

Governors' order: twice over-easy?

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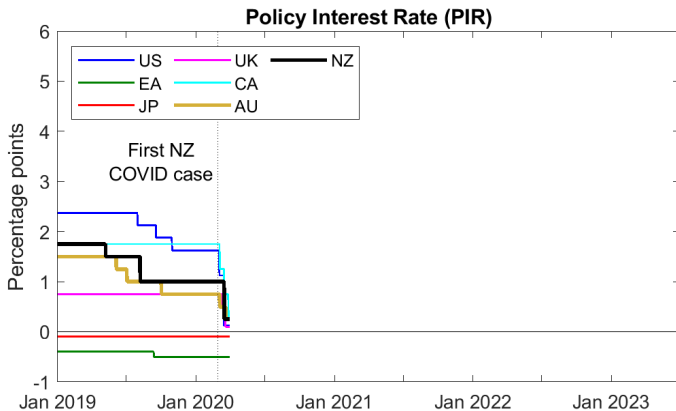
1. Background and outline

We provide perspectives on the stance of monetary policy from the onset of the COVID-19 pandemic to the present

- **“Once over easy”** is the first part of presentation
 - refers to the **large stimulus from monetary policy**, by conventional and unconventional means, in response to the COVID economic disruption
 - **how large?** We outline metrics derived from yield curve data for the stance of monetary policy in the G4 and dollar-bloc economies (US, EA, JP, UK, CA, AU, NZ)
- **“Twice over easy?”** is the second part of presentation
 - central banks have since reduced their stimulus considerably
 - but **interest rates remain quite accommodative** on a real (inflation-adjusted) basis
- Note **“Governors’ order”** is plural then singular because comments apply to central banks generally. NZ examples in context of symposium, and some comments are NZ-specific

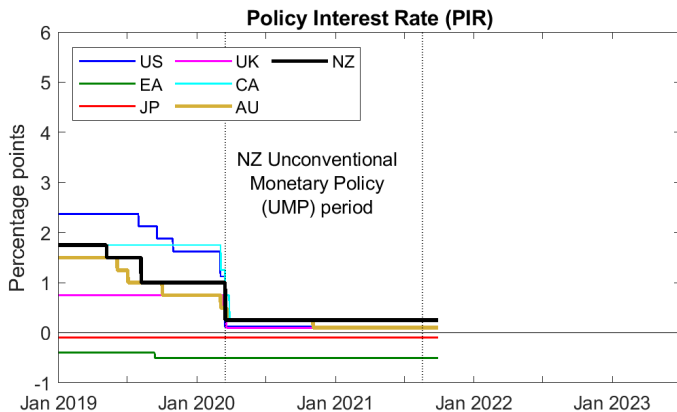
Conventional Monetary Policy (CMP) easing

On COVID onset, central banks with positive Policy Interest Rate (PIRs) cut them to near-zero (eg. OCR of 0.25% in NZ).
EA and JP left their near-zero PIRs in place



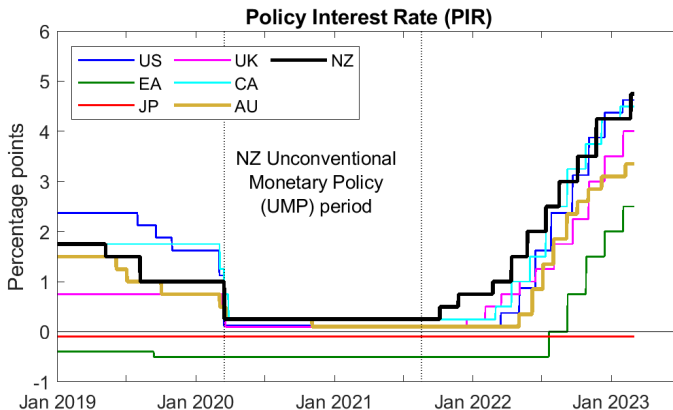
Unconventional Monetary Policy (UMP) easing

