

Kozicki, Sharon; Vardy, Jill

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Communicating Uncertainty in Monetary Policy



by Sharon Kozicki and Jill Vardy

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Communicating Uncertainty in Monetary Policy

by

Sharon Kozicki and Jill Vardy

Bank of Canada
Ottawa, Ontario, Canada K1A 0G9
skozicki@bankofcanada.ca
jvardy@bankofcanada.ca

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Abstract

While central banks cannot provide complete foresight with respect to their future policy actions, it is in the interests of both central banks and market participants that central banks be transparent about their reaction functions and how they may evolve in response to economic developments, shocks, and risks to their outlooks.

This paper outlines the various ways in which the Bank of Canada seeks to explain its economic outlook and monetary policy decisions, with an emphasis on how different sources of uncertainty factor into monetary policy communications. To help markets and others understand its reaction function, the central bank must explain what uncertainties are weighing on policy and how (or if) these uncertainties are being considered in policy formulation. Discussion of uncertainty becomes particularly important when a large shock has hit the economy or when a central bank's view or its policy stance is changing.

Market views and the views of the central bank will not always be aligned. The aim of monetary policy communications should not be alignment but understanding—helping markets comprehend the central bank's policy objectives and providing a coherent rationale for policy decisions. In doing so, the bank must be transparent about the uncertainties influencing the outlook, their possible impacts and how these uncertainties will be factored into policy decisions. This paper outlines some recent and upcoming initiatives to achieve those objectives and improve Bank of Canada communications.

Bank topics: Credibility; Monetary Policy; Monetary Policy Implementation; Uncertainty and Monetary Policy

JEL codes: E, E5, E52, E58, E61

Résumé

Les banques centrales ne peuvent pas donner d'indications complètes sur leurs interventions futures, mais il est de leur intérêt et de celui des participants aux marchés qu'elles fassent preuve de transparence au sujet de leur fonction de réaction et de son possible changement face aux évolutions économiques, aux chocs et aux risques pesant sur leurs prévisions.

Dans cette étude, nous présentons les différents moyens par lesquels la Banque du Canada cherche à expliquer ses perspectives économiques et ses décisions de politique monétaire, une large place étant accordée à sa méthode de prise en compte des différentes sources d'incertitude dans ses communications sur la politique monétaire. Pour permettre aux marchés et aux autres intéressés de comprendre sa fonction de réaction, la banque centrale doit expliquer quelles incertitudes pèsent sur sa politique et comment (ou si) elle en tient compte dans la formulation de cette dernière. L'analyse des incertitudes gagne surtout en importance lorsque l'économie est confrontée à un choc majeur ou que la banque centrale modifie son point de vue ou l'orientation de sa politique.

La position des marchés et celle de la banque centrale ne concordent pas toujours. Les communications sur la politique monétaire ne devraient pas avoir pour but d'harmoniser ces différents points de vue, mais de les éclairer, à savoir aider les marchés à comprendre les objectifs de la Banque et exposer la logique qui sous-tend ses décisions de politique monétaire. À cette fin, la banque centrale doit faire preuve de transparence au sujet des incertitudes qui influent sur ses perspectives économiques, de leurs possibles effets et de leur prise en compte dans ses décisions. Nous présentons ici certains des chantiers récents ou à venir qui visent à atteindre ces objectifs et à améliorer les communications de la Banque du Canada.

Sujets : Crédibilité; Politique monétaire; Mise en œuvre de la politique monétaire; Incertitude et politique monétaire

Codes JEL : E, E5, E52, E58, E61

1. Introduction

Clear and transparent communication is essential to the effectiveness of monetary policy. By explaining their outlook and policy actions clearly, central banks help economic actors to understand the rationale for policy decisions and the policy frameworks in which these decisions are made. However, central banks cannot provide complete foresight regarding their future policy actions. They must react to the world as it unfolds and take the policy actions that are most likely to achieve their policy objectives.

Market participants have clear incentives to understand and anticipate the policy actions central banks take. For their part, central banks have to take into account in their decision-making the potential for the additional volatility that can arise when markets are surprised by central bank actions, since this volatility may have economic and reputational costs. It is therefore in the interests of both central banks and market participants that central banks communicate transparently about their reaction functions and how they may evolve in response to economic developments, shocks, and risks to their outlooks.

