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Communicating the Future Direction of Policy

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Abstract

Central banks all over the world publicly provide varying degrees of information on future monetary policy underlying their projections. Such information ranges from very little information about the path, to publishing a path based on financial market interest rate expectations or an endogenous reaction function. The IMF, in their Article IV recommendations, has suggested that the Bank should provide more information about the policy rate path that is in the projections published in their Monetary Policy Report. This note discusses several ways the BoC could increase communication around future policy, leveraging methods other central banks have used, and discussing the pros and cons of each method for the BoC, keeping in mind that policy rate forecasts typically are not informative beyond 1 or 2 quarters. In doing so, it is important to recognize that most central bank projections are conditioned on market expectations or mathematic representations of policy reaction functions that may or may not reflect policymaker views. In this context, the Bank could consider providing more details on the inputs to GC policy deliberations, including policy recommendations of Bank staff and senior advisors. However, caution should be taken in providing more information about policy rate paths (especially beyond the near term), since such information could direct more public focus on a forecast that is not informative or could be misinterpreted by the public.

Résumé

En ce qui concerne la politique monétaire future qui sous-tend leurs projections, les banques centrales rendent publics divers degrés d'information. Certaines révèlent très peu d'information sur la trajectoire du taux directeur, alors que d'autres publient une trajectoire basée sur les attentes de taux d'intérêt des marchés financiers ou une fonction de réaction endogène. Dans ses recommandations au titre de l'article IV, le Fonds monétaire international a suggéré à la Banque du Canada de fournir plus d'information sur la trajectoire du taux directeur qui est à la base des projections publiées dans le Rapport sur la politique monétaire. Le présent document aborde plusieurs moyens que la Banque pourrait mettre en œuvre pour accroître les communications entourant la politique monétaire future. La Banque pourrait ainsi analyser les avantages et les inconvénients, pour elle-même, des méthodes utilisées par d'autres banques centrales, tout en gardant à l'esprit que les prévisions de taux directeur ne sont généralement pas très utiles au-delà d'un horizon d'un ou deux trimestres. Durant ce processus, il faut aussi savoir que la plupart des projections des banques centrales dépendent des attentes des marchés ou de représentations mathématiques des fonctions de réaction de la politique monétaire qui peuvent ou non refléter le point de vue des décisionnaires. Dans ce contexte, la Banque pourrait

envisager de donner plus de précisions relativement à l'information qui alimente les délibérations du Conseil de direction sur la politique monétaire, y compris les recommandations du personnel et des conseillers principaux. Toutefois, il faut faire preuve de prudence lorsqu'on fournit plus d'information sur la trajectoire du taux directeur (surtout au-delà du court terme), car cela peut attirer davantage l'attention sur une prévision qui n'est pas éclairante ou qui pourrait être mal interprétée par le public.

Introduction

In their 2022 and 2023 Article IV recommendations, the IMF proposed that "the Bank of Canada could contemplate steps to help the market and broader public better understand its reaction function. For example, consideration could be given, at the appropriate time, to the publication of a policy rate path consistent with the Bank of Canada's economic projections, which would be revised on a regular basis in response to incoming data."[1]

In this context, important questions to ask are: i) whose reaction function and policy path is of interest to the public; and ii) what is the objective of providing that information. The Bank publishes a quarterly MPR with the Bank's Governing Council (GC) view on the economic outlook, but without an underlying rate path. This is partly because GC does not develop a consensus on a rate path beyond the current rate decision. In addition, several different rate paths could provide equivalent monetary policy stimulus and be consistent with equivalent GDP and inflation projections. However, to be transparent, the Bank's Governing Council (GC) does currently provide information on its reaction function through words, not numbers, in other communications.[2]

The goal of this note is to consider possible ways to provide more information on policy reaction functions—how the policy interest rate may be changed in light of changing economic conditions—including through the publication of a policy path. In discussing various approaches, the note touches on the important issue of whose views are being presented: central bank staff, policy decision makers, or others. The note suggests that one approach to distinguish among different points of views is to differentiate between material presented to policymakers as inputs to their deliberations versus views of policymakers themselves. An important consideration is the governance structure and consensus-based decision-making process at the Bank of Canada (BoC).

Central banks take a variety of approaches to providing information on a policy rate path in a projection (Figure 1). Currently, like the BoC, the Bank of Japan (BoJ) provides no explicit information on the policy rate path underlying the projections they publish. The European Central Bank (ECB), the Reserve bank of Australia (RBA) and the Bank of England (BoE) present their staff's macroeconomic projections assuming the underlying rate path follows market interest rate expectations. While this does not provide more

[1] https://www.imf.org/en/Publications/CR/Issues/2023/07/27/Canada-2023-Article-IV-Consultation-Press-Release-and-Staff-Report-537072

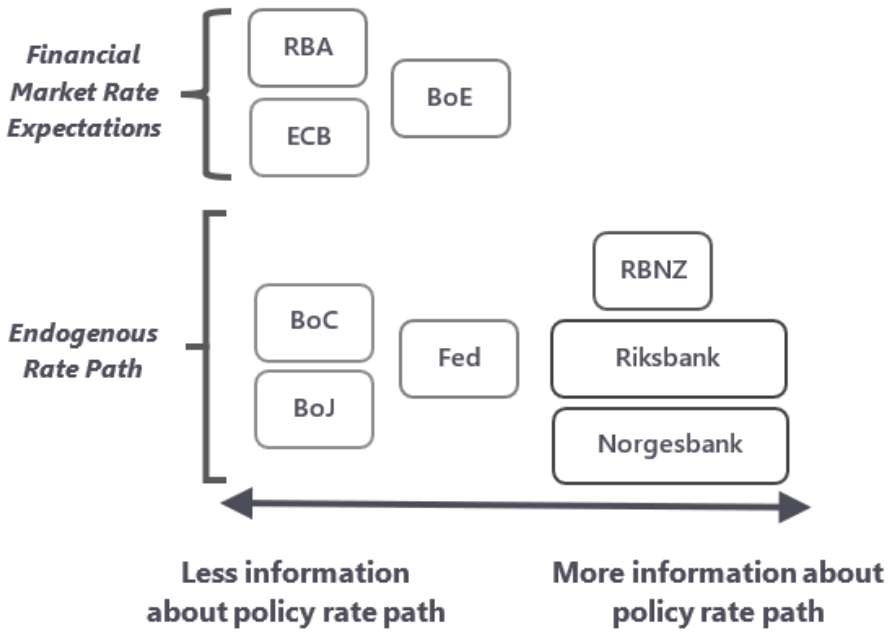
[2] This paper focuses on communication about future monetary policy away from the lower bound to the policy rate. It does not consider extraordinary forward guidance, which is a policy tool the Bank used during the pandemic (Bank of Canada 2025).

information about the policy rate path of their policy committees, it does provide a projection consistent with a known (market) path. The Reserve Bank of New Zealand (RBNZ), Norgesbank and the Riksbank all provide different degrees of information on their endogenous rate path.[3] The Federal Reserve, meanwhile, does not provide its endogenous rate path or a consensus forecast but instead provides an indication of each member's anonymous judgment of where the policy rate and other key economic variables will be over the next couple of years. However, it has been a poor predictor of the actual policy rate path (Powell (2016)).

Overall, there are many variations in the way information on the rate path is conveyed. All can contribute to the public's understanding of the endogeneity of policy decisions to economic developments and also to the dependence of the economic outlook on the policy path. However, it is less clear whether such information actually reflects the decision-making of policymakers themselves.

There is scope to increase the BoC's information provision on reaction functions and the policy rate path underlying the published projections. That said, providing additional information on a policy path consistent with the projection is not the same as being transparent about the policy reaction function of GC.

