Is it feasible for monetary policy to pursue economic growth targets, or multiple inflation targets?

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Introduction

This paper considers whether it is possible for monetary policy to simultaneously target the inflation rates of two different price indices (e.g. pursue a CPI target and a PPI or exchange rate target) or target the trend rate of economic growth. We conclude that it is not possible for monetary policy to successfully achieve multiple targets, and that in seeking to do so, it is likely that none of the targets will be successfully achieved. However, the literature – and our own analysis – suggest that it is possible for monetary policy to have regard to instability in other variables in the pursuit of a single target variable, as clause 4(c) of the 1999 Policy Targets Agreement (PTA) requires.

Targeting real variables is not possible

Conventional economic wisdom suggests that monetary policy is not capable of targeting real variables (such as economic growth or employment), or multiple nominal variables. For example, as noted in the PTA briefing paper, we don't think monetary policy can affect the trend rate of growth, except through maintaining price stability[1]. It follows that we can't achieve any target for the trend rate of growth. More generally, we don't believe monetary policy is capable of achieving a target for any real variable.

Why is monetary policy incapable of having a sustained effect on real variables? Lars Svensson provides an excellent explanation of the logic behind this view in his Independent Review of Monetary Policy in New Zealand (2001)[2]:

> "*We have seen above how the central bank, by lowering its instrument rate, thereby reducing the short real rate and the real exchange rate, can increase aggregate demand and output for a few years. Can the central bank indefinitely maintain a low instrument rate and a low exchange rate and in this way stimulate the economy indefinitely? The answer is definitely no. In the longer term, the central bank must set its instrument rate so that on average the short real rate is equal to the neutral real rate. The neutral real rate is the real rate that is consistent with output equal to potential output. It is largely determined by factors other than monetary policy. If the central bank tries to maintain a short real rate below the neutral real rate for too long, aggregate demand outstrips potential output, the economy becomes overheated, and inflation increases to high single-digit, then double-digit inflation, and eventually hyper-inflation. As history has demonstrated several times, a hyperinflationary situation eventually results in a breakdown of the market system and a severe economic and financial crisis. Thus, sustained stimulation of the real economy through monetary policy is not a feasible option.*"
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> "*In the long term, monetary policy can only control nominal variables such as inflation and the exchange rate. In the long term, monetary policy cannot increase the average level or the growth rate of real variables such as GDP and employment, or affect the average level of the real exchange rate. There is evidence that monetary policy that leads to high and/or variable inflation is harmful to the real economy and to economic growth, by making the market mechanism work less*

[1] Some of the accompanying papers in this publication set out some reasons why the definition of price stability could have a marginal impact on the rate of trend growth – for example that a target centred around a low rate of inflation may be better for trend growth than a zero target. But this doesn't refute the argument that the central bank can't *control* the rate of trend growth.

[2] Pages 15-16.

well and by creating unnecessary uncertainty. However, once monetary policy brings inflation down to relatively low and stable levels, monetary policy has no long-term effects on the average level and average growth rate of real variables. Nevertheless, monetary policy can affect the variability of real variables, as further discussed below."

To give another example of the inability of monetary policy to control real variables, the Bank does not think monetary policy can control the level of the real exchange rate, at least so long as the capital account remains open. This is a direct application of the "impossible trinity" – the thesis put forward originally by Nobel laureate Robert Mundell – which states that it is not possible to stabilise the inflation rate and the nominal exchange rate simultaneously if the capital market is open. Broadly speaking, this means that there are two options: to fix the exchange rate and take required real adjustment through relative price movements, or choose to take it through a floating exchange rate while pursuing an inflation target[3].

The impossible trinity illustrates that the monetary authority cannot achieve explicit level targets for any two nominal variables (e.g. the nominal exchange rate and the inflation rate), because that effectively requires an ability to stabilise a real variable. A further example is that the monetary authority cannot target monetary policy to simultaneously achieve an objective relating to the inflation rate in the CPI and in the PPI, because that would require an ability to target the gap between them. The gap between the CPI and PPI is a real variable, representing the margins charged by manufacturers and distributors.