This paper explores how the Bank of Canada communicates its economic outlook and monetary policy decisions, with an emphasis on how uncertainty influences those communications. The Bank of Canada's communication practices have evolved to reflect innovations in the field and preferences of the institution's leadership, while taking into account the Bank's specific governance structure and framework for monetary policy decision making. The goal of the Bank's communications is to offer a comprehensive assessment of the events and issues that are influencing monetary policy decisions, while acknowledging the uncertainty inherent in all policy-making. This requires as much transparency as can be achieved without resorting to false precision about its outlook and the future path for the policy interest rate.

This paper first examines the different sources of uncertainty that must be considered in the conduct of monetary policy. It then describes the Bank of Canada's decision-making process, how uncertainty is taken into account, and the main vehicles the Bank uses to communicate with its key audiences.

2. Types and Sources of Uncertainty

Policy-makers must acknowledge and deal with various types and sources of uncertainty in the conduct of monetary policy. Uncertainty may reflect public misconceptions about the mandate or objectives of the central bank, real-world complexities that models are unable to capture, the possibility of events to which one can't assign a probability of occurrence, and domestic or international economic developments that are unexpected. While there are various ways to describe uncertainty, for clarity this document distinguishes between two types of uncertainty, respectively referred to as **Knightian** (or unmeasurable) **uncertainty** and **risk**. Frank Knight used the term "risk" to describe situations in which one can't know the outcome of a given situation, but can accurately measure the odds of each possible outcome. He used "uncertainty" to describe situations where so little information is known that it is impossible to calculate odds: "It will appear that a measurable uncertainty, or 'risk' proper, as we shall use the term, is so far different from an unmeasurable one that it is not in effect an uncertainty at all"

(Knight 1921). It is artificial to draw such a black-and-white distinction since there are many examples that would fall on a spectrum between truly measurable and impossible to calculate. This paper uses “risk” and “uncertainty” interchangeably and reserves the terminology “Knightian uncertainty” to characterize unknowns that are closer to the “impossible-to-calculate” metric.

Since Knightian uncertainty cannot be measured, it cannot be captured in models. In this paper, cases of Knightian uncertainty will be assumed to include not only uncertainty about events that cannot be effectively modelled (including cases where it would be possible to model the event were more details available), but also situations in which the potential effects of a given uncertainty on the economy cannot be estimated, or for which it is impossible to assess probabilities associated with the uncertain events. Here, Knightian uncertainty is considered separately from other types and sources of economic uncertainty and includes **geopolitical** sources of uncertainty, which some consider outside the scope of economic uncertainty (Carney 2016).

Sources of risk are generally outside the influence of the central bank. However, because they affect economic behaviour, central banks must consider them when setting monetary policy. Broadly speaking, risk reflects unexpected events and shocks, as well as uncertainty about the implications of these events and shocks for economic activity, inflation and financial markets. Economists classify different sources of risk because policy implications are not the same for all (Mendes, Murchison and Wilkins 2017). Following Mendes, Murchison and Wilkins (2017), the sources of risk are measurement uncertainty, economic (or shock) uncertainty and model uncertainty:¹

- *Measurement uncertainty* includes the possibility that data may be revised or that economic concepts are mismeasured. Even official data published by national statistical agencies are revised as additional information becomes available and measurement techniques are improved.² Additionally, volatile data—even in the absence of revisions—give rise to uncertainty about the underlying signal or trend. However, some economic variables that are important for the conduct of monetary policy, such as the level of potential output and the output gap, the neutral interest rate and the non-accelerating inflation rate of unemployment, are unobservable. There can be considerable uncertainty about how best to estimate these concepts. Taking potential output as a specific example, Bank staff have proposed several estimation methodologies and each tends to provide a different point estimate of the output gap (Pichette et al. 2015). In addition, partly because of data revisions and differences among the different methodologies, estimates of potential output are also revised over time.
- *Shock uncertainty* refers to uncertainty about the size and duration of future shocks. In the economic literature, estimates of past shocks are constructed using deviations of economic

¹ Jenkins and Longworth (2002) provide more-detailed descriptions of these characterizations of uncertainty.

² Estimates of data uncertainty drawing on descriptive statistics of the revision process for data in the Canadian National Accounts are presented in Tkacz (2010) for some economic variables.

outcomes from those predicted by an economic model.³ Thus, one measure of economic uncertainty is the standard error of model-equation residuals or of model-based estimates of structural shocks derived from those residuals.