Figure 1: Approaches to providing policy-path information in projections



[3] Appendix A provides further details on the provision of information on the rate path by other central banks.

The provision of information on an endogenous reaction function underpinning projections could help the public better understand projections (e.g., how much can the response of policy offset shocks so that the inflation objective is still achieved within a reasonable horizon?). In doing so, it could also contribute to accountability and may reduce market volatility around policy announcements. Ultimately, a good public understanding of policy reaction functions can help the transmission of monetary policy to longer-term interest rates. Moreover, if the economic model or outlook of financial markets or the public is different than that of the central bank, understanding how policy is set in reaction to economic developments may be more useful than the path. However, it is also possible that an explicit reaction function is only valid within a specific model.

Central banks can have several goals in their communications related to the policy rate. The Bank already has several communication outlets to support these goals, and any change in communication approach should recognize the information that is already provided. First, communication about future policy could help Canadians better understand GC's reaction function; that is, how they will change policy in response to changes in the macroeconomic environment. GC now provides some discussion about its thought process on policy rates in the Summary of Deliberations. It also elaborates on the reasoning behind its policy rate decisions in the press release, and in press conferences accompanying the press release. And, although it is not GC's reaction function, a mathematical reaction function in Staff's models is publicly available in technical reports describing the Staff's models.

Second, a central bank may provide information to be accountable and transparent to the public. The Bank of Canada's monetary policy mandate is about achieving an inflation objective, and the policy rate is a lever the Bank can adjust to achieve that objective. Thus, inflation is the main focus of accountability, although transparency on how the Bank sets policy to achieve that goal is also relevant. At the Bank, accountability is supported through press conferences and Q&A periods around the Bank's policy decisions, as well as through Parliamentary appearances by the Governor and Senior Deputy Governor. Further, after every interest rate decision, the Bank publishes a Summary of Deliberations (Jain et al, (2023)). In the summary, the Bank's Governing Council provides insight into the in-depth discussions and rationale behind its policy rate decision, supporting accountability. The Bank's recent review of its policy actions during the pandemic also may help to increase accountability. It explained and evaluated its major policy programs during the pandemic—including actions to restore market functioning and stimulus to keep inflation from falling during a period of extreme economic weakness. External experts assessed the Bank's actions. The Staff's forecast (including a forecast of the policy rate that achieves the inflation target within the

forecast horizon) is available to the public with a 5-year lag, allowing the public to see a key input to GC's decision-making process.

Finally, a central bank rate path may help the public understand the degree of stimulus behind the central bank's inflation and growth projections. Some information on the future direction of policy is included in the Bank's Summary of Deliberations. As well, the Bank's press release around its decision often has a verbal indication of the future direction of policy.

The benefit and feasibility of providing information about future rates depends on the context and institutional structure of each central bank. What works for one central bank may not work for another. In the BoC's context, some key questions emerge when considering the feasibility of publishing a projection-consistent policy path that represents GC views:

- The reaction function in the Bank's policy models is available publicly, but is it a good representation of the policymaking process or decision? As part of their risk assessment, staff can examine the implications of recommendations from alternative rules for the projection.
- Empirically, how much more information could be ascertained about the reaction function from an interest rate forecast? Using Bank of Canada staff forecasts, Pang and Shiamptanis (2024) estimate a central bank reaction function over the tenures of different Governors. Because the output gap is an indicator of demand-driven inflationary pressures, the gap and inflation are correlated. Consequently, it may be difficult to statistically identify estimates of coefficients on each of these variables in a simple regression framework. For example, under Crow and Thiessen, the coefficient on the output gap is near zero, while under the next three Governors the coefficient on the inflation gap is near zero.

If providing a future policy rate path could help, whose rate path would this be? Members of GC may have different views on how to weight risks over the projection horizon or on the policy path that would deliver the MPR projection. They reach a consensus on a narrative/story and the MPR represents the committee's views, but this does not require a consensus on the path.

- A "dot-plot" like that produced by the Federal Reserve is more naturally suitable for a voting decision-making structure. Most Federal Reserve members have staff from separate offices (from the Board or the regional Fed Banks) to support the production of individual member forecasts. Moreover, because the dots are not associated with specific FOMC members, the reaction function of each member isn't clear. Meanwhile, at the BoC, individual GC members do not produce their own forecasts. Moreover, the Bank of Canada decides on policy through consensus. This raises the question of how to reach agreement on a rate path in a consensus

structure (Goodhart (2009)) and whether there is value in doing so. In practice, GC may be able to come to agreement on the outlook because they are not constrained to have the same policy path.

- Versions of Staff projections include staff views on a policy rate path. However, while projections of activity and inflation are often close to the MPR projections, the policy rate paths reflect the reaction function and views of the Staff, not GC.

There are other potential adverse consequences associated with publishing a policy rate path.

- If a GC agreed-upon path is published, could it create false precision since many people do not understand the conditionality underlying the rate path? While Bank followers likely understand this conditionality, the general public may not appreciate the conditionality of the forecasts.[4]

- If a path is published but it is not one that arose out of GC deliberations, would it be misconstrued as a view of GC? This could be confusing as it could send conflicting information relative to what is contained in documents based on GC discussions and decisions.

- Could publishing more information on a BoC rate path crowd out private information (Morris and Shin (2008))? Svensson (2006) suggests that this may not be the case if the central bank is more informed than the public. We provide some evidence below that BoC internal staff projections do contain information to help predict policy rate changes over the next 6 months; however, there is little predictive power of internal forecasts beyond that horizon. This should not be that surprising. Monetary policy responds to economic shocks to bring inflation sustainably back to 2 percent, including through rebalancing supply and demand in the economy. As a result, the policy path is more likely to be revised in response to shocks than projections of the real economy and inflation at horizons of a year or two, or longer.

- Could publishing a rate path lead to a larger communication risk in which our external communication becomes more focused on interest rates than inflation? This could create additional challenges to reinforce our goal of inflation targeting, particularly to the general population.

The next section will discuss alternative ways to providing information about future policy rate intent, discussing them in the context of these key questions and considerations.

[4] For example, during the pandemic, some observers took the Bank's commitment to keeps rates low as unconditional and did not expect the rise in rates when inflation accelerated.

Approaches to enhance communication about future policy

This section discusses possible ways to provide information about future policy decisions, while recognizing the economic conditionality of such information. These proposed methods include choices made by other central banks (e.g. basing projections off a market forecast), as well as options that draw on BoC analysis and meetings in the lead-up to policy deliberations. Some of these methods focus more on providing information on the reaction function (such as publishing alternative scenarios, providing more information on the reaction function through simulations), while the goal of the other suggestions is to provide more information on the policy rate path. Table 1 highlights the key pros and cons for each proposed method, keeping in mind the key considerations and questions discussed in the previous section. Ideally, an approach (or combination of approaches) should effectively communicate current views on the future direction of policy and its conditionality without creating additional confusion among the general population or undermining the primary objective of targeting inflation. A more detailed discussion of each method follows.

