

Inflation Dynamics: Upside Down Down Under?

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Introduction

Tēnā koutou katoa,

Thank you for the opportunity to join the panel.

Thirty years after the Reserve Bank of New Zealand first adopted an inflation targeting regime to deal with inflation that was too high, central banks now have a different problem: inflation being too low.

One of the key challenges of our time is for central banks, academics and financial markets to comprehend this new environment and deliver the appropriate policy response. It is testing our understanding of what is normal and welcome for policymakers when it comes to inflation, interest rates, wage growth, and fiscal spending.

So I would firstly like to thank the organisers and the presenters at this conference for their efforts as we explore “Inflation dynamics in Asia and the Pacific”.

In these panel remarks, I will talk about the New Zealand experience, specifically:

- Our assessment of what has caused this period of low inflation;
- What we have learnt as policymakers about inflation dynamics, and how much that has changed our approach to setting monetary policy; and
- How we are applying all this to our monetary policy outlook for 2019.

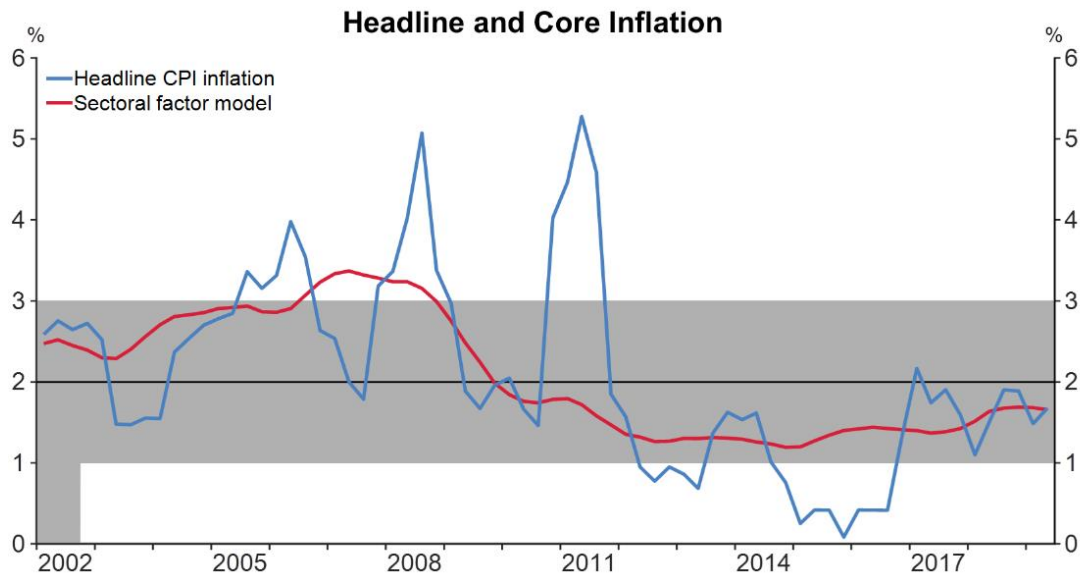
While some past long-standing empirical relationships have been turned upside down, others have not.

In particular, our assessment is that monetary policy is still effective in influencing inflation in New Zealand. This motivates our continuing determination to set policy to achieve our dual mandate of price stability and maximum sustainable employment.

Low inflation has been a common challenge globally

Inflation has been low around the world since the Global Financial Crisis (GFC), consistently undershooting forecasts and often undershooting inflation targets. While headline inflation has briefly reached 2 percent in some inflation-targeting countries, in many places it has been a fleeting experience, as in New Zealand (figure 1).

It is no wonder that the question of *why* inflation has been so low is one of the more-pressing areas of research in contemporary macroeconomics worldwide.

Figure 1: Annual inflation in New Zealand

Source: Stats NZ, Reserve Bank of New Zealand estimates.

Note: In the December quarter 2010, GST (a sales tax) was increased by 2 percentage points.

The drivers of low inflation

There are a number of usual suspects cited for what is causing low inflation.

Many of them are slow-burning structural changes taking place throughout the world, some of which have been covered in depth at this conference:

- *Globalisation*: Global supply chain integration has lowered the costs of manufactured goods.¹
- *Technological changes*: New technologies and low-cost software services are continually driving down prices for these goods and services.²
- *Demographics*: Populations are ageing in many countries, increasing savings and decreasing inflationary pressures.³
- *Labour market dynamics*: Labour markets and work practices are evolving around the world, creating more capacity and less wage pressure than in the past.⁴

These are deep and fundamental issues that deserve further research to truly understand their contribution to low inflation, and the policy implications for central bankers.