To provide additional stimulus, central banks also used other tools; broadly Quantitative Easing (QE), Credit Easing (CE), and Forward Guidance (FG) on the PIR and other policy settings



CMP and UMP tightening

As COVID and its economic disruption diminished, and inflation had increased and remained persistent, central banks raised their PIRs and ceased or reversed UMP actions



The NZ mix of CMP and UMP over COVID period

Major NZ COVID-period monetary policy events

- | | | |
|----|-------------|--|
| 1 | 16-Mar-2020 | OCR cut from 1% to 0.25% (CMP) with 12-month no-change commitment (PIR FG) and delay to 2022 for intended bank capital increase announced (CE, resumed 1-Jul-2022) |
| 2 | 23-Mar-2020 | LSAP programme of up to \$30 billion announced (QE & QE FG) |
| 3 | 7-Apr-2020 | LSAP (Large Scale Asset Purchases) limit raised to \$33 billion (QE/FG) |
| | 30-Apr-2020 | Removal of Loan-to-Value Ratios for one year announced (CE, reinstated 1-Mar-2021) |
| 4 | 13-May-2020 | LSAP limit raised to \$60 billion (QE/FG) |
| 5 | 12-Aug-2020 | LSAP limit raised to \$100 billion (QE/FG). Funding for Lending Programme (FLP) and preparations allowing a negative OCR noted (CE&PIR FG) |
| 6 | 11-Nov-2020 | FLP announced, and introduced on 7 December 2020 (CE, initial allocation window ended on 6-Jun-2022, and FLP ended on 6-Dec-2022) |
| 7 | 14-Jul-2021 | LSAP discontinuation by 23 July 2021 announced (QE FG) |
| 8 | 18-Aug-2021 | OCR track indicates imminent OCR "lift-off" (PIR FG) |
| 9 | 6-Oct-2021 | OCR raised from 0.25% to 0.5% (CMP, "Lift-off" followed by subsequent increases) |
| 10 | 23-Feb-2022 | LSAP unwind at \$5 billion per year announced (Quantitative Tightening, QT) |
-
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Other economies also used a mix of CMP and UMP

What was the stance of UMP? And why is it important?

Not an easy question to answer, but influences economic outcomes



One approach: **quantify CMP + UMP with yield curve data**

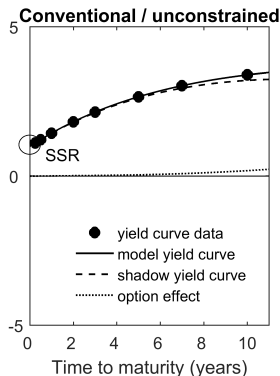
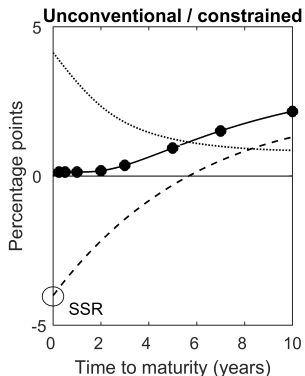
- yield curve: interest rates for different times to maturity
- principle is yield curve embeds current CMP & UMP settings, and guidance/expectations of their evolution

Shadow Short Rates (e.g. Krippner 2015) are one example

Leo's 15 minutes of fame: highest profile central-banking references are St. Louis Federal Reserve Bank President James Bullard (2012), European Central Bank President Mario Draghi (2019), and 2017 Economics in Central Banking Award

Shadow/LB term structure framework overview

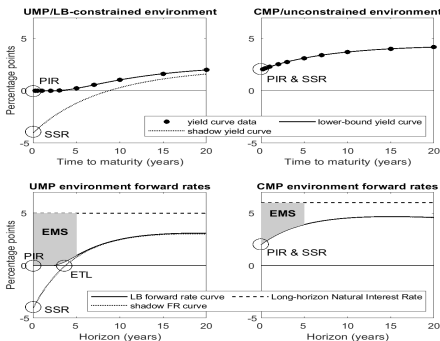
- **ZLB short rate = Shadow Short Rate + currency option**
 - $\underline{r}(t) = r(t) + \max[-r(t), 0]$, (re-arranged from Black 1995)
- \Rightarrow **ZLB yields = shadow yields + option effect**