Table 1: The proposed methods of increasing policy rate communication all have pros and cons

Method of increasing policy rate communication	Pros	Cons
Basing projections off a market forecast	- It is easy to implement - It provides information on the model and other projections	- It is not necessarily reflective of GC views - It doesn't provide information on the GC reaction function
Publishing a Staff forecast	- The staff policy path and staff economic projection will be consistent - It is easy to implement	- The staff policy path and projection may deviate from the GC projection in the MPR - The reaction function in the staff forecast may not line up with the GC view or reaction function

		- Its conditionality may not be understood - It may require producing confidence bands
Publishing alternative scenarios	- It provides information on the model and risks - It communicates the sensitivity of current monetary policy stance to specific risks	- The conditionality of the scenarios may not be understood - Comparing rate paths under alternative scenarios provides information on the reaction function in the model, not necessarily the GC reaction function - Risks that GC is most interested in may not be most informative for the next decision or may not be easily implemented in a risk scenario.
Conduct an internal survey of senior advisors	- It may provide a dispersion in views - It is understood by markets from their experience with the Fed dot-plot	- It may give sense of false precision -It may not reflect GC views or reaction function - BoC has no voting structure so no pre-set GC views - It may not be consistent with consensus decision-making - It may not be consistent with the MPR projection
Publishing more information on a mathematic	- It may increase transparency on how monetary policy decisions are related to economic developments	- Empirical reaction function estimates are not very robust

representation of the reaction function		- Historical reaction function may not be useful when there are large changes in economy - Simple reaction functions are likely misspecified. - Estimated reaction functions may not capture implicit GC reaction function

Basing projections off a market forecast

Basing projections off a market forecast can be informative for Bank followers as they currently do not see the rate path assumption underlying the Bank's forecasts. This matters because they may have difficulty understanding how much monetary policy stimulus is behind the forecasts of GDP and inflation. Several central banks (RBA, BoE, ECB) provide projections using market interest rate expectations.[5]

This method can provide information about the model, projection and, when combined with views on the central bank's objectives, where policymakers are likely to set future policy relative to market expectations. For example, if inflation remains above target at the end of the projection horizon in the published forecast, this would be an indication that the internal projections of the interest rate would likely be higher than the market interest rate expectations to bring inflation back to target. It is not clear whether this distinction would be fully appreciated by markets or Canadians, in general.

The main drawback of this approach is that it is not necessarily reflective of GC's forecasts of macroeconomic variables or policy rates, blurring the accountability on projections published by the BoC. As Bernanke (2024) pointed out in his recent review of the Bank of England's forecasting, conditioning forecasts on a market rate assumption that may not be consistent with the Committee's rate path could lead the central bank to publish projections that are not necessarily the Committee's best forecast of where the economy is headed. This approach also does not provide information on the reaction function. Further, providing an outlook where inflation doesn't return to target could raise challenges for maintaining the credibility of the target.

[5] Some central banks also provide (or have provided) projections using a constant interest rate assumption.

Nonetheless, the BoC could implement this option as an alternative scenario or scenarios to its main projections. It could provide a single alternative scenario of macroeconomic projections based on the latest market forecasts, or it could provide alternative scenarios, such as projections based on the maximum and minimum of market forecasts since the last MPR. Adding these projections as scenarios could provide information on how sensitive the Bank's macroeconomic projections are to its path assumptions, while also giving an indication of where the path underlying the projection is relative to market projections.

Publishing a Staff forecast

Publishing a staff forecast would be straightforward to implement and would provide information on a rate path that is an input to GC's decision, though it is always possible that forecasts could be the same while paths could differ. Currently, the BoC provides information on the Staff forecast, but with a 5-year lag.

In the context of providing Staff forecasts in the MPR along with the projections, the main advantage is ease of production and likely similarity to the MPR projections. However, there are several drawbacks. First, the underlying policy rate in the Staff projection could be different from the policy rate decision made by GC.[6] This difference could occur because GC policy decisions depend on more information, a different model, or different weighting of risks relative to the staff.[7] And, even if the current policy rate decision is the same, the policy rate path could very well be different from the policy rate path of GC members. Second, publishing a staff forecast in addition to other forecast information (e.g., in the summary of deliberations) risks confusing external stakeholders and focusing attention on the difference between different forecasts (English, 2025). Third, as seen in Figures 2 and 3, policy rate projections beyond 2 quarters have often not been very informative about future changes in the policy rate. Similar findings on the policy rate have been reported for other central banks and professional forecasters as well as for market expectations.

[6] For example, this occurred in January 2015 when Staff projections did not include a rate cut, but a policy rate cut was announced. Nonetheless, although it is not necessarily GC's rate path, it could be informative for the public as it is used as an input to GC's decision-making.

[7] Some of this difference may stem from differences in timing as initial staff projections are presented to GC about 2-3 weeks before MPR projections are finalized.

Figure 2: Staff policy rate projections have persistently overshot

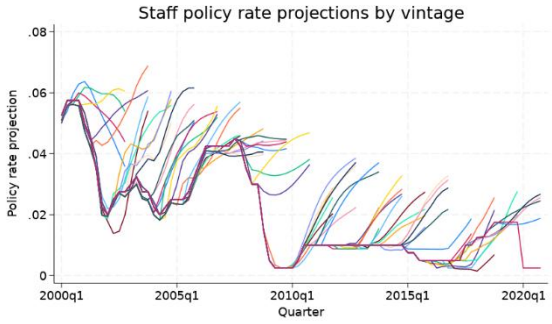
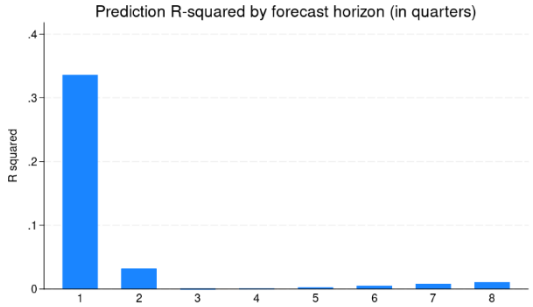


Figure 3: Policy rate projections have limited predictive power beyond 1 quarter



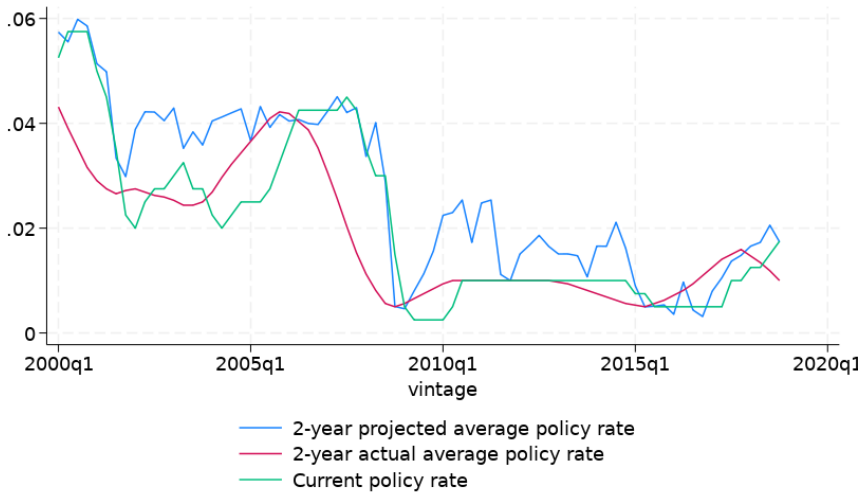
Note: The R-squared on this chart is the R-squared of a regression of actual policy rate changes on forecasted policy rate change for different forecast periods. Dates are from the period between 2000-2019.

This suggests that there is a trade-off in publishing information on the staff's policy rate projections. On the one hand, policy rate projections are not very informative about future policy and there is a risk that the public could focus too much on these projections. On the other hand, there is a transparency benefit as publishing information on the staff forecast provides information on an input to GC's decision-making and thus may provide information on the assumptions behind the Bank's GDP and inflation forecasts.

One way to thread the needle on this issue could be to provide a forecast of the average policy rate over the next 2 years. This lowers the risk of the public focusing too much on the specific trajectory of the policy rate while still providing information about the degree of monetary policy stimulus underlying the projection. This is especially the case since there are several policy paths that provide the same stimulus, and it is something closer to the average policy path that matters in the projection models used by the BoC. However, the average policy rate over the coming two years in the staff projections have deviated considerably from the average of the actual policy rate over the same 2 years (Figure 4). Thus, this approach doesn't alleviate the challenges associated with persistent deviations of the staff projected policy path from the subsequent actual policy path.

