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Evaluating monetary policy

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It is important that central banks are accountable for their conduct of monetary policy. This article outlines a conceptual framework for evaluating monetary policy based on the principles of flexible inflation targeting. A central bank should make full use of all relevant information, and learn from new information and forecast errors as these come to light.

1 Introduction

Monetary policy is a powerful tool. Used well it can provide the platform of low, stable inflation necessary for an economy to flourish. But poor monetary policy can lead to excessively high or low inflation, or unnecessary instability in output, interest rates or the exchange rate – negatively affecting an economy's long-term potential growth rate. To help provide low and stable inflation, monetary policy should be conducted independently of the political cycle. Given this separation from the democratic process, it is important that central banks are accountable for using monetary policy appropriately to pursue their legislated objectives.

This article outlines a conceptual framework for evaluating monetary policy based on the principles of flexible inflation targeting. In doing so, it adds to extensive research on monetary policy performance in New Zealand and other economies.[1]

1 See Bergo (2007), Qvigstd (2005), Svensson et al. (2002), Giavazzi & Mishkin (2005), Goodhart & Rochet (2011), Sveriges Riksbank (2009), and Svensson (2001).

In New Zealand, the *Reserve Bank of New Zealand Act (1989)* and *Policy Targets Agreement* (*PTA*) guide how the Reserve Bank should set policy and how its performance should be evaluated. Assessment of the Bank is undertaken by several stakeholders.

The Reserve Bank Board is an important part of this accountability framework. The Board is responsible for formally monitoring and assessing the Bank's performance. To help make its assessment, the Board is provided with background material used in the Bank's policy deliberations, including supporting analytical papers, meeting minutes, and policy advice provided by the Monetary Policy Committee to the Bank's Governing Committee. The Board devotes a large portion of its monthly meetings to discussing economic developments and reviewing the Bank's OCR decisions.

The Bank is also held accountable by several other external stakeholders, including the New Zealand public, the New Zealand Government, financial market participants, and the media. The assessments that underpin the Bank's policy decisions are outlined in *Monetary Policy Statements*, speeches, analytical papers, and explained in media interviews. Markets assess and respond to the Bank's communications, media comment on the Bank's performance, and the Bank regularly reports to Parliament's Finance and Expenditure Committee.

By outlining the principles that are important for evaluating monetary policy decision-making, the conceptual framework presented here can help external stakeholders evaluate the Bank's monetary policy decisions.

Well-informed oversight from external stakeholders benefits the Bank in two ways. Firstly, a clear understanding of the Bank's policy goals, and how it might be assessed against those goals, helps external stakeholders predict how the Bank is likely to react to new information. This improves the efficacy of monetary policy, since agents in the economy can react instantly to new information, rather than having to wait for guidance from the Bank. Secondly, it provides several avenues – in addition to the role played by the Board – for direct feedback to improve the Bank's decision making. Well-informed feedback can help the Bank identify faster the need for policy adjustments.

Self assessment by the Bank is also an important part of the accountability framework. It is important that the Bank is continuously reassessing and improving its understanding of the economy, to ensure that monetary policy is set appropriately. To ensure that learning is taking place, the Bank regularly reviews its economic narrative, forecasts and policy assessment.

When evaluating monetary policy, it is not sufficient to look at inflation outcomes alone. There are two reasons for this. Firstly, unanticipated events can affect how inflation outcomes evolve over the medium term and central banks cannot, nor are they expected to, have perfect foresight. Secondly, flexible inflation targeting gives central banks discretion in regards to the speed at which they aim to return inflation to target, to avoid unnecessary instability in the economy.

2 Evaluating monetary policy

This section outlines two types of assessment that can be useful in evaluating whether a central bank has achieved its monetary policy objectives. An evaluation of monetary policy should, in principle, involve both an *ex-ante* and an *ex-post* assessment.

Flexible inflation targeting involves setting monetary policy today in order to achieve price stability in the future. The Bank must make policy decisions to achieve this objective in the face of uncertainty. Current and recent decisions can only be reviewed based on the information that was available at the time. Therefore, evaluating such decisions in real time requires an *ex-ante* assessment.

Once inflation outcomes are known and enough time has passed for conclusions to be drawn about the likely impacts of monetary policy, past monetary policy decisions can be further assessed. An *ex-post* assessment can be conducted.

Current New Zealand legislation broadly formalises these two types of assessment. The Act establishes the goals and powers of the Bank with regards to monetary policy, with section 53(1) setting out how the Board should assess the performance of the Bank. While monetary policy can – and should – be assessed by external stakeholders, the Board has a unique role within the Bank's accountability framework in that it has a statutory obligation to assess the Bank's monetary policy decisions. The two parts of the *Act most relevant* for the assessment of monetary policy are:

53(1) Subject to this Act, the Board of the Bank shall –

> *(a) keep under constant review the performance of the Bank in carrying out –*
>
> > *(i) its primary function*
>
> *(c) keep under constant review the performance of the Governor in ensuring that the Bank achieves the policy targets agreed to with the Minister under section 9 or section 12(7)(b)*

Section 53(1)(c) instructs the Board to ensure that the Governor meets his or her policy objectives, where those objectives are defined either in the *PTA* or by ministerial order under section 12(7)(b). Section 53(1)(c) makes no reference to current or past inflation. The *PTA* instructs monetary policy to be set such that '***future** CPI inflation outcomes (are) between 1 per cent and 3 per cent on average over the medium term, with a focus on keeping **future** average inflation near the 2 percent midpoint*.'[2]

Given the *PTA*'s forward-looking focus, the legislation requires the Board to make an *ex-ante* assessment of the Bank's current monetary policy strategy, guided by the *PTA*.