Two more yield curve monetary policy metrics

Expected Time to Lift-off (ETL): if SSR is negative, horizon when SSR path from estimated model passes through zero

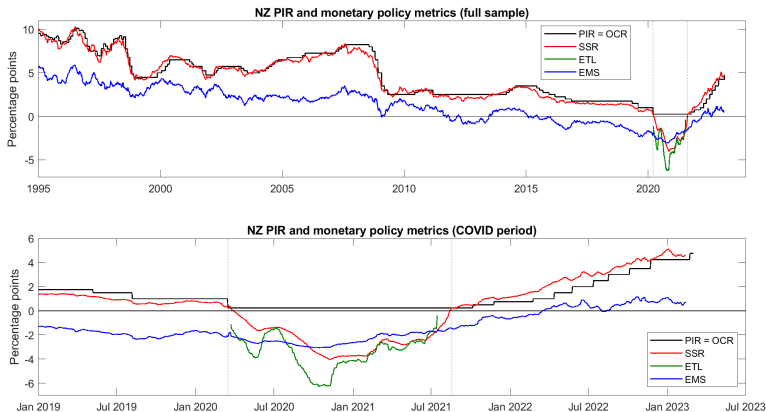
Effective Monetary Stimulus (EMS): area of expected PIR path relative to Long-horizon Natural Interest Rate (LNIR)



Calculate each day to assess evolution of CMP & UMP over time

The three monetary policy metrics for New Zealand

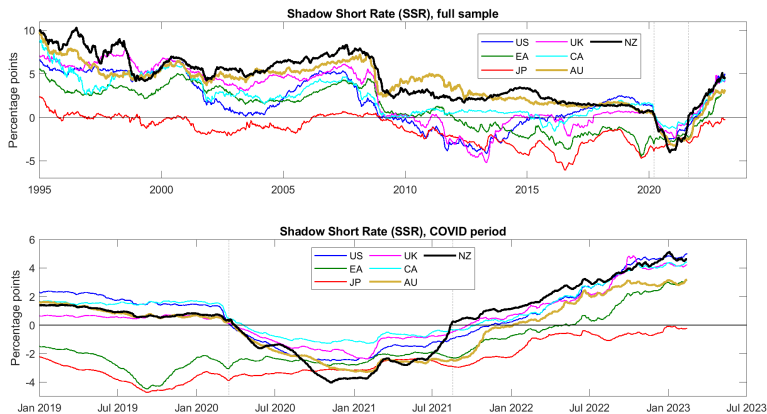
No single metric is ideal. Best used as a suite of indicators



Note: ETL is negated to align with SSR and EMS metrics

SSR for NZ and other economies

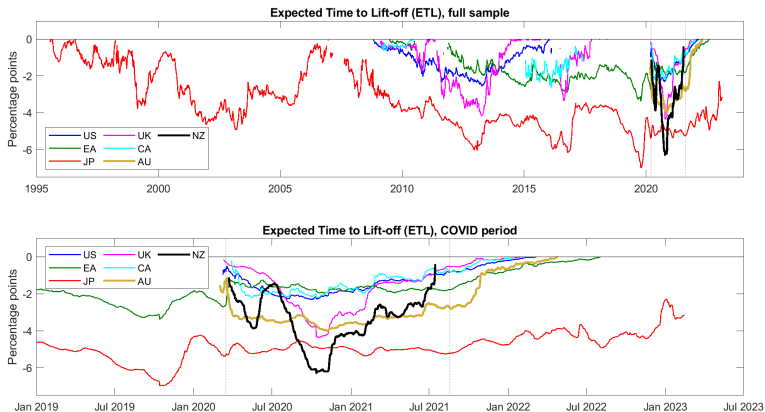
Magnitude of -ve SSR can vary with model and data choices