Another possibility would be to publish the changes in the real and inflation outlooks from one projection to the next, along with the change in the policy rate path. With the policy rate path being the endogenous variable that works to offset shocks that would delay the return of inflation to target, this approach would provide information on the staff reaction function. Such an approach has not been explored as a communications option by the Bank or other central banks.

Figure 4: Average 2-year staff policy rate projections vs. actual average 2-year policy rate



Publishing Alternative Scenarios

Publishing alternative scenarios and the endogenous rate response could help people understand reaction functions and the effect of alternate rate paths on inflation and growth. The publication of alternative scenarios has been used by central banks occasionally or on a more permanent basis. In his recent review of the Bank of England's forecasting, Bernanke (2024) strongly advocated for the publication of alternative scenarios that:

1. *allow for direct comparisons of the likely effects of alternative policy paths on the outlook;*
2. *help to assess the effects and costs of possible risks to the outlook arising from unexpected changes in exogenous variables;*
3. *can be used to evaluate the effects of the Committee's policy choices on the economy if one or more of its key assumptions about the structure of the economy are wrong; and*
4. *can be used to decompose historical forecast errors into portions due to judgements, conditioning assumptions, and other factors.*

The Bank of Canada has occasionally published alternative scenarios. We provide an example of one scenario that required no monetary policy response, and another scenario that required a large monetary policy response:

- In 2017, the BoC published an alternative scenario of higher potential growth relative to the October 2017 MPR base case projection, emphasizing how the stance of monetary policy could be affected under this scenario.[8] Table 2 below shows the impact of the alternative scenario on macro variables relative to the MPR base case. This scenario emphasized that the stance of monetary policy would not need to change because of the minimal impact on inflation. However, in other scenarios, the implications for monetary policy could be very different. Understanding a reaction function requires examining how policy would respond in a wide variety of scenarios, distinguished by very different shocks relative to a base case.

Table 2: A single scenario provides limited information on the reaction function

Table 1: Impact on potential output and the level of GDP (difference from the base-case projection in the October 2017 *Monetary Policy Report*)

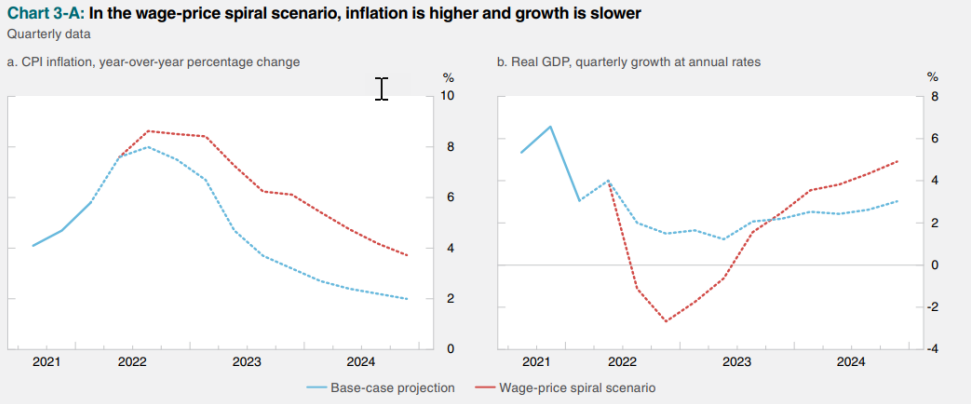
	2018	2019	2020
Potential output (level, % diff)	0.3	0.6	0.9
Real GDP (level % diff)	0.2	0.6	0.9
Inflation (p.p. diff)	0.0	0.0	0.0

- In Box 3 of the July 2022 MPR, the BoC published an alternative scenario with a wage-price spiral (see Figure 5). The corresponding text reiterated that "to break the vicious circle, monetary policy works to re-anchor long-term inflation expectations to the 2% target. This is done by setting monetary policy much tighter than in the base

[8] See Yang, J., Tomlin, B., and Gervais, O. "Alternative Scenario to the October 2017 MPR Base-Case Projection: Higher Potential Growth," Bank of Canada Staff Analytical Note No. 2017-18 (October 2017).

case and creating additional excess supply." This alternative scenario required a significant monetary policy response to contain the wage-price spiral, but represented an extreme outcome that is outside of typical decision-to-decision developments.

Figure 5: Alternative scenarios like the in the July 2022 MPR represent atypical situations



Plausible scenarios representing more typical changes in the economic environment that would require a moderate monetary policy response may be more informative about policy reaction functions. Including more frequent or regular risk scenarios in the MPR could help communicate the future direction of policy. As done in the July 2022 MPR box, clearly communicating the conditionality underlying the scenario would be important to avoid confusion. However, even when the conditionality is communicated, publishing a negative scenario may be taken to imply that the central bank is placing more weight on the likelihood of a negative scenario than is actually the case.

A broad concern facing policymakers is uncertainty: data uncertainty, model uncertainty, and parameter uncertainty. One way to highlight these sources of uncertainty could be to present an alternative scenario using the Bank's different models, which would highlight that in addition to conditionality, there is also model uncertainty, and narratives could vary across models. Such an exercise could be done on a more regular basis or could be fleshed out in the form of a Staff Analytical Note, which could be referenced in future risk discussions.

From a process perspective, Staff already provide GC with quantitative alternative risk scenarios using various versions of Staff projections. Hence GC could more frequently publish risk scenarios along with the base case. As a first step, sensitivity analyses could be presented where 1-2 assumptions are varied relative to the base case rather than scenarios that represent a larger set of changes relative to the base cases. Some central

banks that publish rate paths also publish an alternative scenario for the rate path. In this sense, the alternative scenario is a complement to the rate path, in that it can illustrate how the economic outlook would change under an alternative policy path. In the Bank's context, where there is no published rate path with the main projection, it would still be possible to provide the change in the rate path to illustrate how monetary policy may react to certain scenarios. These sorts of scenarios are as much about understanding the sensitivity of the economic outlook as they are to understanding the sensitivity of policy to economic developments.

English (2025) cautions that staff-produced scenario analysis may give little information on the reaction function of decision makers. He also worries that scenarios could be unnecessarily alarmist (e.g., a crisis scenario) and could result in a central bank entering policy debates beyond its mandate. Avoiding these risks may result in scenario analysis that is overly formulaic.

One additional concern with alternative scenarios is that the public may see the alternative scenario as a commitment to a particular rate path if the alternative scenario is realized. In the Riksbank experience, this was not the case. In their April 2022 monetary policy report, they published an alternative scenario with a higher inflation profile, along with an illustration with how the policy rate would change in such a scenario. Later, in their June monetary policy report, inflation was close to the path provided in the April alternative scenario, yet the new forecasted rate path was different from what was provided in the April alternative scenario. There was little market reaction to this discrepancy, perhaps because the public was warned in the April report: "… the monetary policy response may in practice be different to that anticipated in the scenario, once all of the specific circumstances prevailing at the time the decision is made have been taken into consideration." Hence, emphasizing that the alternative scenario is not a commitment could be sufficient.

Conduct a survey of senior BoC advisors

As noted in Desroches, Kozicki and Simon (2024), regular meetings of the Monetary Policy Review Committee (MPRC) take place. The MPRC consists not only of GC members but also of senior advisors and heads of departments. These meetings provide an opportunity to survey the MPRC on their views of the current and future policy rate path and economic outlook.