However, while these types of structural factors are likely to explain part of the reason why inflation has been low, they cannot explain the whole story.

¹ Auer, Borio, and Filardo (2017).

² Spencer (2017).

³ Liu and Westelius(2016).

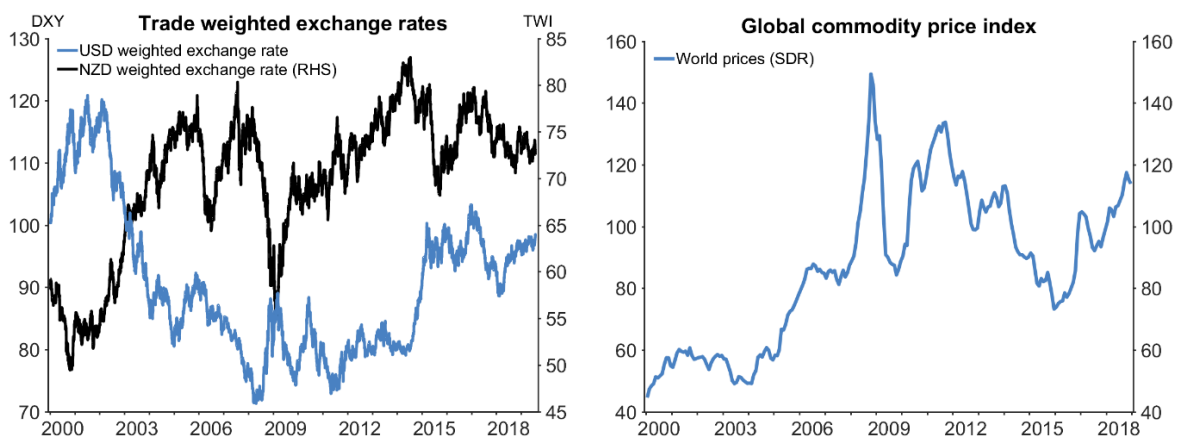
⁴ Duca (2018); Bracha and Burke (2017).

This is because many of these issues are long-term developments that have been playing out over decades. So they struggle to explain the relatively abrupt weakness in inflation since the GFC or during the period of 2012 to 2016 when inflation was particularly low in New Zealand. This suggests that there have also been more short-to-medium-term cyclical factors keeping inflation low.

Our analysis of the New Zealand business cycle highlighted a number of global factors that kept inflation lower than expected through this post GFC period, including:⁵

- *Global growth:* Underlying demand in advanced economies has been weaker than expected following the GFC, resulting in excess spare capacity and less inflationary pressure.
- *NZ dollar:* The extent of monetary stimulus from foreign central banks required to offset this economic weakness put upward pressure on the New Zealand dollar (figure 2), resulting in weaker tradables inflation. (More broadly, this factor raised questions about the ability of small open economies to operate independent monetary policy during the low-inflation period.)
- *Commodity prices:* Global commodity prices were weak during this time (figure 2), with both weak import commodity prices (especially oil prices) weighing on tradables inflation, and periods of weak export commodity prices (especially dairy) weighing on domestic incomes.

Figure 2: US dollar and commodity price weakness



Source: Bloomberg.

Some factors were unique to New Zealand. The rebuild of our second-largest city following a major earthquake in 2011, and high inward migration, were both less inflationary than we expected. These were material factors that contributed alongside the global issues facing many other countries in the Asia Pacific region.

Consistent with our dual mandate, our research agenda has also placed a particular focus on understanding the labour market. This work is ongoing, but has already provided some further insights. For example, we have found that large-firm bargaining power is not responsible for low wage inflation in New Zealand.⁶ However, a fall in job-to-job flows may provide one

⁵ Williams (2017).

⁶ Ball (forthcoming).

explanation for weaker inflationary pressure, as fewer employees are switching employers for pay-rises.⁷

Policy implications of changing inflation dynamics

So if those structural and cyclical stories capture our understanding of why inflation has been so low, what changes have we made as policy makers in our approach to setting monetary policy?

I would like to talk about two changes to inflation dynamics that we have incorporated into our approach over recent years, and one area where our assessment is that inflation dynamics have not changed – the effectiveness of monetary policy.