Ex-post assessment, on the other hand, is guided by section 53(1)(a) of the Act. It directs the Board to '*review the performance of the Bank in carrying out its **primary function***'. The Bank's primary function is defined in section 8 as using monetary policy to achieve and maintain stability in the general level of prices, where the policy target for carrying out the Bank's primary function is defined in the *PTA*. Inflation outcomes have to be known to determine whether price stability has been achieved so that an *ex-post* assessment can be made. However, the policy target that is

2 See the Appendix for the full text.

defined in the *PTA* is forward looking, so the *PTA* plays less of a role in *ex-post* assessment of the Bank.

Although *ex-ante* and *ex-post* assessments are treated separately here, in practice the distinction between the two types is less clear. It takes time for conditions to evolve and for sufficient information to be available so that past actions can be assessed in a fully retrospective manner. Until then, past decisions must be assessed in an *ex-ante* manner.

To make an *ex-post* assessment requires an understanding of the adjustments that have been taking place in the economy, and the various factors, both temporary and permanent, that have contributed to movements in headline inflation, underlying inflation, and inflation expectations. Until this information is fully understood, *ex-ante* and *ex-post* assessments will overlap to some extent.

3. Principles of ex-ante assessment[3]

This section outlines the principles that guide an *ex-ante* assessment of monetary policy. An *ex-ante* evaluation should review whether relevant information and analysis supported the Bank's policy decisions, and whether deliberations were well considered.

Like central banks in other economies, the Reserve Bank uses a wide range of information to inform its monetary policy decisions, including domestic and international data on financial and economic variables, analytics, and meetings with businesses and industry contacts. This information is used in model simulations and refined through internal discussion and debate. It is then distilled and summarised in the Bank's forecasts, which are released externally for the public to review and evaluate.

There are several areas where the *PTA* is very explicit about what monetary policy should achieve, but other areas that are broad and open to interpretation. The numerical target band and the mention of the 2 percent midpoint make it clear where the Bank's inflation forecast should end up. However, the *PTA* gives no guidance about how quickly inflation should return to target, what sort of variation is tolerable, or how inflation variability should be traded off against unnecessary instability in output, interest rates or the exchange rate. Nor does it define what instability is unnecessary, or exactly what '*having regard*' to the efficiency and soundness of the financial system means.

Given this, it is important that the Bank publicly communicates its interpretation of different aspects of the *PTA* to help stakeholders

3 For a discussion of the 2012 *PTA* and how it fits within the overall monetary policy framework see Kendall & Ng (2013).

understand how the Bank will react to developments and different states of the world – and to help inform *ex-ante* assessment.

Based on the principles and practicalities of flexible inflation targeting, as formalised in the *PTA*, a comprehensive *ex-ante* evaluation of monetary policy in the New Zealand context might ensure that the following criteria have been met.

- the Bank's forecast for inflation settles within the target band and near the midpoint of the target range over the medium term (after accounting for one-off factors, which the *PTA* directs the Bank to look through);
- the forecast for inflation is credible and reasonable;
- the OCR decision and projected policy path are consistent with delivering the inflation forecast; and,
- the OCR decision and projected policy path avoids unnecessary instability in output, interest rates and the exchange rate relative to other policy paths that would also ensure that inflation settles within the target band and near its midpoint.

The following four subsections elaborate on the principles that underlie these *ex-ante* assessment criteria.

3.1 Price stability achieved over the medium term

Firstly, the outlook for inflation must be consistent with medium-term price stability, as defined in the *PTA*.

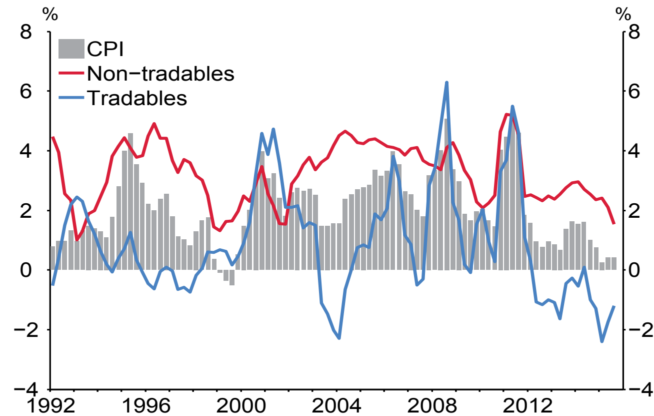
The Bank's focus on medium-term inflation partly reflects the limits of monetary policy. Changes in the OCR today can take 12 to 18 months to have a substantial impact on inflation. The OCR affects economic activity and inflation via domestic interest rates, the exchange rate, and inflation expectations, and each of these effects can occur with significant lags.

Flexible inflation targeting also acknowledges that it can be undesirable to use monetary policy to offset short-term disturbances to inflation. CPI inflation can temporarily deviate from target for a range of reasons, including changes in indirect taxes, natural disasters, and sharp movements in international currency and commodity markets. To avoid creating unnecessary instability in the economy, monetary policy is set to meet the Bank's medium-term target, rather than trying to offset short-term variability in inflation – as directed by clause 3(b) of the *PTA*.

Tradables inflation tends to be more affected by short-term disturbances, due to exchange rate movements and volatility in international prices. It is therefore more common for the Bank to look through short-term variability in the prices of tradable items.

While the Bank targets CPI inflation, the Bank would generally be more concerned if inflation was deviating from target due to a deviation in non-tradables inflation from average rates. This is because non-tradables inflation is less volatile than tradables inflation (figure 1). Deviations from average are likely to be more persistent. As a result of this, measures of underlying or core inflation are more highly correlated with non-tradables inflation.