This section explores possible ways that such a survey could be used to inform the public about views on future policy rate settings. If this survey is conducted shortly after an early version of Staff projections, it could potentially provide paths that are consistent with the Staff economic forecast. However, it is also possible that individuals surveyed may have different views on both the outlook and the appropriate policy path. An advantage of publishing survey forecasts of the path over what is in the staff forecast, is

that it could provide a range of potential paths. By capturing a diversity of views, this could be seen as similar to the Federal Reserve's dot plots (see appendix) which includes dots for both voting and non-voting FOMC members.[9] However, as with the Federal Reserve dot plots, the survey on the path may not be appropriately linked to either the staff or MPR economic projections.

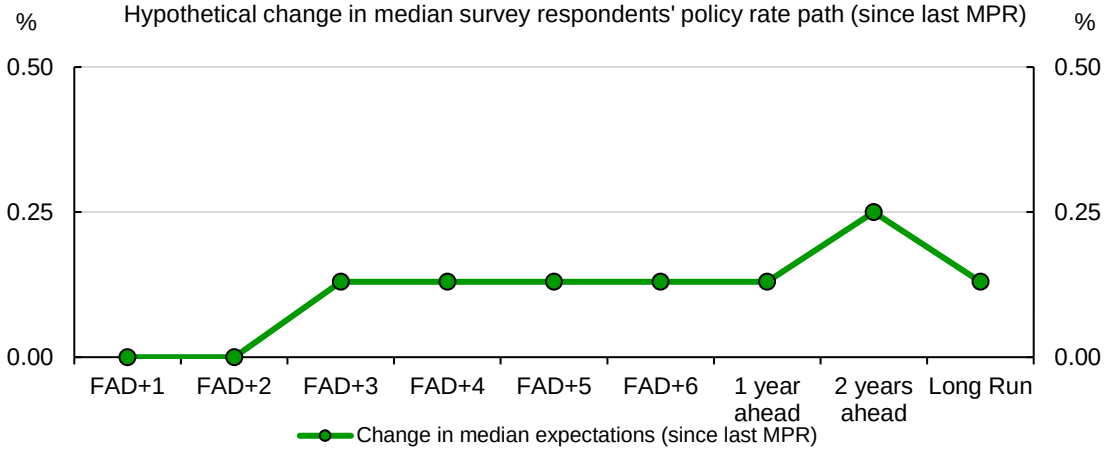
For a survey to be informative and be consistent with the information available at the time of the policy rate decision, it would be ideal to conduct it closer to when the policy rate deliberations take place, such as at the Risk and Recommendations meeting. The publication of survey results could be either as a dot-plot (See Figure 6 for a hypothetical version) or as a change in the mean/median from a previous survey (See Figure 7 for a hypothetical version) with minimal costs of production. As in the earlier discussion of publishing the Staff forecast, one way to make the information in the survey more indicative of a reaction function would be to show how the mean and/or median of the MPRC survey changes from one MPR to the next. The change in the median/average path would show how the new information available since the last MPR impacted the MPRC views on the appropriate path.

Figure 6: **Illustrative example of what such a survey might deliver**
The number and shade of **blue** in a cell represents the **frequency** with which the policy rate outcome was selected

Rate (%)	FAD+1	FAD+2	FAD+3	FAD+4	FAD+5	FAD+6	1 year	2 years	Long Run
3.25									
3.00									1
2.75									2
2.50								1	2
2.25								1	3
2.00							1	2	1
1.75	8	5	2	1	1	1	1	2	
1.50	1	4	6	5	4	4	4	2	
1.25			1	3	4	3	2	1	
1.00						1	1		
0.75									
Median	1.75	1.75	1.50	1.50	1.50	1.50	1.50	1.75	2.50

[9] In Canada, members of the C.D. Howe Institute Monetary Policy Committee (an external think tank) publish their recommendations for the Bank's future path of interest rates ahead of each interest rate announcement.

Figure 7: Illustrative example of how a survey could indicate change in rate path



Note: Intervals between dates on the x-axis lengthen from FAD+6 onward.

However, it is important to note that results from such a survey could provide an illusion of precision. For example, markets may focus on the mean or median of the survey as an unconditional forecast, and not appreciate the uncertainty around the forecast. The dot plot provides some distribution, but there will likely be cases when the forecasts appear more certain that what they are in reality (as each MPRC member would provide their mode). For example, after the next interest rate decision, members may all agree on a single rate, whereas each individual member would agree that different rates are possible.

One way to address this false certainty would be to ask MPRC members for their views on the distribution of future rates, underscoring the inherent uncertainty underlying future policy. For example, each member could submit their probability distribution of the policy rate for 2 and 4 FADs into the future, since policy rate projections appear to be less strong indicators of future policy rates beyond 6 months. The views could be expressed in a histogram to emphasize the uncertainty around future rate decisions. A drawback of the histogram approach is that it assumes that risks are quantifiable. It may be challenging for members to attach probabilities to outcomes, which would reduce the benefit of the survey. Moreover, MPRC members are unlikely to have the resources necessary to provide evidence-based assessments. Such information could end up being based on pure judgment of members and lack the macroeconomic context behind the submitted distribution. Finally, the value of publishing such information rests on an assumption that markets would appreciate the nature of the histogram and not use it simply as a shortcut to estimate the mode.

Publishing more information on the reaction function

Directly publishing more information on the reaction function used to generate projections could provide some useful information to the public. In its monetary policy report, the Norgesbank, for example, compares their policy rate to the policy rate suggested by a naive reaction function. Any deviations between the two would suggest that there are other factors driving the differences, which can provide insight into their central bank reaction function.

The Bank's ToTEM and LENS documentation currently provides the parameters of the reaction function used in those models,[10] However, the documentation is based on empirical estimates and suggest a rather large coefficient on the lagged policy rate. This suggests a high level of inertia in the decision-making process but may not be indicative of how the policy rate is set.[11] Moreover, model-based reaction functions do not necessarily coincide with GC's reaction function.

One way a model-based reaction function could be further communicated is through publicly publishing simulations from the Bank's macroeconomic policy models. This could take the form of a SAN, which examines the effect of different shocks to the economy and presents the corresponding impulse response functions. Not only can this help markets better understand the Bank's policy models, important tools used to provide inputs to GC's decisions, but it can also help solidify their understanding how monetary policy shocks (and other shocks) transmit to different parts of the economy.

Summary

There are both advantages and disadvantages to providing public guidance on the future of policy rates. Many central banks have opted to provide varying degrees of transparency on their reaction functions and rate paths. While the BoC currently publishes staff projections, including a rate path, with a 5-year lag, publication of a Governing Council rate path is more complicated. For instance, there may be a diversity of outlooks among the Bank's Governing Council regarding the appropriate rate path to achieve the inflation target. As an alternative, GC has been communicating what risks,

[10] See ToTEM III: The Bank of Canada's Main DSGE Model for Projection and Policy Analysis - Bank of Canada and Analyzing and Forecasting the Canadian Economy through the LENS Model.

[11] A large coefficient on the lag coefficient could also be driven by misspecification of expression for the reaction function or the underlying model. Whenever a factor outside the reaction function or model is important for the policy decision for several meetings in a row, there could be a persistent deviation between what the reaction function and model would recommend and what the policy decisions are. Such persistent deviations resulting from misspecification or missing considerations will lead to upward biased estimates of inertia in policy setting.

uncertainties, and data are receiving more attention in shaping its monetary policy decisions, and updating that information as conditions change.

With this as a starting point, this note discusses several ways the BoC could enhance its communication on the possible future direction of policy, highlighting pros and cons of each approach. When weighting the pros and cons of the explicit publication of an endogenous rate path, an important communication risk is that it could shift the public's focus more towards the rate path and away from the Bank's mandate of targeting inflation. For this reason, it could be more valuable to the public to have further insight into the inputs to GC's decision-making.