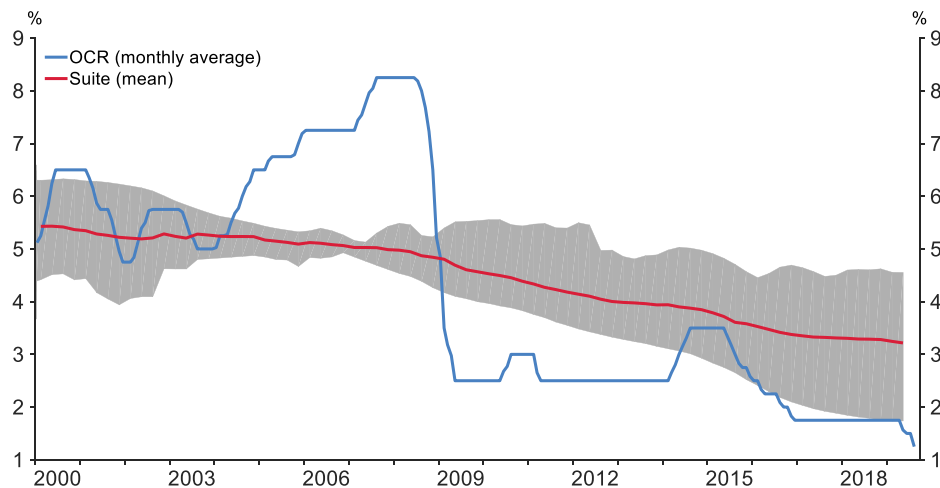
The neutral interest rate

The first change is that we have lowered our estimate of the neutral interest rate.

The neutral rate is the theoretical rate of interest that is neither expansionary nor contractionary, supporting full employment with inflationary pressures balanced at target. It helps us gauge whether our monetary policy stance is boosting or weighing on the economy.

The fall in the neutral rate reflects many of the structural changes touched on earlier. We publish a suite of indicators for the neutral interest rate in our *Monetary Policy Statements* that capture the range of different estimation approaches.⁸ Our current estimate of the neutral Official Cash Rate is a wide range centred on 3.25 percent, down from around 5 percent before the GFC (figure 3).

Figure 3: Neutral interest rate estimates



Source: Reserve Bank of New Zealand estimates. See Richardson and Williams (2015) for discussion of the various estimation approaches.

Note: Data availability means that the full suite of indicators cannot be provided in the latest quarter.

⁷ Ball, Groshenny, Karagedikli, Ozbilgin, and Robinson (forthcoming).

⁸ Reserve Bank of New Zealand (2019).

We have treated this gradual movement lower in neutral interest rates as largely mechanical in our modelling of the economy, rather than a significant policy choice or policy judgement at any one particular meeting. However, a lower neutral rate does have implications for the level of stimulus provided in the economy.⁹

All else equal, a lower neutral rate implies that we need to set our Official Cash Rate lower to deliver the same amount of monetary stimulus to the economy.

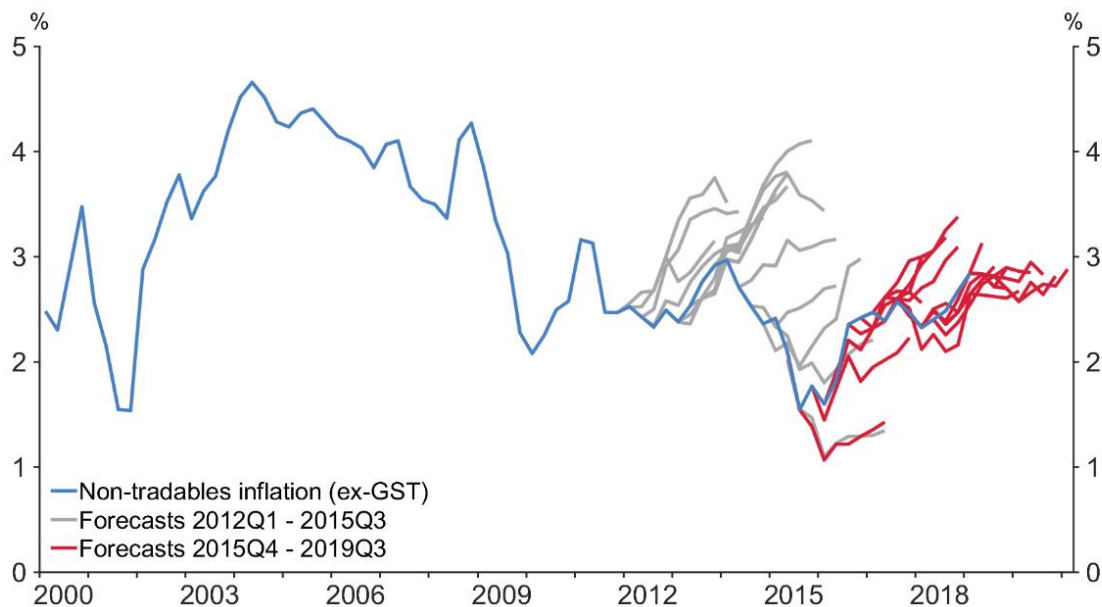
Adjustments to our inflation forecast assumptions