- *Model uncertainty* includes uncertainty associated with the parameters and specification of a model. *Parameter uncertainty* refers to uncertainty regarding the strength of economic relationships. In an economic model, it refers to uncertainty associated with the numerical values of parameters and/or coefficients that characterize relationships between economic variables. In estimated models, standard errors of estimated coefficients provide a measure of parameter uncertainty. Model parameters also interact with one another. For example, the transmission mechanism from interest rate movements down to output and inflation depend on a large number of parameters, each of which is uncertain. As a consequence, uncertainty at the policy level may be magnified by these parameter interactions. *Model-specification uncertainty* reflects more fundamental uncertainty about the structure of the economy. Standard errors of residuals from estimated models, or root-mean-square forecast errors, provide a measure of the ability of a given model to explain the economy. In the setting of monetary policy, it is important to consider economic analysis that draws on multiple models, especially those representing different paradigms, since they may have very different implications for optimal policy rules and policy rate settings.⁴ Investment in model development, estimation methodologies and expanded data sets can contribute to reduced parameter uncertainty and improved model fit.

For a central bank, **mandate uncertainty** relates to public uncertainty about the mandate and objectives of its monetary policy. If the private sector is uncertain about the medium- and long-term objectives of monetary policy, it may find it difficult to determine whether a policy action is a response to an economic shock with no change in objectives, or whether it is an indication that objectives have changed or are different from what had been perceived (Thiessen 1995).

Governments and central banks can minimize this source of uncertainty by establishing a clear mandate for monetary policy, with the central bank setting policy consistent with that mandate. This is the case in Canada: “The inflation-targeting framework combines a clearly specified objective agreed to by the government and the central bank with sufficient flexibility in the conduct of monetary policy to achieve that objective in the face of economic shocks and a highly uncertain global economic environment. Over time, the credibility of this proven framework has become self-reinforcing, with the 2 per cent midpoint of the inflation-control range providing an anchor for expectations of future inflation and thus enhancing the efficacy of monetary policy” (Bank of Canada 2016). Mandate uncertainty can be further reduced through frequent and clear communications by the central bank (**Box 1**).

³ Shock properties depend on the model they are associated with. Models with sufficient economic structure provide “structural” interpretations of shocks linked back to drivers of economic behaviour, but these interpretations do not fundamentally change the uncertainty associated with the shocks.

⁴ Central banks may deal with model uncertainty by (1) choosing an instrument path that weights the optimal policy paths in the different models by assumed probabilities assigned to those paradigms or (2) choosing among various policy rules the one that works well in all models (Jenkins and Longworth 2002).

A related example of uncertainty that must be taken into account in setting monetary policy is the uncertainty of outside observers about the central bank's near-term objectives and the future path of monetary policy. The mandate of a central bank is usually clear but, in practice, a typical central bank's reaction function cannot be fully expressed mathematically or with complete precision, and it can change with time. A central bank communicates important information about its reaction function, at least at a high level, and market participants deduce as much as possible about it by observing the central bank's actions and by listening to what it says.

Effective communications help markets understand the central bank's objectives and the tools the bank will use to achieve them, thus improving the transmission of monetary policy (Vayid 2013). To help markets and others understand its reaction function and play their role in the transmission mechanism, the central bank must also explain what uncertainties are weighing on policy and how (or if) these uncertainties are being considered in policy formulation.

Box 1: Transparency Is Critical to Minimizing Mandate Uncertainty

Minimizing mandate uncertainty involves several steps: having an objective backed by the government, explaining how policy actions are tied to the objective, achieving the objective, and reviewing and revising the objective as appropriate to ensure it is in line with best practice. It is important that the Bank communicates clearly and openly with the public on each of these steps. Experience has proven that having a mandate with a directly measurable objective (such as an inflation target of 2 per cent) rather than a vague objective (such as “price stability”) is more effective at minimizing mandate uncertainty and achieving the associated benefits.

In Canada, a critical advance in minimizing mandate uncertainty was undertaken in 1991, when the federal government and central bank jointly adopted an inflation-targeting framework with an explicit inflation-control range centred on a numerical inflation target. A comprehensive communications plan was undertaken to explain this new targeting regime to Canadians.

When introducing the framework, the Bank hoped that having an explicit numerical objective for inflation control would make the Bank more accountable for its actions and, as Bank credibility for achieving the target improved, would reduce the sensitivity of inflation expectations, and inflation itself, to supply and demand shocks (Thiessen 1995). Since the target was lowered to 2 per cent in 1995, the Bank’s monetary policy has achieved average inflation at close to 2 per cent, with no persistent episodes outside the inflation-control range. In so doing, the Bank has built credibility for achieving its mandate and, as a result, the 2 per cent target has provided an enduring anchor for expectations of future inflation.