This note provided a range of possible approaches to convey more information on how monetary policy reacts to new information. In this context, it is also useful to think about whether the approaches are increasing information on the GC reaction function or are increasing transparency on the information provided to Governing Council. Given the Bank's governance structure, it is not clear that approaches of other central banks would necessarily improve on the current narrative approach to providing information on the GC reaction function. However, the following approaches would provide more transparency on Bank tools and information provided to GC in the lead up to their deliberations. These approaches could also contribute to the public's understanding of the relationship between monetary policy decisions and the economy.

- Providing a variety of alternative scenarios, including scenarios using the Bank's different models (highlighting model uncertainty), and alternative scenarios using the latest or max/min of market forecasts.
- Making simulations from the Bank's policy models publicly available, to allow markets to better understand the model response to different shocks as well how shocks transmit to different parts of the economy.
- Publishing an expectation of the average policy rate over the coming 2 years. This could be done for the staff projection or for a survey of BoC senior advisors. Such information could indicate the likely future direction of the policy rate but does not require a consensus on the full rate path.
- Conducting a survey of senior advisors that could be published, possibly alongside other economist surveys

A key risk associated with using any of these approaches to supplement published information on GC views, is that clarity on the motivations for the current decision could decline, leading to public confusion or to questions about why views might differ.

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Appendix: Further details on rate information provided by other central banks

- This appendix summarizes 9 central banks' practices on publishing policy interest rate paths. Starting around the early 2000s, several central banks began discussing the policy interest rate assumption underlying their forecasts in more detail.
- 4 out of 9 central banks publish an endogenous policy rate path produced either by central bank staff or policymakers. All but one show the uncertainty around their forecasted path using confidence intervals, and some central banks also provide forecast scenarios that use alternative interest rate assumptions.
- Central banks that do not publish endogenous policy rate paths disclose varying amounts of information about their interest rate assumptions. While the Bank of England includes market interest rate expectations as part of its key set of forecasts, the Bank of Canada and Bank of Japan do not provide any information about their endogenous interest rate assumptions.
- All of the central banks that we study discuss their estimates of the neutral interest rate sporadically, with the exception of the Federal Reserve, which publishes "long-run" interest rate forecasts alongside its main interest rate forecasts.

Table 1: Summary of Central Banks' Policy Interest Rate Disclosure

	BOC	RBNZ	RBA	Norges Bank	FED	Riksbank	BoE	BoJ	ECB
Publishes a Policy Path	No	Yes	No	Yes	Yes	Yes	Yes	No	No
Endogenous Path	-	Yes	-	Yes	Yes	Yes	No	-	-
Whose path is published?	-	Staff prepares but policymakers own it	-	Policymakers	Policymakers	Policymakers	Fin. markets	-	-
Type of Path	-	Single path	-	Single path	Dot plot	Single path	Single path	-	-
Indication of Uncertainty	-	No	-	Yes	Yes	Yes	No	-	-
Alternative Path Scenarios	-	Sometimes	-	Yes	No	Sometimes	Yes	-	-
Time Horizon	-	3Y	-	3Y	2-3Y	3Y	3Y	-	-
Long-run (Neutral) View	Yes	Sometimes	Sometimes	Sometimes	Yes	Sometimes	Sometimes	Sometimes	Sometimes
Publishing Frequency (times per year/monetary policy decisions per year)	-	4/7	-	4/8	4/8	5/5	4/8	-	-
Date of First Interest Rate Path Publication	-	June 1997	-	Nov. 2005	Jan. 2012	Feb. 2007	Aug. 2004	-	-

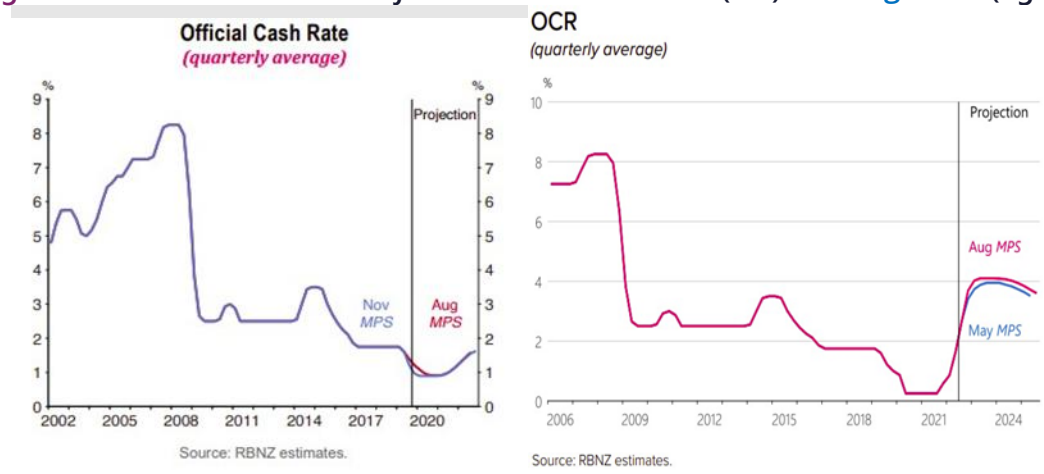
Details for Central Banks Publishing Endogenous Rate Paths

Reserve Bank of New Zealand (RBNZ)

	Reserve Bank of New Zealand
Publishes a Policy Path	Yes.
Endogenous Path	Yes: in particular, the policy interest rate projections "show how monetary conditions might be expected to evolve in order to achieve a path for inflation that converges over time towards the middle of the target range."
Whose path is published?	RBNZ staff prepare the forecast, but the monetary policy committee has ownership over the path. "During the development of each MPS, our staff present initial forecasts that the Monetary Policy Committee (MPC) then discuss. The MPC has direct access to experts when forming its views. Our staff amend the final forecasts following MPC's suggestions. The final monetary policy decision is based on the forecasts that have incorporated the MPC's judgement. The MPC ultimately has ownership over the published forecasts."
Type of Path	Single path.
Indication of Uncertainty	No: "projecting a single central projection . . . simplifies the discussion considerably, and makes the forecast numbers easier to connect to the forecast story."
Alternative Scenarios	Occasionally: Monetary Policy Statements sometimes consider the impact of a few specific risk scenarios on the central projection, including the path of the policy rate.
Time Horizon	3 years.
Long-run (Neutral) View	Sometimes: the RBNZ frequently provides its view of the neutral interest rate in Monetary Policy Statements (occasionally as a special topic) and speeches.

Publishing Frequency (times per year/monetary policy decisions per year)	4/7: quarterly, as part of the Monetary Policy Statement accompanying 4 out of 7 monetary policy decision each year.
Date of First Interest Rate Path Publication	June 1997.