The above arguments suggests that the PTA must specify a particular nominal variable, such as the CPI, or PPI, or a weighted average of the CPI and PPI, or even the nominal exchange rate, as the target variable. However, a direction to keep *both* the CPI and the PPI within some range would lead to conflicts from time to time.

An alternative formulation is the specification of a primary objective, such as keeping CPI inflation within a target band, and the specification of a subordinate objective that is conditional on first meeting the primary objective. For example, the PTA could specify an inflation target expressed in the form of a CPI target range, while also specifying a subordinate objective, such as keeping PPI inflation within a specified band to the extent that this does not conflict with the achievement of the primary objective. However, it is likely that this would still result in PPI inflation being outside of the target band a significant proportion of the time, unless PPI inflation and CPI inflation happened to be moving within a close range of each other.

Although some other central banks have more diverse objectives, they tend to interpret them as being a directive to pursue price stability. For example, the United States Federal Reserve is directed by the Federal Reserve Act to "promote effectively the goals of maximum employment, stable prices, and moderate long term interest rates". However, the Federal Reserve's publication on its purposes and functions (Federal Reserve, 1994) states *"Many analysts believe that the central bank should focus primarily on achieving price stability. A stable level of prices appears to be the condition most conducive to maximum sustainable output and employment".* Thus, the other statutory monetary policy objectives of the Federal Reserve would appear to have a similar status to the words in the first clause of the New Zealand PTA, which says the reason we aim at price stability is because by doing so "*monetary policy can make its maximum contribution to sustainable economic growth, employment and development opportunities within the New Zealand economy*". In other words, it appears that the Federal Reserve has concluded that the pursuit of price stability (broadly defined) is the most effective way that monetary policy can contribute to the wider economic goals specified in legislation.

Multiple targets in the form of seeking to minimise volatility

Once an inflation target has been specified, it is possible to specify a separate (subordinate or conditional) qualifier to the target, such as a specification that, in pursuing the inflation target, the central bank should seek to minimise

[3] This argument and the implications for policy are considered in Hargreaves et al (2001)

volatility arising from its monetary policy actions. Clause 4(c) of the 1999 PTA adds objectives of this nature as a caveat to the inflation target, directing that "*In pursuing its price stability objective, the Bank shall implement monetary policy in a sustainable, consistent and transparent manner and shall seek to avoid unnecessary instability in output, interest rates and the exchange rate".* While this is not formally part of the inflation target itself, it does influence the objectives of monetary policy. For example, monetary policy will seek to return inflation to within the target band after a shock, but the sorts of considerations embedded in Clause 4(c) will tend to make this return more gradual.

This sort of objective is given a technical description in the literature on modeling monetary policy (see e.g. Svensson (2001a)), where the monetary authorities' objective is often described as keeping inflation as near to the target as possible and output as near to potential as possible.[4] A weighting parameter determines how important output deviations from potential are, relative to inflation deviations from the target. This is quite a stylised way of characterising monetary policy, but the results of the work do illustrate that there is a conceptual trade-off between inflation and output variability. Hence, it is logically consistent for the PTA to tell us to have regard for output variability.

But for the central bank to be seen as committed to its inflation rate target, it is necessary that some weight is placed on inflation volatility. In other words, for the pursuit of price stability to be credible, it is necessary that the monetary authority acts when inflation is expected to remain above target for more than a quarter or two. In this sense, the inflation objective remains paramount, and minimising inflation volatility is part of achieving our primary job of price stability[5]. The extent to which the monetary authority has to act when inflation departs from the target (ie the weight placed on inflation volatility) depends in part on the central bank's credibility in meeting its price stability objectives.