The Bank provides regular accounting of its stewardship of monetary policy in its Annual Reports and Monetary Policy Reports (MPRs). MPRs also provide economic projections, including the Bank’s outlook for GDP growth and inflation, and discuss how the current monetary policy stance is expected to contribute to the achievement of the inflation objective.

While past success has contributed to reducing mandate uncertainty, Bank communications have also been important. The five-year renewal process provides opportunities to revisit the mandate and assess costs and benefits associated with potential changes to it. Throughout the five-year renewal process, members of Governing Council give speeches outlining the issues of focus for the renewal and the evolution of Bank thinking. For recent renewals, relevant staff analysis has been published on the Bank’s web site. These efforts at transparency reduce the risk that the public will think the Bank’s priorities could suddenly shift. Each five-year renewal process concludes with publication of a joint statement by the Bank and the government on the agreed mandate. The statement is accompanied by a background document summarizing key takeaways from related research and updates to the Bank’s interpretation of the mandate (if any). The 2016 renewal included some innovations that also contributed to increasing transparency and reducing mandate uncertainty. On the day of the announcement of the renewed agreement, the Bank published a letter sent by the Governor to the Minister of Finance summarizing the Bank’s recommendation for the renewal, and the Governor and Senior Deputy Governor appeared before the House of Commons Finance Committee.

Finally, ongoing public outreach by the Bank—through speeches and material provided on the Bank’s website—on its inflation-targeting framework; on the advantages associated with low, stable and predictable inflation; and on the Bank’s success in achieving the inflation target has reinforced central bank credibility and reduced mandate uncertainty.

3. The Monetary Policy Decision-Making Process

Like many other central banks, the Bank of Canada employs a system of fixed announcement dates (FADs), with rate decisions communicated on eight pre-announced dates throughout the year (with six to seven weeks between each one). The Bank's system of FADs was introduced in November 2000 to replace the former approach under which the Bank could, in principle, adjust interest rates on any business day. Moving to FADs aligned the Bank with other leading central banks at the time and had the immediate effect of reducing uncertainty about the timing of each decision.⁵ As the Bank explained at the time:

The new system will reduce the uncertainty in financial markets associated with not knowing exactly what day the Bank might announce a Bank Rate change, and it will permit market participants to prepare more fully for that possibility. In particular, it will eliminate the so-called "9 a.m. watch" that has occurred in the past when participants in the foreign exchange and fixed-income markets thought the Bank might announce an interest rate change and slowed trading activity while waiting to see if there would be such an announcement at 9 a.m. With announcement dates specified in advance, and with a press release issued whether or not there is a Bank Rate change, fixed dates will allow market participants to plan and operate more efficiently. (Bank of Canada notice, September 19, 2000)

Each rate decision is reached by consensus by the Bank's Governing Council (GC)—the Governor, Senior Deputy Governor and four deputy governors. GC also uses a consensus approach to communicate its monetary policy stance. In other words, when a member of the Bank of Canada's GC speaks, the message is one that is endorsed by the entire GC—its members essentially speak with one voice on monetary policy matters. Other central banks, because of their institutional construct, do not expect members of their monetary policy councils (MPCs) to communicate the same views on monetary policy. In fact, their communication strategies (for example, those of the Bank of England or the Federal Reserve) highlight the differences in views among MPC members.

The timing of the FADs corresponds to the release of key economic information used for the Bank's forecasting and monitoring work. Four of the FADs occur roughly six weeks after the publication by Statistics Canada of the quarterly National Accounts, which report on Canada's gross domestic product and its various subcomponents. These FADs are accompanied by the simultaneous publication of the Bank's quarterly *Monetary Policy Report* (MPR), which provides a more detailed account of Canadian and global economic developments, the Bank's projections for growth and inflation, and a discussion of the major risks that could affect the inflation outlook. The other four FADs occur midway between these dates and are also timed to coincide with the availability of important economic information.

⁵ In exceptional circumstances, the Bank reserves the right to change the policy rate on dates that fall outside this schedule. Since the introduction of FADs, this has occurred on two occasions—on September 11, 2001, following the terrorist attacks in the United States, and on October 8, 2008, as part of a synchronized policy easing with other central banks during the financial crisis.

The Bank seeks to understand and account for the risks and uncertainties associated with policy-making by drawing on information and insights from both inside and outside the Bank. External information includes data series from agencies such as Statistics Canada; current analysis and forecasts from other central banks, governments, international financial institutions and private sector economists; information obtained through the Bank's *Business Outlook Survey*, *Senior Loan Officer Survey* and other interactions with the business community; and academic research. All this external information is combined with the analysis and research of Bank staff.