Figure 1
CPI, tradables and non-tradables inflation (annual)



Source: Statistics New Zealand.

The *PTA* requires monetary policy to focus on returning future average inflation to the midpoint of the target range. This explicit focus helps anchor inflation expectations near 2 percent, making the outlook more resilient to temporary deviations of inflation from the target band.

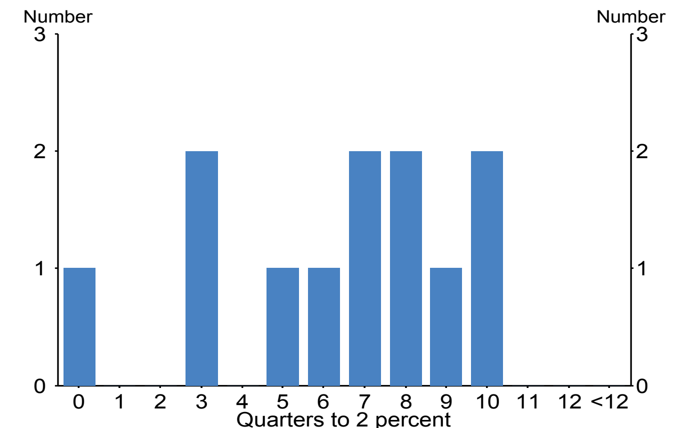
When a range is used without an emphasis on the midpoint, it has implications for how the target is interpreted psychologically. In this case, households and businesses can anchor their expectations to one end of the range, depending on their circumstances. Focusing the policy objective on the midpoint helps to avoid inflation expectations becoming biased at either end of the target range.

3.1.1 How quickly should inflation return to target?

The *PTA* does not specify a certain time by which inflation should return to the target midpoint. The Bank is directed to '*keep future CPI inflation outcomes between 1 per cent and 3 per cent on average over **the medium term**, with a focus on keeping future average inflation near the 2 per cent target midpoint*', where the '*medium term*' is not defined.

Reference to the medium term was originally added to provide the necessary degrees of freedom to ensure that achieving price stability did not come at the expense of unnecessary disruption to the economy.[4] How quickly inflation is expected to return to target will thus vary depending on prevailing circumstances, and should therefore be thought of as *state* dependent not *time* dependent. Consistent with this, the speed at which inflation is expected to return to the midpoint of the target band has tended to vary considerably over time (figure 2).

Figure 2
Distribution of speed of return of annual CPI inflation to 2 percent[5]



Source: RBNZ estimates.

4 See Hunt (2004) for more details.

5 Number of times the Bank has forecast a certain speed of return to 2 percent. The speed is measured from the quarter of publication of the relevant *Monetary Policy Statement*. Sample is limited to the period since the 2012 PTA.

Nevertheless, the speed that the Bank aims to return inflation to the target midpoint is constrained. On one hand, monetary policy settings can take 18 months or more to be reflected in inflation outcomes. On the other hand, it is important that inflation does not deviate from target for too long, so that inflation expectations remain anchored.

Balancing these considerations, the Bank has previously stated its interpretation of the target to be that '*projected inflation will be comfortably within the target range in the latter half of the three year period*.'[6] The Bank continues to see this as an appropriate speed of adjustment. However, the *PTA* permits the Bank to alter its interpretation if it considers it appropriate to do so. See section 3.4 for the considerations that affect how quickly inflation is expected to return to target.

3.2 The inflation forecast is reasonable

Secondly, the Bank's forecast for inflation must be reasonable given the information available. The efficacy of monetary policy will be hampered if the Bank makes forecasts and policy decisions that are inconsistent with the information available, or if the Bank fails to consider all relevant information.

In particular, unreasonable forecasts could be interpreted as a lack of commitment to inflation targeting, undermining the Bank's credibility and potentially resulting in inflation expectations becoming unanchored. Such an environment can result in less effective monetary policy and sub-optimal economic outcomes.[7]

6 See Bollard (2002) and Bollard (2008).

7 See Orphanides & Williams (2006), Gurkaynak, Levin & Swanson (2006), and Ingersoll & Ross (1992).

An *ex-ante* assessment of monetary policy should therefore evaluate the reasonableness of the Bank's forecasts and policy judgements, and the suitability of the information that informed those judgements.[8] When making this assessment, one must make a judgement about whether the weight of evidence supports the Bank's view of the economy and its policy decisions.

Monetary policy decisions are made in an environment of significant uncertainty. The Bank must conduct policy in a forward-looking manner and forecasting is, by nature, very uncertain. The Bank must also make judgements about the current policy environment and key unobservable variables that have important implications for the outlook for inflation – such as the level of the neutral interest rate and the starting point for the output gap.[9]

Because of the uncertainty inherent in setting policy, the Board is not expected to have any higher insight on what will happen in the future or to conduct alternative analysis. Instead, assessing the reasonableness of the Bank's forecasts often means ensuring that *reasonable processes* have been followed. The Board is regularly provided with reports from independent outsiders, who are asked to observe the Bank's monetary policy decision-making process and provide a free and frank assessment of whether any process improvements might be needed.[10] Box A describes the Bank's current monetary policy decision-making process.

When reasonable process is being followed, a broad range of information will be used to inform the Bank's analysis; a wide variety of viewpoints

8 To assess the reasonableness of the Bank's forecasts, it might be appropriate to consider whether they are substantially different from those of other forecasters (such as those of the IMF, OECD, and domestic forecasters) who are looking at the same information.

