% is as low as the policy rate can go. The Bank of England is reviewing the possibility, but has previously been sceptical.

-
- Credit markets would need to be resilient and financial risks would need to have dissipated. Negative policy rates can undermine the performance of the banking system and thereby credit supply, which is particularly concerning if markets are vulnerable to a repricing of risk and funding pressures emerging. Financial markets are functioning well, but risks have not gone away, given the still very uncertain and fragile outlook.

But it pays to be prepared

Although we currently consider it unlikely, it is possible that a negative OCR could be employed next year, or at some later point if the outlook became bad enough. At the moment, fiscal policy is doing a lot of heavy-lifting, but monetary stimulus is necessary and complementary, and the impacts of QE are still working their way through the economy. But in time, if we cannot secure a path to economic recovery, or if downside risks materialise, the RBNZ may need to throw the proverbial kitchen sink at monetary stimulus. In that world, the RBNZ might come to the conclusion that the risks and costs of a negative OCR are worth it. In that instance, the economic costs of not doing something would be considered too great.

Much work is being undertaken to prepare the financial system and investigate the possibility of a negative OCR. Based on our assessment, we hope that a negative OCR isn't required; both because that would mean taking on significant risks and costs to the financial system, and because that would imply that the outlook was materially worse than it is now. At some point, though, the RBNZ might just give it a go because they have no other choice, even if risks being counter-productive. Currently, the RBNZ still has other, better options to provide stimulus.

But although we are sceptical, it pays to be prepared – and readying ourselves for the possibility is vitally important work. If a negative OCR were deployed, it would be very important. Jobs, firm viability and people's ability to service debt would all be on the line. Being ready for this is like taking out an insurance policy. You hope you don't have to use it, and you may never need or want to. But you'd rather have it and not use it, than wish you had made the investment. If circumstances were bad enough, the RBNZ may simply deem that it has no other choice.



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
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



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

This document is intended for ANZ's Institutional, Markets and Private Banking clients. It should not be forwarded, copied or distributed. The information in this document is general in nature, and does not constitute personal financial product advice or take into account your objectives, financial situation or needs.

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 [click here](#) 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.

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.

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 document is intended to be of a general nature, does not take into account your financial situation or goals, and is not a personalised adviser service under the Financial Advisers Act 2008 (**FAA**).



Important notice

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. In addition, ANZ has a representative office (**ANZ Representative Office**) in Abu Dhabi regulated by the Central Bank of the UAE. The ANZ Representative Office is not permitted by the Central Bank of the UAE to provide any banking services to clients in the UAE.

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 26, 23-29 Albert Street, Auckland 1010, New Zealand, Ph 64-9-357 4094, e-mail nzeconomics@anz.com, <http://www.anz.co.nz>