The major participants in the decision-making process are the GC, the Monetary Policy Review Committee (MPRC) and the analytical departments of the Bank. The MPRC plays an important role in the discussions leading up to the decision. It consists of the Governing Council plus five advisors, the managing directors of six departments (Canadian Economic Analysis, CEA; International Economic Analysis, INT; Financial Markets, FMD; Financial Stability, FSD; Funds Management and Banking, FBD; and Communications, COM), financial market representatives of the Montréal and Toronto regional offices, the General Counsel/Corporate Secretary, Chief Risk Officer and the Communications Advisor/Chief of Staff.

Each interest rate cycle begins with a series of analytical notes written by the Bank's economics and financial departments and provided to GC in the weeks leading up to each decision. They become the basis for GC discussions about the current economic context, the outlook, the risks inherent in the outlook and the various types of uncertainty mentioned above. On the four times a year that the FAD decision is accompanied by an economic projection and an MPR, the process is more intense and comprehensive. It begins with a presentation of the staff economic projection to GC two to three weeks before the interest rate decision. This projection has at its centre the Bank's forecasting and policy simulation models, supplemented by judgment drawing on information from other sources.

The combined output results in a base-case (or most likely) scenario, which is presented at what is known within the Bank as the "Case A" meeting. Key risks are identified and discussed. An alternative scenario is also presented at this meeting to examine the implications of the realization of one of the key risks to the outlook.⁶ The alternative scenario changes from one MPR to the next, although it tends to focus on issues that are likely to remain relevant to the outlook for some time. For example, an alternative scenario could explore the economic implications if business investment does not recover as quickly or as much as the Bank projects. Previous alternative scenarios are often revisited, and lessons learned through previous discussions continue to influence deliberations at meetings for subsequent policy decisions. The MPR drafting begins in parallel with the preparation of the staff analysis.

Following the Case A meeting, GC, together with advisors and other senior staff members engaged in drafting the MPR, discuss any follow-up analysis they would like the staff to undertake. Following this meeting, GC discusses the extent to which its own thinking may differ from the staff projection.

⁶ For an example of an alternative scenario, see J. Yang, B. Tomlin and O. Gervais, "[Alternative Scenario to the October 2017 MPR Base-Case Projection: Higher Potential Growth](#)," Bank of Canada Staff Analytical Note No. 2017-18 (October 2017).

Differences may arise in areas where GC's assumptions, as outlined in the MPR, may not line up with the endogenous paths of variables in the staff economic projection.

A week before the decision is published, the final policy recommendations of staff are presented at a special meeting of the MPRC, marking the start of the blackout period before the decision. A senior member of the CEA or INT department summarizes and updates the outlook and risks, assesses the staff's recommendation on what policy action should be taken and provides his or her own recommendation. This summary and recommendation serve as the starting point for an extensive discussion by the MPRC. Tactical and communications issues associated with various policy options are reviewed, and the meeting concludes with each member of the MPRC (except for the six GC members) offering their own recommendation for the next policy decision and where they expect the policy rate to be in a year. GC convenes with its advisors following this meeting for a discussion of the recommendations.

The next step is the policy deliberation, which begins with each GC member offering his or her own view of the current policy decision and the future path for interest rates. GC members then explore any outstanding issues and differences in opinion. Discussions continue until all GC members are comfortable supporting the agreed-upon policy action. There are no votes and no minutes are taken.

Once the decision has been reached, GC agrees on the key messages to be included in the press release that will announce the Bank's decision and explain the reasons behind it. The press release is the foundation of the Bank's monetary policy communications. Its purpose is to notify markets of the policy decision, explain the Bank's economic outlook (especially any changes to its views since the previous FAD), identify uncertainties clouding the outlook and reinforce market understanding of the Bank's reaction function (see **Press release** section). The press release is published at 10:00 on Wednesday, following a media lock-up in Ottawa.

Beginning in 2018, to enhance transparency around the interest rate decision, non-MPR FADs will be supplemented by public speeches that provide more details on the Bank's updated view of the economy, as well as insights into the key issues that figured in Governing Council's deliberations. To accomplish this, existing "update" or "progress report" speeches will be scheduled to occur very shortly after each non-MPR FAD. They will be delivered by a member of Governing Council and will be accompanied by a question-and-answer session for media. Akin to the Governor's MPR press conference opening statements, these speeches will provide an opportunity for the Bank to explain more fully the thinking behind rate decisions. They will also enhance opportunities for deputy governors to participate in monetary policy communications, thus reinforcing the Bank of Canada's consensus-based approach to monetary policy.