9 See Richardson & Williams (2015) and Lienert & Gilmore (2015).

10 Since 2000, there have been 14 such informal assessments.

Box A

Monetary policy decision making at the Bank

The Reserve Bank has a legislated single decision-maker structure, where the Governor is solely responsible for monetary policy and other decisions regarding statutory functions of the Bank. In practice, however, the Bank uses committees in its formulation of monetary policy to improve the decision-making process. Using committees as part of the decision-making process has advantages over a pure single decision-maker model. In particular, it allows for a wider set of information to be considered and encourages deeper debate.[11]

For much of the inflation targeting era of the Bank's history, advisory committees have been used to supplement the decision making of the Governor. In 2013, the Bank adopted more of a role for committee decision making, with a Governing Committee, rather than the Governor alone, deliberating monetary policy decisions. This arrangement is similar to that used at the Bank of Canada, where a Governing Council is used to make policy decisions, but the Governor remains legally responsible for these decisions.

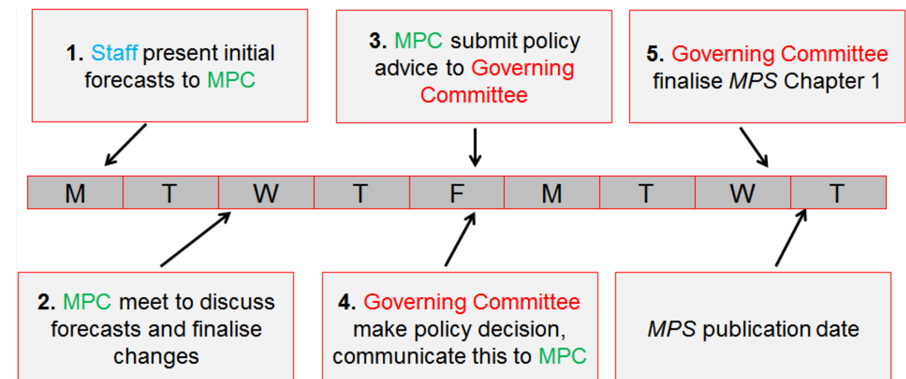
The Bank's monetary policy decision-making process, which occurs in the lead-up to a *Monetary Policy Statement*, has five stages. The Bank's OCR reviews use a scaled down version of this process. Three major groups of people are involved, including:

- *Bank staff*: A wide array of staff are involved in monetary policy decision making, with contributions from the Bank's Economics, Financial Markets and Macro-Financial Departments.

- *The Monetary Policy Committee* (MPC): The MPC is made up of senior staff from the Bank's policy departments, two external advisors, and the Governing Committee. It currently has 13 members. The two external advisors are usually non-economists with extensive experience in an industry significant to the New Zealand economy. These external advisors are appointed by the Governing Committee, and usually serve on the Committee for two to three years. This committee is chaired by the Bank's Chief Economist / Assistant Governor.

- *The Governing Committee*: This group consists of the Governor, two Deputy Governors and the Assistant Governor. This group deliberates together on all major policy decisions made by the Bank. This committee is chaired by the Governor.

Figure A1
The Bank's monetary policy decision making process



11 See Blinder and Morgan (2005) for practical evidence of the benefits of committee decision making.

The five-stage process starts with presentations from the Bank's staff to the MPC (figure A1). These presentations run through an initial set of forecasts highlighting the outlook for key macroeconomic variables, the suggested outlook for interest rates, and the key risks and assumptions underlying the forecasts. The MPC debates the reasonableness of the forecasts, suggests changes, and requests additional information to be considered. This process occurs over three days.

At the end of this process, the MPC meets to discuss the forecasts and suggest any final changes that should be made. Once this has occurred, the Bank's staff then begin to draft the *Monetary Policy Statement*, with oversight from the MPC.

The MPC then reconvenes to give formal policy advice to the Governing Committee. Each member of the MPC, including the Assistant Governor and Deputy Governors, submits written advice to the Governing Committee on several aspects, including:

- the preferred outcome for the OCR at this meeting;
- the preferred outlook for the OCR over the forecast horizon;
- key risks and judgements to consider over the forecast horizon; and,
- any potential communication issues that should be taken into consideration.

The Governing Committee considers this advice and deliberates together on the appropriate level of and outlook for the OCR. It also gives guidance on the key messages to be included in the *Statement*.

The Governing Committee is a collegial committee in that it aims to reach consensus through debate. If disagreement does occur, the Committee can vote on a preferred outcome. The Governor then considers the advice of the Governing Committee when formally making a decision. The Governor retains statutory responsibility for monetary policy decisions.

The final stage of the decision process is to sign off the *Monetary Policy Statement*, including chapter 1 (which doubles as the press release that announces the OCR decision).

will be considered as part of policy deliberations; the Bank will be open and impartial in its assessment of new information; and, the Bank will change its views and adjust policy where appropriate. Assessment of whether reasonable process has been followed is difficult and subjective. It requires knowledge of a wide variety of information and viewpoints; understanding of the judgements the Bank is making and any associated risks; and, awareness of the considerations that underpin the Bank's policy decisions.

Indeed, as part of its assessment, the Board satisfies itself that it understands the basis for the Bank's forecasts and policy decisions. To assist with this assessment, the Board is provided with background material used in policy deliberations that is not publicly available, including internal analysis that informed the Bank's judgements and the views of members of the Monetary Policy Committee.[12]

It is important that other external stakeholders can also assess the reasonableness of the Bank's views. Alternative external viewpoints provide an additional feedback mechanism to help inform whether the Bank's assumptions are reasonable. For this reason, it is important that the Bank clearly communicates its assumptions, its interpretation of new information, and how its understanding of the economy is evolving. The Bank uses its *Monetary Policy Statements*, speeches, analytical papers, and media interviews to provide this information to external stakeholders. Formal reviews of the operation of monetary policy have also been commissioned by the Government in 2000 and 2007. The findings of these reviews are publicly available.[13]

12 This material is withheld from the public to allow the Bank to communicate its policy messages in a single voice, and to encourage free and frank debate within the Bank's internal committees.