The second change that we have made is to our assumptions for inflation expectations, making them more influenced by past inflation.

Domestically-generated non-tradables inflation is typically driven by rising capacity pressure (when unemployment is low, and actual output is greater than its long-run potential) and by inflation expectations. For New Zealand, we have found that past inflation, rather than surveyed expectations, has been a better forecaster of inflation both before and after the GFC.¹⁰ In effect, this has meant that the global factors suppressing imported inflation have also spilled over into lower domestically-generated inflation.

Based on this, we have in recent years assumed firms and households put greater weight on past inflation outcomes. After we consistently overestimated domestic inflationary pressure through 2012 to 2015, this change in our approach has generated a more reliable gauge on future inflation (figure 4).

Figure 4: RBNZ forecasts of annual non-tradables inflation



Source: Statistics New Zealand, Reserve Bank of New Zealand estimates.

Rather than undermining the importance of keeping inflation expectations anchored, this highlights the importance of getting inflation close to target and avoiding a long-lasting undershoot, as was experienced in Japan and Europe.

⁹ McDermott (2017).

¹⁰ Karagedikli and McDermott (2018); McDonald (2017).

All else equal, this finding suggests a more active and decisive approach is needed from monetary policy, to ensure that actual inflation and therefore inflation expectations are well anchored at target.

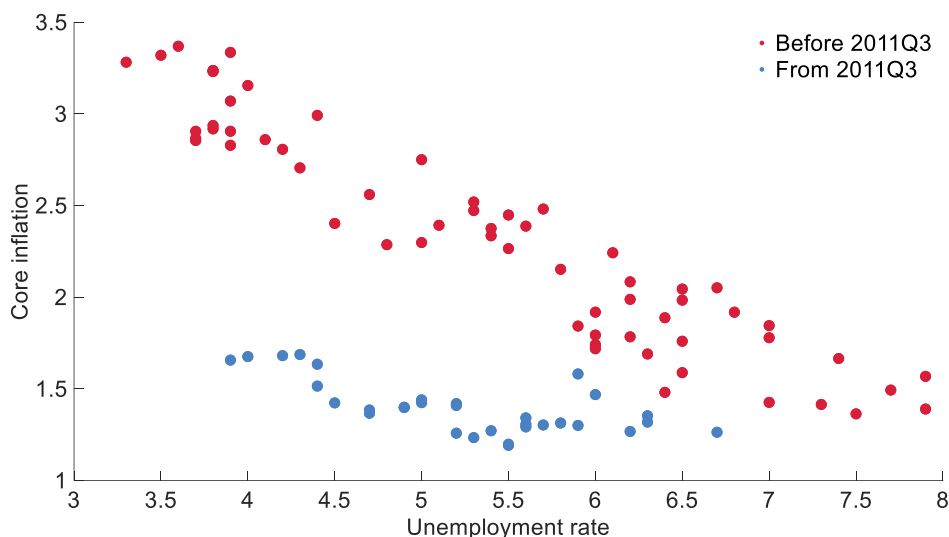
Effectiveness of monetary policy

As well as identifying where inflation dynamics have changed, it is equally important to be clear where we have made a conscious judgement that long-standing relationships remain intact.

One such area is the effectiveness of monetary policy.

Many commentators have questioned whether monetary policy still works in the current environment.¹¹ Some cite the low level of interest rates globally as a sign of ineffectiveness. Others highlight the relationship between economic activity and inflation outcomes (the Phillips Curve) being weaker than in the past, suggesting this points to a fundamental change in dynamics (figure 5).

Figure 5: Apparent flattening of the NZ Phillips Curve: 1996–2019



Source: Statistics New Zealand, Reserve Bank of New Zealand estimates.