On the four times a year when the interest rate decision coincides with an MPR, the deliberation process takes more time. GC members also review the opening statement for a press conference, which provides context for the decision (see **Opening Statement** section). The MPR is revised with new analysis and to ensure consistency of the messaging with the press release and opening statement, although the rate decision itself is not referred to in the MPR.

On these FAD/MPR dates, an extended media lock-up is held, and a technical briefing on the projection is provided to journalists. Although journalists are not permitted to broadcast or to quote from this briefing, it provides them with an opportunity to ask GC members questions about the outlook and the assumptions underlying the forecast. The briefing helps journalists covering the MPR better understand the Bank's messages. It also helps Bank staff understand how the messages in the MPR may be received and whether certain messages may require further clarification.

Shortly after the press release and MPR are issued, the Governor and Senior Deputy Governor hold a press conference that is webcast and usually broadcast live. Before taking questions at the press conference, the opening statement is delivered by the Governor or Senior Deputy Governor.

The final elements of the Bank's communications effort around the FAD/MPR dates are appearances by the Governor and Senior Deputy Governor before the House of Commons Standing Committee on Finance and the Standing Senate Committee on Banking, Trade and Commerce, which take place following the April and October MPRs, and regular post-MPR briefings by members of Governing Council (see section on **post-MPR briefings**).

4. How the Bank of Canada Talks About Uncertainty and Monetary Policy

In setting monetary policy, the Bank's Governing Council must take uncertainty into account. It is important for the Bank to be transparent about how this uncertainty influences the policy discussions and decision, partly because policy implications may differ across types of economic uncertainty (Mendes, Murchison and Wilkins 2017).

This section focuses on how the Bank of Canada talks about uncertainty and its impact on the conduct of monetary policy, as well as the steps the Bank has taken over time to increase transparency. The main communication tools the Bank uses are the following:

- press releases associated with policy decisions;
- the quarterly *Monetary Policy Report* (MPR);
- the opening statement given by the Governor or Senior Deputy Governor at the press conference held after every MPR;
- post-MPR briefings;
- speeches given by members of the Governing Council; and
- publications of staff research and analysis, supplementing the official projection.

The press release

Normally, the Bank conducts monetary policy by adjusting its key policy rate to influence demand and supply in a way that will result in achieving the inflation target over a reasonable horizon (of six to eight quarters). The **press release** is the official document that announces the monetary policy decision and provides the economic context that motivated the decision. The material covered in the press release

has differed over time as economic drivers evolve and to reflect different practices for MPR and non-MPR FADs. Unlike some other central banks, the Bank of Canada does not currently use the same structure and wording in subsequent press releases, but varies the text and order to suit the narrative of each decision. This means that methods used by Bank-watchers to identify specific words or phrases that have changed since the previous press release, or algorithms to infer tone and intent through keyword analysis, are not effective for parsing a press release on a Bank of Canada rate decision.

By its very nature, the monetary policy decision depends on economic data and the Bank's economic projections. Central bank transparency about the models used to assess the economic outlook, including about the way the policy rate typically responds to economic conditions, allows the public to anticipate how the central bank may react to new information. Of course, in recognition of various sources of uncertainty, neither the public nor the central bank will be able to predict with certainty the timing and nature of any future policy decision.

The relationship between economic data and the central bank's policy stance became less clear during the extended period of economic weakness and persistently low inflation that followed the global economic and financial crisis of 2007–09.⁷ Globally, policy rate settings in advanced economies remained very low and changed infrequently. Unconventional monetary policy tools were undertaken in several advanced economies for the first time. These tools were new and unfamiliar, and market participants became more reliant on central bank communications to convey whether or when a policy stance might be changing. Some of this reliance was a natural by-product of explicit forward guidance or a commitment to a rate path by some central banks, an unconventional policy tool in and of itself.

When central banks make explicit forward-looking statements, market participants devote more attention to these statements and therefore put less weight on macroeconomic data releases or the central bank's own views of the economic outlook, except in so far as they relate to the central bank's guidance. This is not surprising since the goal of these statements is that market participants rely on them. Evidence suggests, however, that they do not improve market understanding of central banks. Fay and Gravelle (2010), writing about the Bank of Canada's experience with a conditional commitment during the financial crisis, find "some indication that the inclusion of policy rate guidance...may not yet have yielded an improvement in market participants' understanding of what key economic information goes into the Bank of Canada's interest rate decisions. Indeed, our study suggests that forward-looking statements—even though they have been designed to be conditional—have made the Bank's decisions on the policy rate more predictable but have not necessarily enhanced the markets' understanding of the Bank's monetary policy reaction function." In effect, the content of the forward-looking statement becomes, temporarily, the reaction function.