13 See Svensson (2001) and Finance and Expenditure Committee (2008) for their final reports.

3.3 Policy projection consistent with inflation forecast

Thirdly, the Bank's policy projection (i.e. current OCR decision and projected policy path) should be consistent with the Bank's inflation forecast. Assessing whether this is the case requires judgement as to whether current policy settings will deliver the degree of inflationary pressure consistent with the Bank's forecast for inflation, given the range of assumptions underlying the Bank's forecasts.

A credible outlook for monetary policy and inflation helps ensure that the Bank's policy actions have the desired impact on short-term domestic interest rates and that inflation expectations remain anchored.[14]

However, because the outlook is always uncertain, both the current policy projection and a credible monetary policy framework are needed for the transmission of monetary policy to be effective. The Bank's framework includes its current policy projection, along with financial market participants having a clear understanding of how monetary policy is likely to evolve in response to unexpected events. For this to be the case, external stakeholders need to understand the conditional nature of the Bank's forecasts. This requires the Bank to be transparent about the assumptions that underpin its forecasts – and the associated risks.

A credible framework does not necessarily require that external stakeholders agree with the Bank's current forecasts – or even the projected policy path – but that they believe the Bank will adjust monetary policy as conditions evolve to ensure that the inflation target is met.

14 Especially since the entire yield curve, not just today's OCR, is important in influencing economic behaviour and ultimately inflation.

3.4 Policy projection avoids unnecessary instability

Lastly, the Bank's policy projection should avoid unnecessary instability in output, interest rates and the exchange rate, as directed by clause 4(b) of the *PTA*.

At any given point in time, a range of possible policy paths might be consistent with the Bank's inflation target. Flexible inflation targeting acknowledges that pursuing price stability can affect other aspects of the economy and that these effects should be taken into account when choosing an appropriate policy path.

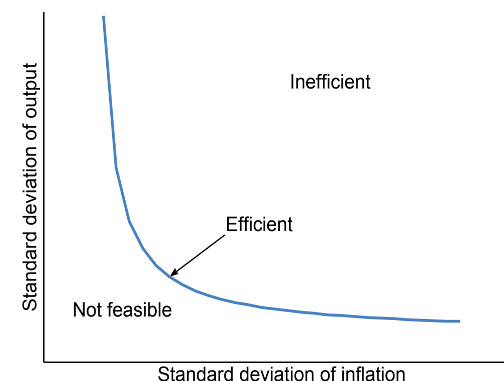
One effect of pursuing price stability is that it can come at the expense of stability in output – that is, if a central bank wants to minimise deviations from its inflation target, it could generate more deviations in output from its sustainable level.[15] The curve shown in figure 3 – called a Taylor Curve – is a stylised possibility frontier representing the outcomes possible if a central bank cares about stability in both prices and output. This illustrates that if a central bank is concerned about deviations from the inflation target, then variability in output might be relatively high, and vice versa.

Importantly, if the outlook for inflation and output is to the right of the possibility frontier, an alternative policy path could reduce expected variability in both output and inflation. In practice, cumulative deviations over the entire forecast horizon should be considered to get a sense for whether policy is 'optimal' (i.e. on the frontier).

If a central bank cared only about stability in prices and output, its economic forecasts would provide a guide to assess whether policy is

15 See Taylor (1979).

Figure 3
Stylised Taylor Curve



optimal. Suppose inflation was forecast to be above target over the entire forecast and the output gap was expected to be positive over the same period. In this situation, a higher outlook for interest rates could bring inflation back to target faster and lead to a more sustainable outlook for output – improving the stability of both variables.[16]

Of course, the Bank is directed to consider more than just prices and output. Monetary policy should be formulated *such that there is no alternative interest rate path that could improve the stability of output, the exchange rate and interest rates, subject to the inflation target being met*. Determining which policy strategy is preferable will depend on trade-offs, and a subjective assessment of risks.

When avoiding unnecessary instability, the Bank can choose how active it should be with monetary policy. The Bank could seek to return inflation to target quite quickly, but this might come at the expense of increased

16 In practice, it is important to look carefully at what factors are influencing the output gap and inflation. For example, the inflation outlook can be affected by a range of short-term disturbances, such as commodity prices, exchange rate movements, and government charges.

volatility in output, interest rates, and potentially the exchange rate. However, such an approach might limit the risk of inflation expectations becoming unanchored and bring the economy back to full employment faster.

On the other hand, the Bank could decide to adjust the policy rate more gradually. This might induce less volatility in the economy, but may mean that inflation takes longer to return to target. This would increase the risk that inflation overshoots or undershoots the inflation target and that inflation expectations become unanchored, potentially undermining the Bank's credibility.

The Bank is not given guidance in the *PTA* to care more about deviations from target on the upside or the downside. In general, the Bank would be equally concerned about inflation deviating from target in either direction. However, broader considerations – particularly whether inflation is in or out of sync with other variables of consideration – can lead to asymmetric concerns about deviations from target. For example, in the mid-2000s, when both inflation and the exchange rate were elevated, the Bank sought to bring inflation back to 2 percent quite gradually to avoid exacerbating the exchange rate cycle.