These results use same model spec. & yield curve maturities

ETL for NZ and other economies

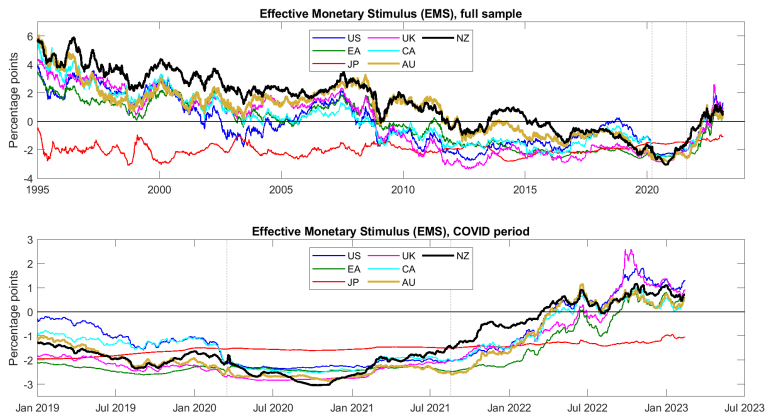
ETL only available in UMP periods, i.e. when SSR is negative



But useful cross-check, and quite robust to model and data choices

EMS for NZ and other economies

EMS variation mainly follows 5-year interest rates



LNIR based on long-horizon nominal GDP growth expectations

Main points for all of the economies shown

In wake of COVID economic disruption, SSR, ETL, and EMS indicate that the **mix of CMP + UMP was very stimulatory**

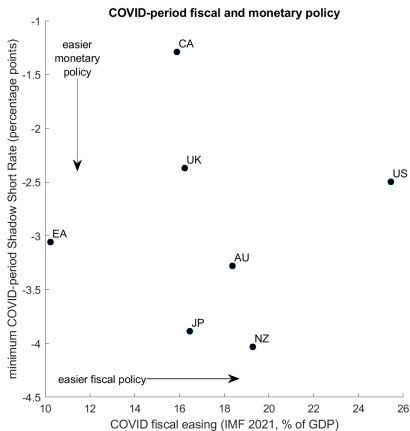
That **stance of monetary policy proved “over-easy”** when COVID economic disruption had diminished: core inflation increased to and has persisted at multi-decade highs

Monetary policy was then rapidly tightened, evident from all three metrics and from PIR “lift-offs” and ongoing increases (Japan the exception so far)

New Zealand was “deepest and steepest”, by all three metrics, in its COVID monetary policy cycle

- easing phase consistent with “least regrets” approach
- followed by an early and pronounced tightening phase

New Zealand's fiscal policy was also very stimulatory

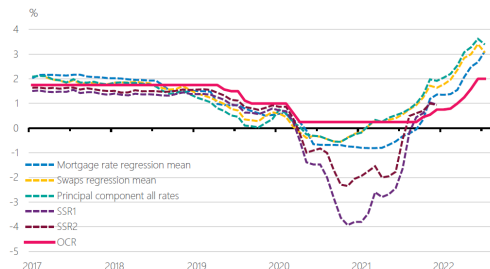


Note: fiscal data is from the IMF ("Fiscal Monitor: Database of Country Fiscal Measures in Response to the COVID-19 Pandemic") and is the additional spending and forgone revenue from Jan-2020 to Jun-2021

RBNZ estimates of UMP easing

From RBNZ's review: "In Retrospect: Monetary Policy in New Zealand 2017-22" (released 10 November 2022)

Figure 39 - Suite of indicator models



Source: RBNZ estimates.

Mortgage rate regression is the preferred metric: "at their peak influence, the **OCR-equivalent stimulus** from the use of AMP [Alternative MP] tools was **around 90 basis points.**"

On the RBNZ's preferred UMP stance indicator

"The Reserve Bank looks forward to the informed feedback and commentary that the report will no doubt generate."