How does the Reserve Bank operationalise Clause 4(c)? As noted above, one key point is that, in situations where inflation has moved outside the target range, the Bank seeks to bring inflation back to within the range gradually, rather than forcing a rapid and potentially costly adjustment on the real economy. Moreover, the Bank tends to "look through" the effects of exchange rate fluctuations in the CPI, rather than altering monetary policy to stabilise the overall price level when tradables prices are being shifted by the exchange rate[6]. Simulation experiments described in Orr, Scott and White (1997) suggest that this reduces output volatility. For example, it would have been very difficult and inappropriate to counteract the mid-2000 inflation spike caused by the falling New Zealand dollar, as the Bank would have had to exert considerable pressure on the domestic economy in order to get non-tradables prices to fall enough to offset the rise in tradables prices[7].

Attempting to minimise the volatility of output means seeking to stabilise output around a trend growth rate, where monetary policy is unable to influence the underlying trend rate of growth. In other words, the Bank seeks to smooth some of the cycles in output, but (as described earlier) does not attempt to achieve a growth target. Similarly, the Bank could not choose a new level for real interest rates or the real exchange rate and stabilise them at those levels, because their equilibrium levels are outside the control of monetary policy. Another challenge in operationalising clause 4(c) is determining our view of these equilibrium values, given that they are unobservable[8].

More generally, the better the data available to the Bank, and the greater our understanding of the economy, the better placed the Bank is to seek to minimise volatility in the real economy in the pursuit of price stability. For example, since "looking through" first round effects requires us to be able to distinguish first round and second round effects on

[4] Technically, the monetary authority minimises a weighted average of the (squared) deviations of inflation from the target and output from potential output.

[5] Svensson (2001a) describes how a central bank that pursues price stability as the top objective in a hierarchy of objectives can still pursue stabilisation of other variables as "dual" objectives.

[6] See Orr Scott and White (1997).

[7] Of course, we still need to lean against any apparent second round effects of import price rises, as directed by clause 3 b, since not doing so could create a persistent departure from price stability. Orr, Scott and White (1998) also cover this issue.

[8] See Archibald and Hunter (2001) on estimating the neutral real rate, and Conway and Hunt (1998) on estimating potential output.

[9] Santaremo (2001).

inflation, better data on this helps our understanding in this area. A speech by Anthony Santomero (President, Federal Reserve Bank of Philadelphia)[9] discusses this in some depth, noting "*the irony that while there seems to be broader recognition that monetary policy is a blunt instrument, there seem to be more strident calls for the Fed to use it with surgical precision*."

References

Archibald, J. and L. Hunter (2001) "What is the neutral real interest rate, and how can we use it?", Reserve Bank of New Zealand Bulletin, September 2001

Conway P. and B. Hunt (1997) "Estimating potential output: a semi-structural approach", Reserve Bank of New Zealand Discussion Paper G97/9

Hargreaves, D., Hataiseree, R., Hendarsyah, N., Paraso, D., Santoso, P., Singh, S. and B. White (2001) "The Capital Account and The Exchange Rate In Monetary Policy Decision-Making", study presented to the EMEAP Deputies meeting.

Federal Reserve (1994) "The Federal Reserve: Purposes and Functions" www.federalreserve.gov

Goodhart, Charles A.E. (2001), "Monetary Transmission Lags and the Formulation of the Policy Decision on Interest Rates," Federal Reserve Bank of St. Louis Review July/August 2001

Orr, A., Scott, A. and White, B. (1997) "The exchange rate and inflation targeting" Reserve Bank of New Zealand Bulletin, September 1997.

Santomero, A. (2001) "What Monetary Policy Can and Cannot Do", Remarks Before the National Association for Business Economics, September 10, 2001.

Svensson, L. (2001) "Independent Review of the Operation of Monetary Policy: Report to the Minister of Finance".

Svensson, L. (2001a) "The Inflation Forecast and the Loss Function,", CEPR Discussion Paper No. 3365.