3.4.1 '*The efficiency and soundness of the financial system*'[17]

When pursuing its price stability objective, the Bank is directed to '*have regard to the efficiency and soundness of the financial system*'. Although this clause of the *PTA* does not compel the Bank to any particular course of action, it means that monetary policy can be used to support the Bank's financial stability objectives, provided that doing so does not undermine the Bank's ability to achieve its price stability objective.[18] Prudential settings, however, remain the first line of defence in safeguarding financial stability.

Interest rates can affect the stability of the financial system in two key ways. Firstly, low interest rates can contribute to the build-up of financial imbalances. Secondly, sudden movements in interest rates can cause unnecessary strain on borrowers. As such, unnecessary volatility in interest rates should be avoided (as stated in clause 4(b)).

In some situations, having regard to financial stability will not create major trade-offs for monetary policy. For example, if there was generalised inflation pressure – with inflation above the midpoint – and an asset price or credit boom, then tightening monetary policy could help on both fronts.

However, in some cases, there will be a trade-off. For example, in the current situation, the Bank is faced with financial stability concerns and inflation below the target band. Raising policy rates could help to alleviate financial stability risks, but this might threaten the Bank's primary objective of price stability and would not appear consistent with the *PTA*.

Macro-prudential policy can also play a supportive role. The Bank's *Memorandum of Understanding* with the Minister of Finance enables macro-prudential policy to support the Bank's price stability objective, provided the implementation of macro-prudential policy is consistent with the Bank's financial stability objectives.

17 See Dunstan (2014).

18 This is in contrast to Norway's considerations of financial imbalances. In Norway, inflation is expected to be below target over the entire three-year projection horizon. See Norges Bank (2015).

4 Principles of ex-post assessment

This section outlines the principles that could be used to assess the Bank on an *ex-post* basis, leaning on the *PTA* and the Act where appropriate. Based on these principles, performance criteria for *ex-post* assessment effectively ask: in instances where factors did not evolve as expected, did the Bank *respond reasonably* as new information came to light; did the Bank communicate these developments *effectively*; and, was the *credibility* of the monetary policy framework maintained?

The following subsections discuss these criteria in turn. External stakeholders can use criteria such as these to make an *ex-post* assessment of the Bank's performance, by drawing on the Bank's explanations for its policy decisions. Box B illustrates how the criteria shown here can be used to conduct an *ex-post* assessment of the Bank.

4.1 Did the Bank respond reasonably to new information?

The Bank's focus on medium-term inflation requires it to make many judgements about the future when conducting policy. Given the uncertainties, it is not expected that the Bank will always get its forecasts right, but that it will respond in a reasonable manner as new information becomes available, especially if this new information differs from earlier expectations.

Responding reasonably requires the Bank to continually assess the importance of new data and events, and determine whether they warrant a change in the stance of monetary policy. Doing so should result in better decisions and economic outcomes in the future, and enhance the credibility of the Bank's framework.

The Bank's accountability documents, speeches, and analytical papers should help the public to assess the responsiveness of the Bank to new information. In addition, the Bank periodically releases analysis of its forecast performance.[19] If the Bank is responding to new information effectively, then there should be no systematic biases in its forecasts and the accuracy of its forecasts should compare well to those of other forecasters. How the forecasts have evolved should provide evidence of learning.

4.2 Were developments communicated effectively?

It is important that the Bank communicates effectively. The Bank uses its *Statements*, speeches and analytical papers to communicate its judgements, interpretation of new information, changes in policy stance, and how it is likely to react to new developments. If communication is effective, the market will understand the Bank's reaction function and how it is likely to respond to new information. Market pricing will adjust accordingly as developments unfold. This will help improve the efficacy of monetary policy.[20]

19 See for example Kergozou & Ranchhod (2013) and Labbe & Pepper (2009). A more recent analysis of the Bank's forecasting performance is forthcoming.

20 For example, see Bascand (2013) and Blinder et al. (2008) for a discussion of how effective central bank communication can enhance the efficacy of monetary policy.

Box B

Applying the criteria for ex-post assessment

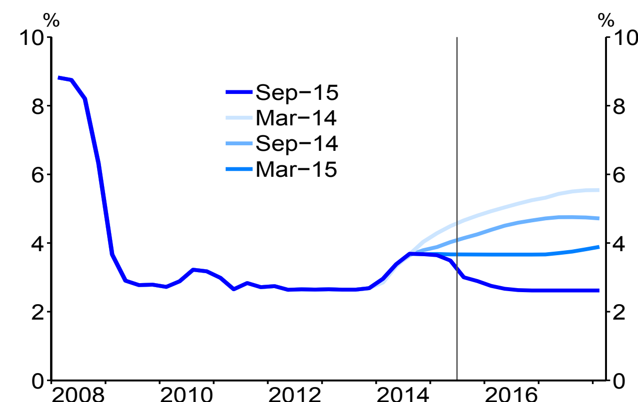
This box illustrates how the *ex-post* criteria for assessment outlined here might be applied, using material from the September 2015 *Monetary Policy Statement*.

In March 2014, the Bank began to increase interest rates, increasing the OCR by 100 basis points from March to July that year. The outlook for the New Zealand economy was very positive; consumer price inflation was expected to begin rising and it was judged prudent to lessen the degree of monetary stimulus to keep future inflation contained. The Bank and markets expected that the OCR would need to increase by more than 200 basis points in total.