Some of these arguments have an element of intuitive appeal – in particular, the idea that households and businesses may have reached debt constraints, limiting the historically important debt channel of monetary policy transmission.

Testing empirically whether the effectiveness of monetary policy has changed is no easy task. It requires well-measured economic data, a sufficiently long sample that can be tested for a change in the relationship, and a sophisticated approach to hold all other influencing factors constant to extract the unique impact of monetary policy.

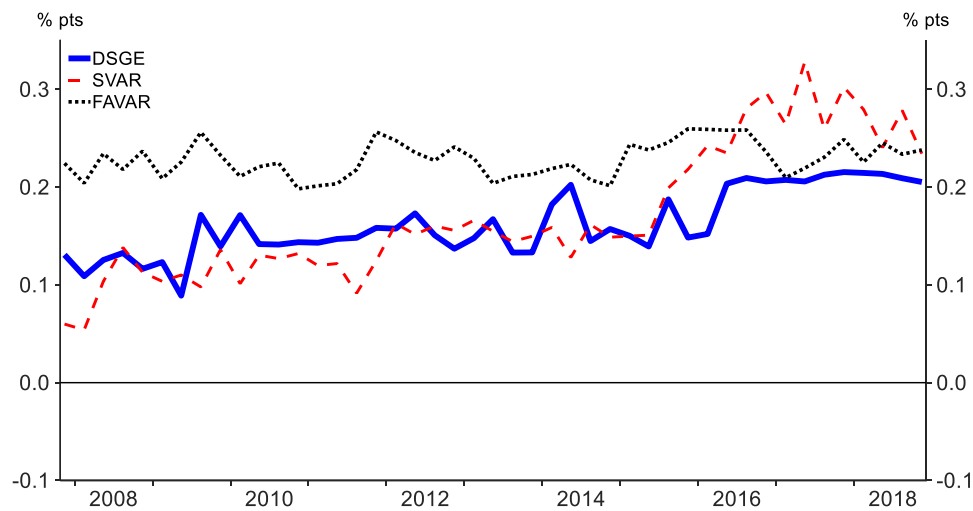
We have recently published research that tackles this question in the most robust way we believe we can, using two Vector Autoregression (VAR) models and a Dynamic Stochastic

¹¹ Borio and Hoffmann (2017).

General Equilibrium (DSGE) model, each using data from 1993 with evolving estimates as the sample size expands through time.¹²

These models both estimate how a change in short-term interest rates affects future inflation. At face value, two approaches find that the relationship is unchanged; the other actually finds that monetary policy has become even more effective (figure 6). As all these estimates come with wide error bands, the safest conclusion is that we have found no evidence of any change in the effectiveness of monetary policy in New Zealand in the past 25 years.

Figure 6: Peak impact of a 25 basis point fall in the 90-day rate on annual CPI inflation



This finding also aligns with similar research from the Reserve Bank of Australia on the effectiveness of monetary policy in Australia.¹³

Indeed, it fits with a number of other pieces of the puzzle.

First, it fits with research we published earlier this year on the flattening in the observable Phillips Curve – that is, how inflation appears to have become less responsive to falling unemployment and rising capacity pressure.

Our research shows this to be driven by an increase in the volatility of business cycle surprises on the supply-side, rather than the demand-side.¹⁴ This reinforces the idea that supply-side shocks have been more responsible for low inflation than in the past, masking the underlying and continuing positive relationship between demand-led activity and inflation.