Figure 1: RBNZ Interest Rate Projections from Nov. 2019 (left) and Aug. 2022 (right)

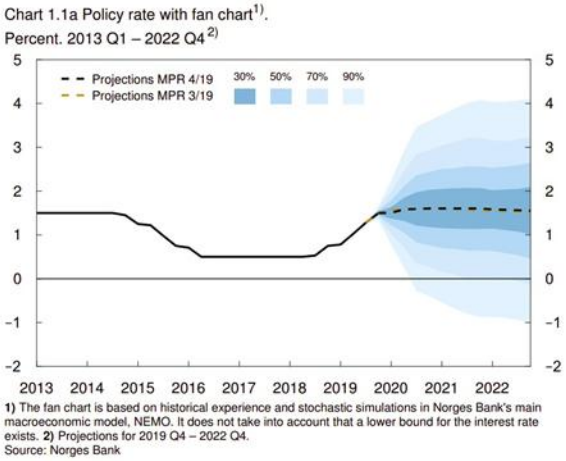


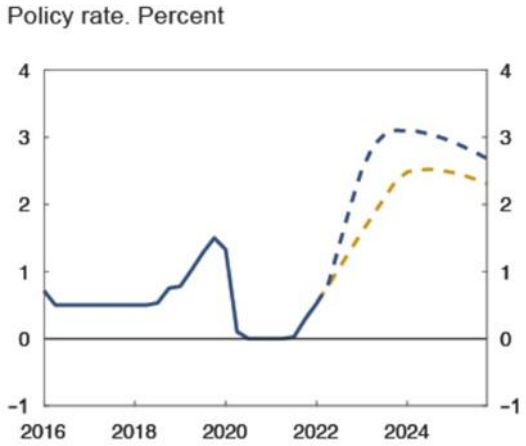
Norges Bank

	Norges Bank
Publishes a Policy Path	Yes.
Endogenous Path	Yes.
Whose path is published?	The monetary policy committee: "The policy rate forecast generated by the model serves as input into the monetary policy discussion. What constitutes a reasonable trade-off in monetary policy is judgement-based (Section 2.4). There is no mechanical link between the model's policy rate path and Norges Bank's policy rate forecasts. Even so, such models can provide the monetary policy analysis with a fundamental structure and discipline the monetary policy discussion." They present some scenario analysis using model-based exercises (e.g., 2/2025 MPR Section 3).
Type of Path	Single path.
Indication of Uncertainty	Yes: pre-pandemic, the Norges Bank provided confidence intervals for its interest rate forecast. However, "since the outbreak of the pandemic, the projections have not been presented with fan charts."
Alternative Scenarios	Yes: the Monetary Policy Reports show exercises where "new information and assessments are incorporated into the modelling system, while conditioning on the policy rate path" from the *previous* Monetary Policy Report. They also show their projection against the projection from a Taylor rule.
Time Horizon	3 years.
Long-run (Neutral) View	Sometimes: the Norges Bank frequently provides its view of the neutral interest rate in Monetary Policy Statements in varying levels of detail.
Publishing Frequency (times per year/monetary policy decisions per year)	4/8: quarterly, as part of the Monetary Policy Report accompanying 4 of the 8 monetary policy decisions per year.

Date of First Interest Rate Path Publication	Nov. 2005.

Figure 2: Norges Bank Interest Rate Projections from Dec. 2019 (left) and June 2022 (right)





Federal Reserve System

	Federal Reserve System
Publishes a Policy Path	Yes.
Endogenous Path	Yes: each FOMC member provides a complete set of macroeconomic forecasts, including their policy rate forecast.
Whose path is published?	Policymakers (FOMC members).
Type of Path	Dot plot; median, central tendency and range.
Indication of Uncertainty	Yes: in 2017, the Fed began providing confidence intervals based on historical forecast errors. Further, the dot plot shows the dispersion of FOMC forecasts (but not an individual FOMC member's level of uncertainty).
Alternative Scenarios	No.
Time Horizon	For the first half of each year, projections are made for the current year, one and two-years ahead, and the long run. For the second half of each year, projections are made for the current year, one-, two- and three-years ahead, and the long run.
Long-run (Neutral) View	Yes: FOMC members provide their "longer-run" view as a standard component of the dot plot.
Publishing Frequency (times per year/monetary policy decisions per year)	4/8: quarterly, accompanying 4 of the 8 annual monetary policy decisions. Before Dec. 2020, the Summary of Economic Projections was released 3 weeks after the FOMC meetings; it is now released in conjunction with the Fed Chair's press conference.
Date of First Interest Rate Path Publication	January 2012.

Figure 3: Federal Reserve Interest Rate Projections from June 2022[1]

Figure 2. FOMC participants' assessments of appropriate monetary policy: Midpoint of target range or target level for the federal funds rate

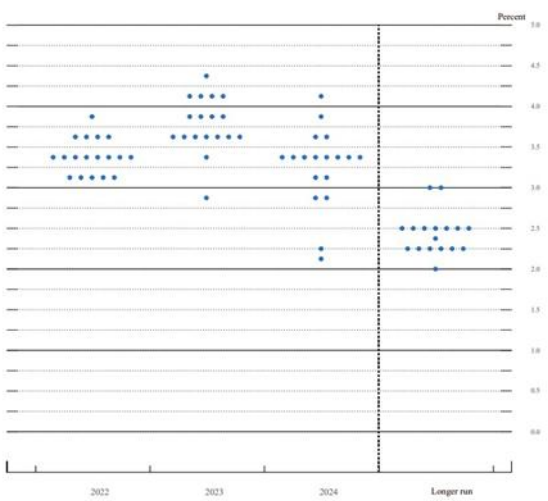
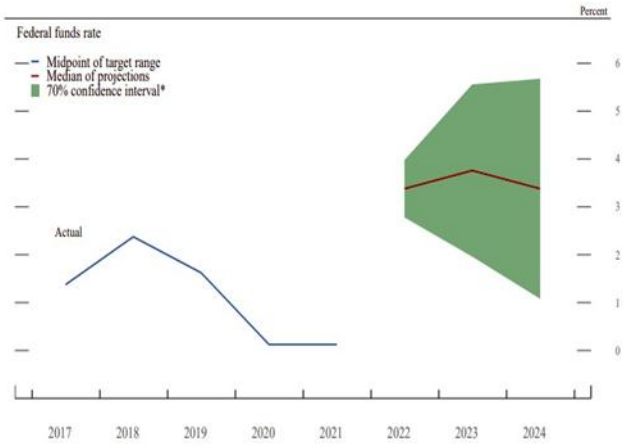


Figure 5. Uncertainty and risks in projections of the federal funds rate

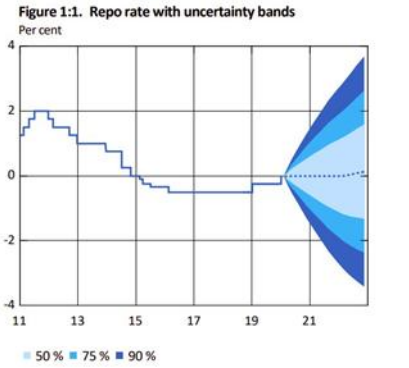


[1] The Summary of Economic Projections also provides the median, central tendency and range numerically and shows a histogram of the FOMC members' federal funds rate projections.

Riksbank

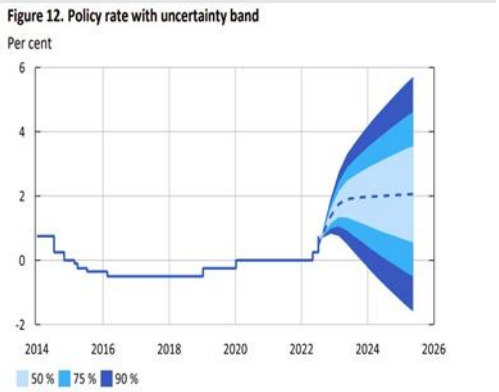
	Riksbank
Publishes a Policy Path	Yes.
Endogenous Path	Yes.
Whose path is published?	Policymakers: "the Executive Board attempts to arrive at a repo rate path that it seems likely that the majority of the board members can support" (Hallsten and Tagtstrom 2009, p. 82)
Type of Path (single path, central tendency, range, dots)	Single path.
Indication of Uncertainty	Yes: the Riksbank provides confidence intervals for its interest rate forecast.
Alternative Scenarios	Occasionally: although older Monetary Policy Reports consistently included alternative scenarios for the path of the policy rate, more recent reports assume the same path of monetary policy in its alternative scenarios as in its main scenario.
Time Horizon	3 years.
Long-run (Neutral) View	Sometimes: the Riksbank rarely discusses the neutral rate in its Monetary Policy Report. Instead, it is occasionally discussed in commentaries.
Publishing Frequency (times per year/monetary policy decisions per year)	5/5: 5 times per year, as part of the Monetary Policy Report accompanying monetary policy decisions.
Date of First Interest Rate Path Publication	Feb. 2007.