However, several unforeseen circumstances led to inflation being weaker than expected – including significant falls in the prices of oil and our commodity exports, a stronger-than-expected exchange rate, weaker-than-expected capacity pressures, and weaker-than-expected non-tradables inflation. The Bank used its *Statements*, speeches and analytical papers to discuss these developments.[21]

The first criterion for *ex-post* assessment is whether the Bank responded reasonably to this new information. While the Bank could not have foreseen these developments, it progressively eased its tightening bias as evidence of weaker inflationary pressures developed (figure B1). This easing started with the Bank scaling back the extent of its projected monetary tightening from the June 2014 *Monetary Policy Statement*.

Figure B1
90-day interest rate forecasts



Source: RBNZ, RBNZ estimates.

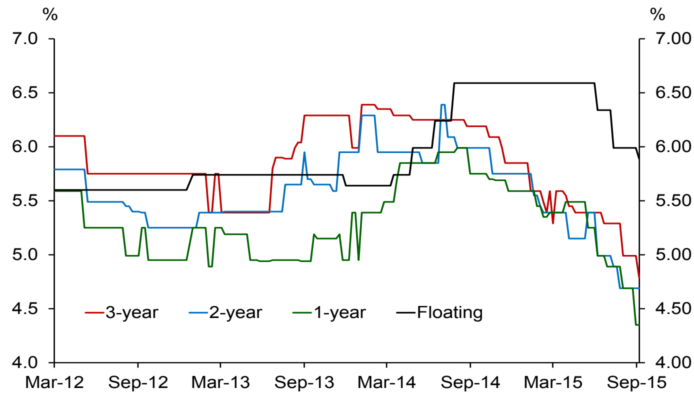
Subsequently, the Bank cut the OCR by 25 basis points for its June, July and September 2015 OCR decisions.

The second criterion for *ex-post* assessment is whether the Bank's communication of these developments was effective. The change in monetary policy outlook (along with other factors) contributed to a fall in retail interest rates from July 2014, leading to easier monetary conditions (figure B2). Wholesale interest rates also declined in anticipation of the Bank's response to new information (figure B3).

The third criterion for assessment is whether the credibility of the monetary policy framework has been maintained. Medium-term inflation expectations have fallen over the past six months, but are currently near the 2 percent target midpoint (figure B4). External forecasters also expect inflation to return to target over the medium term (figure B5).

21 See, for example, McDermott (2015) and Richardson (2015).

Figure B2
Mortgage interest rates
(lowest amongst four major banks)



Source: interest.co.nz, Reuters, RBNZ calculations.

Figure B3
OCR expectations from overnight indexed swaps

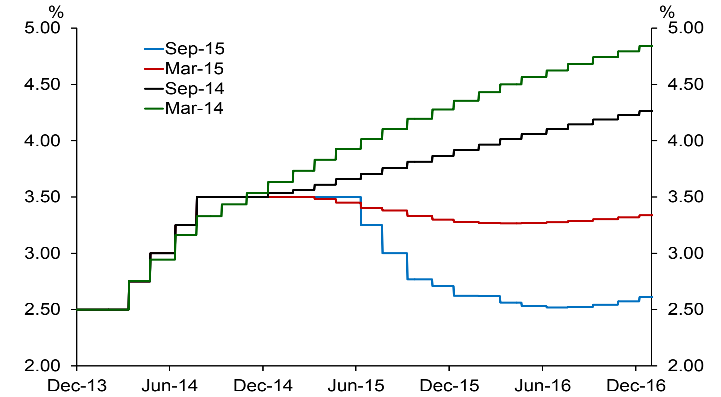
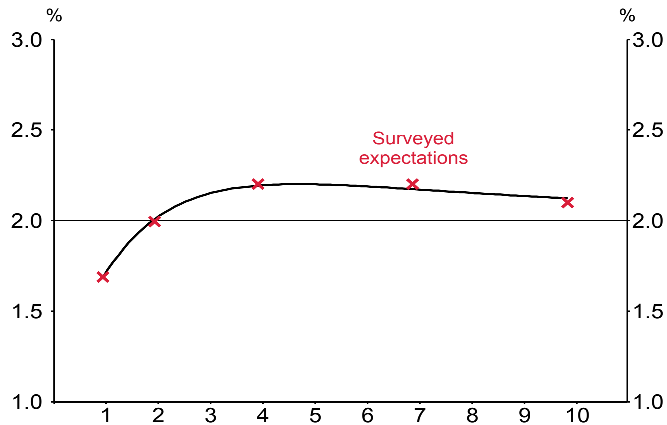
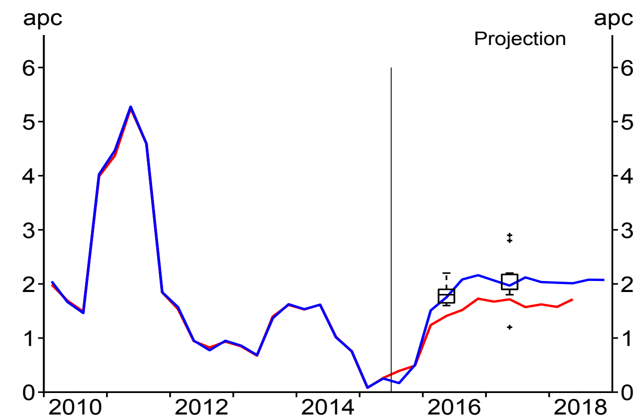


Figure B4
Inflation expectations
(annual, years ahead)[22]



Source: ANZ Bank, Aon Consulting, Consensus Economics, RBNZ, RBNZ estimates.