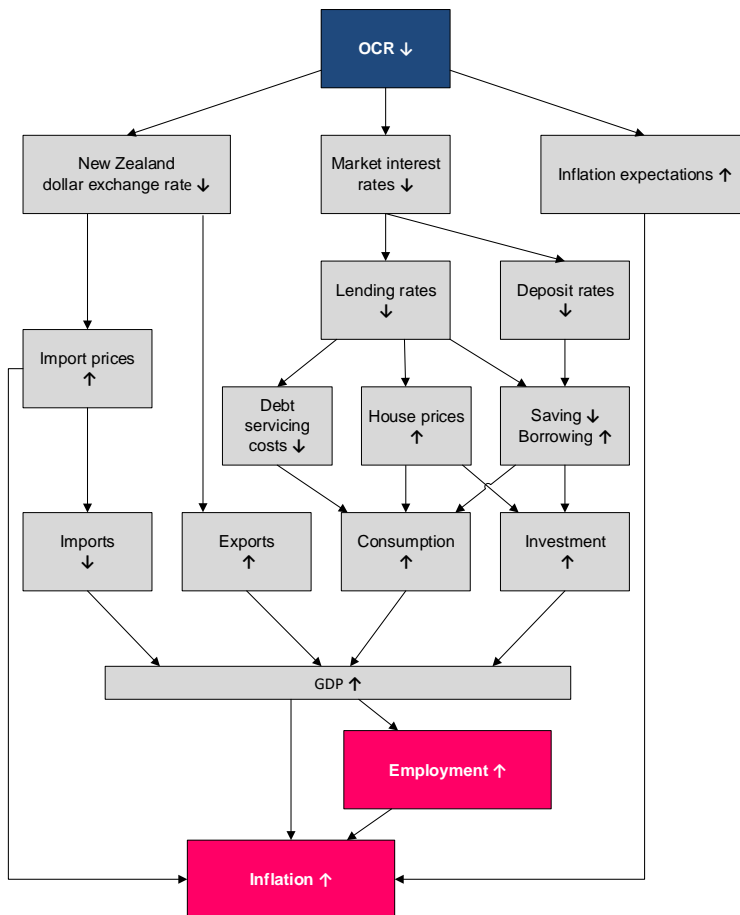
Second, it fits intuitively that monetary policy should still be effective to some extent. Even if debt constraints in certain sectors end up restraining parts of the transmission from interest rates to activity and inflation, the beauty of monetary policy is that it works through multiple channels (Figure 7).

¹² Culling, Jacob, Richardson, Truong, and Vehbi (2019).

¹³ Kent (2015); Kent (2019).

¹⁴ Jacob and van Florenstein Mulder (2019).

Figure 7: Monetary Policy Transmission¹⁵



Source: Reserve Bank of New Zealand, *Monetary Policy Handbook*.

Even with the same debt levels, lower interest rates reduce servicing costs and free up cashflow. Lower interest rates will also be associated with higher asset prices, creating a wealth effect through to consumption.¹⁶ Furthermore, many of the other channels, such as the exchange rate channel, will still work regardless of debt levels.

Finally, it fits with recent experience that monetary policy does still have bite even in this low interest rate world.

In New Zealand, we lifted the Official Cash Rate by 100 basis points over the course of the first half of 2014 to head off an expected increase in inflationary pressure. When this did not arrive as expected, the tightening in monetary policy ended up being one factor that contributed to the slowing in the economy into 2015. Internationally, we have also seen the US Federal Reserve tighten monetary policy through to 2018, and this is one factor that has contributed to the moderation in US growth and inflationary pressure into 2019. These are ongoing examples of monetary policy continuing to play a key role in inflation dynamics.

So if we think that inflation dynamics are changing and that monetary policy is still an effective tool, how are we applying that in New Zealand's current economic environment?

¹⁵ More on the transmission mechanism and other topics can be found in the Monetary Policy Handbook, available at <https://www.rbnz.govt.nz/monetary-policy/about-monetary-policy/monetary-policy-handbook>.

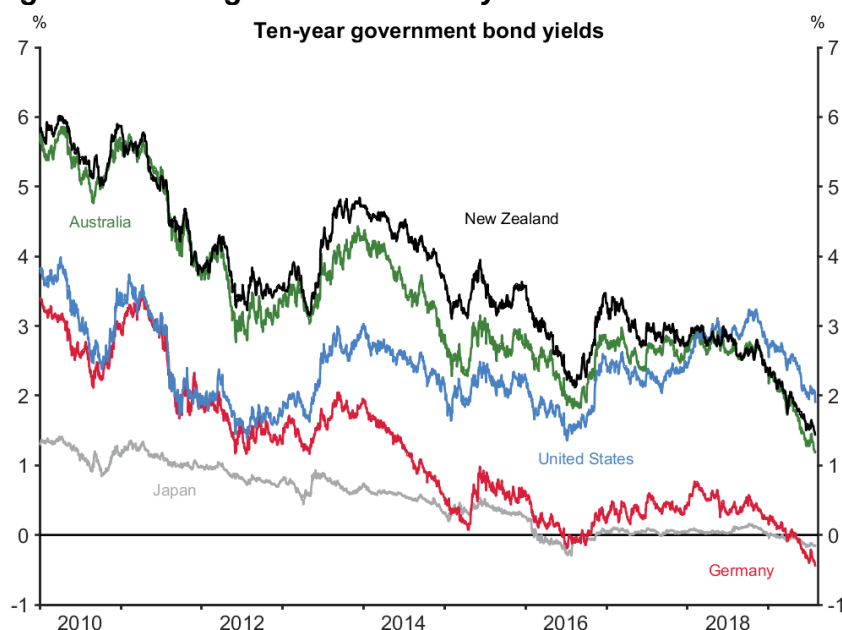
¹⁶ Wong, (2017).