Figure 4: Riksbank Interest Rate Projections from Dec. 2019 (left) and June 2022 (right)



Note. The uncertainty bands for the repo rate are based on the Riksbank's historical forecasting errors and the ability of risk-premium adjusted forward rates to forecast the future repo rate for the period 1999 up to the point when the Riksbank started to publish forecasts for the repo rate during 2007. The uncertainty bands do not take into account the fact that there may be a lower bound for the repo rate. Outcomes are daily rates and forecasts refer to quarterly averages.

Source: The Riksbank



Note. The uncertainty bands are based on the Riksbank's historical forecasting errors and on risk premium-adjusted forward rates' forecasting errors for the period 1999 until the Riksbank began publishing forecasts for the policy rate in 2007. The uncertainty bands do not take into account the fact that there may be a lower bound for the policy rate. Outcomes are daily rates and the forecasts refer to quarterly averages.

Source: The Riksbank.

Details for Central Banks Not Publishing Endogenous Rate Paths

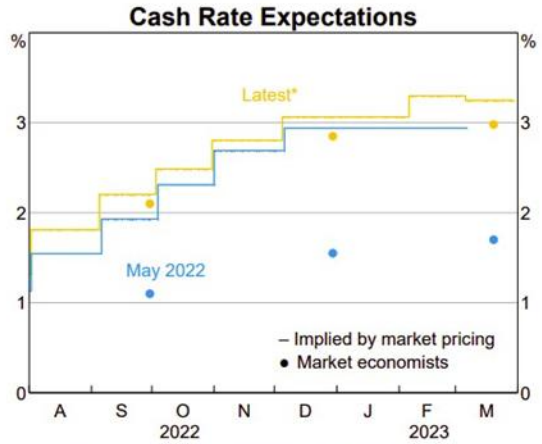
Bank of Canada

Although the Bank of Canada's staff forecasts use an endogenous policy rate path, the BoC does not discuss the rate path in its monetary policy communications. However, starting in 2018, the BoC began publishing its historical policy rate assumptions with a 5-year lag as part of the Staff Economic Projections database. Like other central banks, the BoC provides updates on its estimates of the neutral interest rate.

Reserve Bank of Australia

In its Statements on Monetary Policy, the Reserve Bank of Australia specifies whether its forecasts rely on a constant interest rate assumption or professional/market expectations. The RBA usually briefly discusses the assumed path for the policy rate (from the Aug. 2022 Statement: "the path for the cash rate reflects expectations derived from surveys of professional economists and financial market pricing, with the cash rate assumed to increase to around 3 per cent by the end of 2022, and then decline a little by the end of 2024") and may provide a graph of market expectations. Before 2016, the "typical" assumption was of a constant policy rate, but the RBA appears to have shifted towards using market expectations. The RBA publishes irregular updates of its estimates of the neutral interest rate, both in staff research notes and speeches.

Figure 5: Reserve Bank of Australia Market Interest Rate Expectations (Aug. 2022)



Bank of England

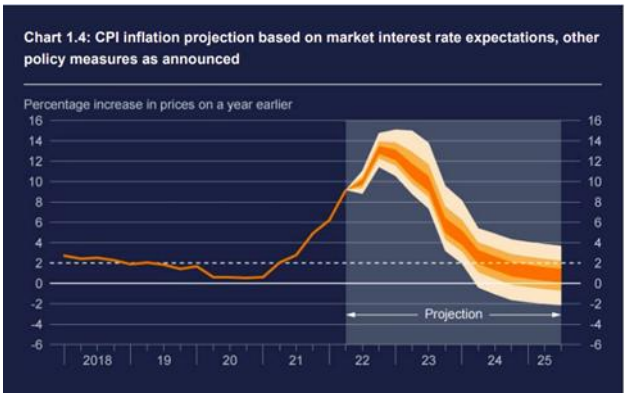
The Bank of England's main forecasts are based on market interest rate expectations, but it provides projections based on both constant interest rates and market interest rate expectations (since Aug. 2004). In its Monetary Policy Reports, it discusses market expectations in detail and explicitly states the differences between the forecasts conditioned on a constant rate and forecasts conditioned on market expectations. The BoE publishes irregular updates of its estimates of the neutral interest rate in staff research notes, special boxes in Monetary Policy Reports, and speeches.

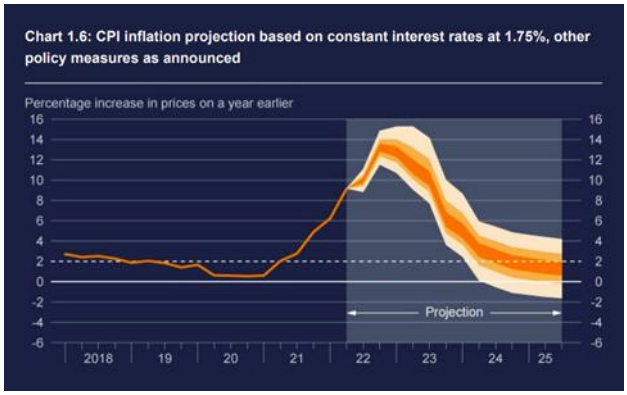
Figure 5: Bank of England Projection Summary, Including Bank Rate (Aug. 2022)

Table 1.A: Forecast summary of the MPC's baseline projections (a) (b)

	2022 Q3	2023 Q3	2024 Q3	2025 Q3
GDP (c)	2.3 (2.9)	-2.1 (-0.8)	0.0 (0.4)	0.4
CPI inflation (d)	9.9 (9.5)	9.5 (5.9)	2.0 (1.8)	0.8
LFS unemployment rate	3.7 (3.5)	4.4 (4.1)	5.5 (4.8)	6.3
Excess supply/**Excess demand** (e)	**+¾ (+¼)**	-2¼ (-1½)	-3¼ (-2)	-3¾
Bank Rate (f)	1.6 (1.5)	3.0 (2.6)	2.5 (2.3)	2.2

Figure 6: Bank of England Forecasts based on Alternative Interest Rate Assumptions (Aug. 2022)





Bank of Japan

Prior to 2006, the Bank of Japan assumed a constant policy interest rate in its forecasts. After 2006, "individual Policy Board members make their forecasts taking into account the effects of past policy decisions and with reference to views incorporated in financial markets regarding future policy. Specifically, each Policy Board member makes an assumption about the future path of short- and long-term interest rates based on their market rates, with the difference in the outlook for prices between that presented in the Outlook for Economic Activity and Prices (Outlook Report) and that of market participants in mind." However, the BoJ does not publish these interest rate forecasts, nor does it discuss market expectations in detail. The BoJ irregularly discusses its estimates of the neutral interest rate in staff research notes and monetary policy communications.

ECB

Prior to 2006, the Eurosystem/ECB staff projections assumed that short-term interest rates would be constant over the projection horizon. After 2006, the projections use market interest rate expectations. The staff projections, released 4 times a year, typically briefly discuss the path implied by market expectations. The ECB irregularly discusses its estimates of the neutral interest rate in staff research notes and speeches.

[1] The Summary of Economic Projections also provides the median, central tendency and range numerically and shows a histogram of the FOMC members' federal funds rate projections.