Figure B5
Inflation forecasts
(Sep MPS in blue, external forecasts in black, statistical models in red)[23]



22 The 1 year ahead expectation data point is a simple average of the RBNZ 1-year, Aon 1-year, and ANZ 1-year series. The 2 year ahead expectation data point is the RBNZ 2-year series. The 4 year ahead expectation data point is the Aon 4-year series. The 7 year ahead expectation data point is the Aon 7-year series. The 10 year ahead expectation data point is the Consensus 10-year series. The black line shows a conventional polynomial curve fitted through the expectations series.

23 The box and whisker plots show the range of forecasts from a group of 11 external forecasters. The red line shows the average forecast from a suite of 28 statistical forecasting models, weighted by historical forecast errors.

4.3 Was the credibility maintained?

As developments unfold, it is important that the credibility of the monetary policy framework is maintained. A credible framework is one where external stakeholders believe the central bank is committed to its inflation target, and that it has the powers and capability to achieve it. If the framework is credible, external forecasters will expect inflation to return to target in the latter half of the forecast horizon, and medium-term inflation expectations will be anchored near the target midpoint – helping to ensure that monetary policy is effective.

5 Conclusion

Monetary policy affects households and businesses significantly. It is therefore important that central banks are held accountable for their conduct of monetary policy.

This article outlines a conceptual framework for evaluating monetary policy based on the principles of flexible inflation targeting. A key conclusion is that it is not sufficient to look at inflation outcomes alone when making such an assessment. The Reserve Bank operates policy to achieve price stability over the medium term and unexpected events can cause actual inflation to temporarily deviate from the medium-term target. New Zealand's flexible inflation targeting framework also gives the Bank discretion as to how quickly it should seek to return inflation to target, to avoid unnecessary instability in the economy.

Based on its interpretation of the *PTA*, the Bank conducts policy such that future inflation is typically forecast to be comfortably within the target range in the latter half of the three-year projection period. But how quickly this occurs depends on prevailing circumstances. When conducting monetary policy, the Bank focuses on returning inflation to the midpoint of the target range. This midpoint focus helps anchor inflation expectations near 2 percent, making the outlook more resilient to temporary deviations of inflation from the target band.

The Reserve Bank Board is responsible for formally monitoring and assessing the performance of the Bank. However, well-informed oversight from external stakeholders is also beneficial.

When reviewing current and recent policy decisions, the Bank's performance is benchmarked to the *PTA*. An *ex-ante* evaluation of such decisions should review whether relevant information and analysis supported the policy decisions, and whether deliberations were well considered. Ensuring that reasonable process has been followed is an important part of this assessment.

Once inflation outcomes are known, *ex-post* assessment of the Bank's monetary policy performance can be conducted. When evaluating monetary policy *ex-post*, inflation outcomes are assessed, but how the Bank has responded to new information and forecast errors is also very important. An *ex-post* assessment should consider whether the Bank responded reasonably to new information; whether these developments were communicated effectively; and, whether the credibility of the monetary policy framework has been maintained. While it is not expected that the Bank will always get its forecasts right, it is important that the Bank learns from its forecast errors. Continuous learning about the state of the economy is important to ensure that monetary policy is set appropriately.

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Policy Targets Agreement

This agreement between the Minister of Finance and the Governor of the Reserve Bank of New Zealand (the Bank) is made under section 9 of the Reserve Bank of New Zealand Act 1989 (the Act). The Minister and the Governor agree as follows:

1. Price stability

a) Under Section 8 of the Act the Reserve Bank is required to conduct monetary policy with the goal of maintaining a stable general level of prices.

b) The Government's economic objective is to promote a growing, open and competitive economy as the best means of delivering permanently higher incomes and living standards for New Zealanders. Price stability plays an important part in supporting this objective.

2. Policy target

a) In pursuing the objective of a stable general level of prices, the Bank shall monitor prices, including asset prices, as measured by a range of price indices. The price stability target will be defined in terms of the All Groups Consumers Price Index (CPI), as published by Statistics New Zealand.

b) For the purpose of this agreement, the policy target shall be to keep future CPI inflation outcomes between 1 per cent and 3 per cent on average over the medium term, with a focus on keeping future average inflation near the 2 per cent target midpoint.

3. Inflation variations around target

a) For a variety of reasons, the actual annual rate of CPI inflation will vary around the medium-term trend of inflation, which is the focus of the policy target. Amongst these reasons, there is a range of events whose impact would normally be temporary. Such events include, for example, shifts in the aggregate price level as a result of exceptional movements in the prices of commodities traded in world markets, changes in indirect taxes, significant government policy changes that directly affect prices, or a natural disaster affecting a major part of the economy.

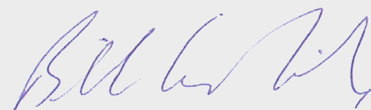
b) When disturbances of the kind described in clause 3(a) arise, the Bank will respond consistent with meeting its medium-term target.

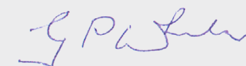
4. Communication, implementation and accountability

a) On occasions when the annual rate of inflation is outside the medium-term target range, or when such occasions are projected, the Bank shall explain in *Policy Statements* made under section 15 of the Act why such outcomes have occurred, or are projected to occur, and what measures it has taken, or proposes to take, to ensure that inflation outcomes remain consistent with the medium-term target.

b) In pursuing its price stability objective, the Bank shall implement monetary policy in a sustainable, consistent and transparent manner, have regard to the efficiency and soundness of the financial system, and seek to avoid unnecessary instability in output, interest rates and the exchange rate.

c) The Bank shall be fully accountable for its judgements and actions in implementing monetary policy.





Hon Bill English

Minister of Finance

Graeme Wheeler

Governor Designate
Reserve Bank of New Zealand

Dated at Wellington 20 September 2012