Neil Quigley, RBNZ Board Chair
(and University of Waikato Vice-Chancellor)

So, feedback:

- **-0.90% OCR-equivalent seems implausibly mild**
- suggests an OCR-equivalent easing of around just 2% (from 1% OCR that prevailed Aug-2019 to 15-Mar-2020)
- -0.90% well-short of referenced Gagnon and Sack (2018)
 - RBNZ review: "For example, one study suggests that providing the same stimulus as a 25 basis points cut in the policy rate requires government bond purchases of 1.5% of GDP."
 - \$55 billion LSAPs / \$328 billion 2021 nominal GDP = 16.7%
 - $16.7\% \div 1.5\% \times 25 = 278 = 2.8\%$
 - \$100 billion (announced limit for LSAP program) = 5.1%

Other perspectives suggest -0.90% too mild

Implicit comparison from earlier slides

- if RBNZ eased to the OCR-equivalent of -0.90% , and was the most stimulatory according to three metrics, then other central banks implicitly provided very little COVID-period stimulus beyond near-zero Policy Interest Rate settings

Ultimate test is consistency with macroeconomic outcomes

- OCR-equivalent of -0.90% (or less for other economies) seems inconsistent with current persistent and elevated core inflation in NZ (and other economies) ...
- ...**and with prior RBNZ forecasts** that used a published “unconstrained OCR” track
- would need careful testing, including appropriately accounting for other influences (e.g fiscal, uncertainty, etc. but monetary policy formulation should account for such influences)

On mortgage rate and other regressions

Specification and justification are questionable

- **international precedent?**
- a level-on-level regression won't account for the OCR effect on the yield curve level and its slope
- ETL indicates that wholesale yields for maturities up to around 5 years were constrained by the near-zero PIR setting
- (an issue when using 5-year rates for Japan EMS)
- so movement of mortgage rates for all terms out to 5 years would be mainly limited to margin changes
- **limited movement in mortgage rates \Rightarrow limited movement in OCR-equivalent results regardless of UMP actions**

Some key questions

- why were mortgage regression results preferred?
- were they used in real time for monetary policy deliberations?
- **did this contribute to “over-easier” NZ monetary policy?**

3. Twice over-easy?

Previous section was based on equations like

$$\begin{aligned} \underline{f}(t, \tau) = & r_L + [f(t, \tau) - r_L] \cdot \Phi \left[\frac{f(t, \tau) - r_L}{\omega(\tau)} \right] \\ & + \omega(\tau) \cdot \phi \left[\frac{f(t, \tau) - r_L}{\omega(\tau)} \right] \end{aligned}$$

Krippner, Leo (2015), “Zero Lower Bound Term Structure Modeling”, Palgrave MacMillan

This section is based on the century-old **Fisher equation**

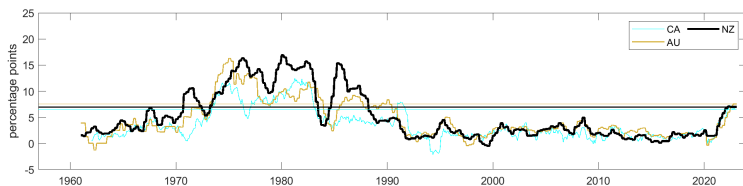
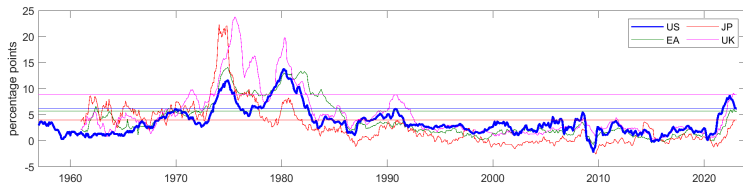
$$r \simeq i - \pi$$