Our August 2019 *Monetary Policy Statement*

As our Monetary Policy Committee met earlier this month, our starting point was a New Zealand economy where the labour market was operating near maximum sustainable employment, but annual core inflation remained persistently below the 2 percent mid-point of our target range.

We discussed the slowdown in global growth and global risks that lay ahead, and how this might affect New Zealand. We also addressed the loss of momentum in the domestic economy since mid-2018, through both tempered household spending and restrained business investment. As part of the assessment, our discussion also touched on the decline that had occurred in both survey measures of inflation expectations and market-based measures, such as nominal and inflation linked bonds in global markets (figure 8).

Figure 8. Global government bond yields in decline



Source: Bloomberg.

We also discussed our secondary considerations, including having regard to the implications of any decision for financial stability, and seeking to avoid unnecessary instability in output, interest rates or the exchange rate.

The Committee reached a consensus that, relative to the May *Monetary Policy Statement*, a lower path for the Official Cash Rate (OCR) over the projection period was appropriate.

A key part of this judgement was a view that changes in the stance of monetary policy remain just as effective to influence growth and inflation in periods of low interest rates as they did in the period before the GFC with higher interest rates. In particular, changes in the OCR were still translating through to movement in the interest rates for households and businesses, and eventually into economic activity and inflation.

With the OCR at 1.50 percent before the decision, the Committee noted the limited space still available to use our conventional tool. While not our core projection, as a contingency the Bank is undertaking further preparatory work on unconventional monetary policy tools.¹⁷ No

¹⁷ The Bank's published work on unconventional tools to date can be found in Drought, Perry and Richardson (2018).

future options have been ruled out, with foreign central banks having used a variety of tools, including negative interest rates, forward guidance, foreign exchange intervention, and a range of government and non-government asset purchase programmes.

We debated the relative benefits of reducing the OCR by 25 basis points and communicating an easing bias versus reducing the OCR by 50 basis points now.

A key part of the final consensus decision to cut the OCR by 50 basis points to 1.0 percent was that the larger initial monetary stimulus would best ensure the Committee continues to meet its inflation and employment objectives. In particular, it would demonstrate our ongoing commitment to ensure inflation increases to the mid-point of the target. This commitment would support a lift in inflation expectations and thus an eventual impact on actual inflation.

On balance, we judged that it would be better to do too much too early, than do too little too late. The alternative approach risked inflation remaining stubbornly below target, with little room to lift inflation expectations later with conventional tools in the face of a downside shock. By contrast, a more decisive action now gave inflation the best chance to lift earlier, reducing the probability that unconventional tools would be needed in the response to any future adverse shock.

Conclusion

I hope that sharing our experience in New Zealand has helped advance the discussion of inflation dynamics in the Asia Pacific region, and the role of central banks in this evolving story.

Thirty years ago the Reserve Bank adopted an inflation targeting regime to deal with inflation that was too high, and we spent the next twenty years largely focused on the challenge of ensuring inflation remained down at its target.

In more recent times, it feels like everything that central banks learnt and practised in those early years has been flipped upside down:

- the challenge now is to lift inflation, not bring it down;
- interest rates in several countries are negative, not positive;
- fiscal stimulus can be welcomed as supporting our monetary policy goals, not criticised as conflicting;
- higher wage growth can be greeted as a natural consequence of stimulatory monetary policy, rather than the spectre of a wage-price spiral; and
- rising inflation expectations can be seen as a sign of success, not an indicator of failure.

While some of these elements of inflation targeting feel like they have been flipped around, we believe that some core elements of inflation dynamics have remained just the same.

In particular, our assessment is that monetary policy is still effective in influencing inflation in New Zealand, through a number of channels. This is one of the factors that motivates our continuing determination to set policy, whether with conventional tools or unconventional tools, to achieve our dual mandate of price stability and maximum sustainable employment.

Kia ora tātou. Thank you.

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