real interest rate \simeq nominal interest rate – inflation rate

Fisher, Irving (1907), “The Rate of Interest”, MacMillan

Recent inflation has been elevated

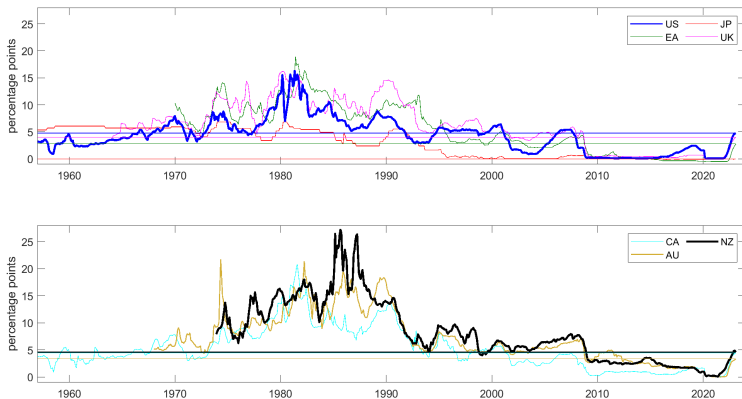
Annual CPI inflation is at levels last seen in the 1980s



Note: year-on-year % change of all items CPI (FRED), ex-GST

Nominal 3-month rates have increased

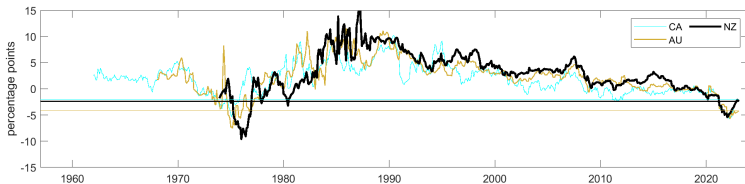
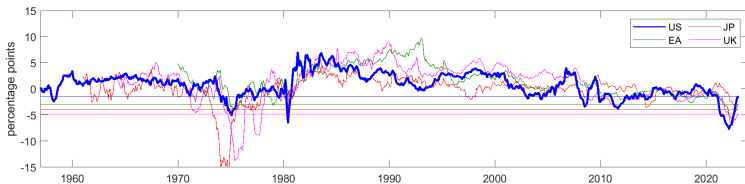
The rise reflects central banking PIR increases



Note: data compiled from IMF, FRED, and Bloomberg

But real 3-month interest rates still quite low

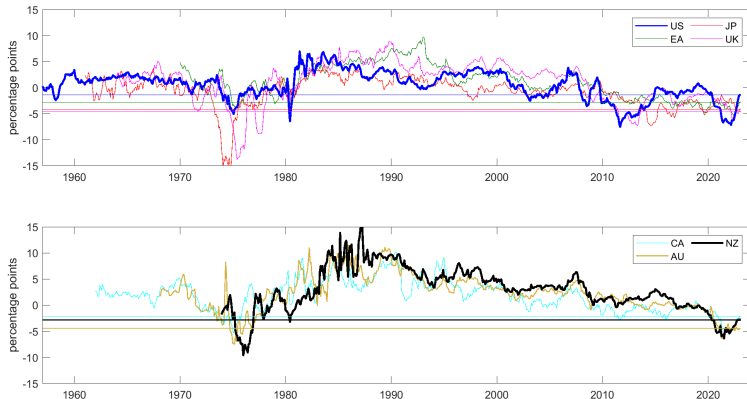
They are around the levels from the 1970s and early 1980s



None are even above zero !!

Real SSRs have been low for a long time

SSRs used from 1995 to account for UMP



So G4 real rates have been low on average over past decade

4. Conclusion

Shadow Short Rates, Expected Time to Lift-off, and Effective Monetary Stimulus quantify **very stimulatory monetary policy** in the wake of the COVID economic disruption. One outcome has been **core inflation at multi-decade highs**:

“Once over-easy”

Central banks have since tightened monetary policy rapidly to reign in inflation. But **post-2008 has been very accommodative**, and current **real interest rates remain negative**, similar to levels that prevailed in the 1970s

Present inflation environment has differences (e.g central bank credibility), but also **some eerie echoes to 1970s**, e.g. supply shocks as higher-inflation catalyst, labour market power, multiple-target monetary policy & regime change:

“Twice over-easy?”