During the financial crisis, when the setting for the policy rate reached what was estimated to be the effective lower bound at the time, monetary policy options in Canada were expanded to include

⁷ Implicitly, if interest rates were not bounded from below, historical relationships between economic conditions and policy rates may have continued to hold. However, the inability to lower rates shifted the relationship to one between economic conditions and unconventional monetary policy settings.

unconventional tools (Annex, April 2009 MPR; updated in Bank of Canada 2015). One of these tools provides additional stimulus through explicit forward guidance that it would keep policy rates low for a longer period than previously expected by the market. The accompanying downward shift in market expectations would be expected to lower bond yields throughout the term structure and thus add additional monetary stimulus to the economy without a corresponding change in the actual stance of monetary policy.⁸ Such a policy was introduced in April 2009, when the Bank announced a conditional commitment on the future path of the policy rate. Three notable features of this commitment were the time-dependence of the effective lower bound episode, the conditionality on the outlook for inflation, and assurance that guidance on the future path would be provided while the overnight rate was at its effective lower bound:

With monetary policy now operating at the effective lower bound for the overnight policy rate, it is appropriate to provide more explicit guidance than is usual regarding its future path so as to influence rates at longer maturities. Conditional on the outlook for inflation, the target overnight rate can be expected to remain at its current level until the end of the second quarter of 2010 in order to achieve the inflation target. The Bank will continue to provide such guidance in its scheduled interest rate announcements as long as the overnight rate is at the effective lower bound. (April 21, 2009)

In this context, forward guidance was used not simply as a communication tool, but as a tool to adjust the monetary policy stance. With improvements in economic conditions, the conditional commitment was removed earlier than initially communicated. The exceptionality of this guidance was reinforced when time-dependent forward guidance was replaced by language linking future policy actions to the outlook for economic activity and inflation:

In response to the sharp, synchronous global recession, the Bank lowered its target rate rapidly over the course of 2008 and early 2009 to its lowest possible level. With its conditional commitment introduced in April 2009, the Bank also provided exceptional guidance on the likely path of its target rate. This unconventional policy provided considerable additional stimulus during a period of very weak economic conditions and major downside risks to the global and Canadian economies. With recent improvements in the economic outlook, the need for such extraordinary policy is now passing, and it is appropriate to begin to lessen the degree of monetary stimulus. The extent and timing will depend on the outlook for economic activity and inflation, and will be consistent with achieving the 2 per cent inflation target. (April 20, 2010)

After the end of the conditional commitment in Canada, language in press releases at times provided information on how future policy rates might respond to economic developments, seeking to improve

⁸ There is an upward skew to expectations of the future policy rate because when the policy rate is at its lower bound, no additional reductions are possible. Thus, the only differences in opinion are on the timing of the next increase. If the Bank has strong confidence that market expectations indicate a tightening sooner than it will happen, a conditional commitment to keep rates low can contribute to bringing market expectations down to be more consistent with GC's anticipation of the likely policy path. This tightening of the distribution of market expectations on the effective lower bound will contribute to lowering the yield curve.

financial market appreciation of the links between the expected evolution of the economy and policy rate settings. These statements of forward policy inclination were distinct from the use of an explicit conditional commitment, however, since there was no commitment to respond, or not respond, to specific economic outcomes. The language was not intended to give specific guidance but rather to indicate a directional sense of policy moves at some point in the future:

As long as there is significant slack in the Canadian economy, the inflation outlook remains muted, and imbalances in the household sector continue to evolve constructively, the considerable monetary policy stimulus currently in place will remain appropriate. Over time, as the normalization of these conditions unfolds, a gradual normalization of policy interest rates can also be expected, consistent with achieving the 2 per cent inflation target. (July 17, 2013)

Recently, the Bank of Canada has used language related to “data dependence” to reinforce that its evaluation of economic conditions and associated policy responses is returning to something more in line with those in the pre-crisis period, that policy decisions are not predetermined, and that markets should rely more on their own assessment of the data and their understanding of the Bank’s reaction function:

Future monetary policy decisions are not predetermined and will be guided by incoming economic data and financial market developments as they inform the outlook for inflation. Particular focus will be given to the evolution of the economy’s potential, and to labour market conditions. Furthermore, given elevated household indebtedness, close attention will be paid to the sensitivity of the economy to higher interest rates. (September 6, 2017)

Future adjustments to the target for the overnight rate will be guided by incoming data as they inform the Bank’s inflation outlook, keeping in mind continued uncertainty and financial system vulnerabilities. (July 12, 2017)

Emphasis on data dependence is partly to remind markets that decisions are made based on an analysis of the economic fundamentals and that, as noted earlier, uncertainty about the inputs to an economic projection contributes to uncertainty in all aspects of the projection itself, including the future policy path. Several possible paths for the policy interest rate could usually provide reasonable confidence that the inflation target will be achieved over an acceptable time frame. In some situations, when warranted by economic conditions, the Bank has provided information with respect to expectations of the direction and rough timing of rate moves, without actually saying what the next move will be. For example, in its rate decision in October 2017, the Bank indicated the expected direction of future policy rate moves but not their timing or magnitude:

While less monetary policy stimulus will likely be required over time, Governing Council will be cautious in making future adjustments to the policy rate. In particular, the Bank will be guided by incoming data to assess the sensitivity of the economy to interest rates, the evolution of economic capacity, and the dynamics of both wage growth and inflation. (October 25, 2017)

In summary, an important lesson to be taken from the experience of monetary policy during and since the financial crisis is that the policy rate is not always sufficient to characterize the stance of monetary policy. When unconventional monetary policies are also used, the relationship between economic conditions and the policy rate becomes less clear. Prolonged periods with few policy rate changes contribute further to uncertainty about the reaction function. In this context, a move back to traditional monetary policy, when the policy *rate* characterizes the policy *stance*, requires re-establishing a link between the policy rate and economic conditions. This transition may be complicated by structural change or other developments that may alter the relationship between interest rates and economic activity. Transparency on the motivations for policy decisions helps to clarify the reaction function.

The benchmark for policy discussions differs for MPR and non-MPR FADs because new economic projections are not generally produced for non-MPR FADs. This difference is reflected in the overview of economic conditions in MPR and non-MPR press releases. In recent years, the press release on FADs with MPRs has focused on aspects of the economic outlook detailed in the accompanying MPR that were important for GC in coming to a decision. In contrast, for the four other FADs, the economic content tends to refer to the MPR from the previous FAD—new information is usually summarized with an indication of the extent to which it is stronger or weaker than had been expected in the previous MPR. These informational surprises indicate primarily data and shock uncertainty.

While these differences across press releases have a seasonal regularity, the content and language have evolved in other ways. This evolution has occurred in response to the Bank's analysis of communication challenges and best practices, and also in response to feedback from audiences. An important change in communications strategy occurred in 2014, between the September and October FADs. Before October 2014, it was more common for the language in the press release, and especially the final paragraph describing the motivation for the decision, to evolve slowly from one press release to another. The final paragraphs of the press releases issued on July 17, 2013, and on September 4, 2013, were identical:

Against this backdrop, the Bank has decided to maintain the target for the overnight rate at 1 per cent. As long as there is significant slack in the Canadian economy, the inflation outlook remains muted, and imbalances in the household sector continue to evolve constructively, the considerable monetary policy stimulus currently in place will remain appropriate. Over time, as the normalization of these conditions unfolds, a gradual normalization of policy interest rates can also be expected, consistent with achieving the 2 per cent inflation target.

The final paragraph of the subsequent press release issued on October 23, 2013, was completely different, partly reflecting a new strategy of starting each press release from a blank page:

Although the Bank considers the risks around its projected inflation path to be balanced, the fact that inflation has been persistently below target means that downside risks to inflation assume increasing importance. However, the Bank must also take into consideration the risk of exacerbating already-elevated household imbalances. Weighing these considerations, the Bank judges that the substantial monetary policy stimulus currently in place remains appropriate and therefore has decided to maintain the target for the overnight rate at 1 per cent.

This change reflected a perception that markets were becoming more sensitive to wording changes from one press release to the next than was intended. At the same time, information on the Governing Council's assessment of risks was introduced into the press release, partly to emphasize that the conduct of monetary policy is not a simple optimal control problem, but better seen as an exercise in risk management (Poloz 2014).

The inherent uncertainty associated with inputs to the projection process—data, shocks and models—implies that economic projections are also subject to considerable uncertainty. In this context, the projection in the MPR is usually constructed to balance “forecast risks” in the sense that the upside and downside implications of uncertainty on the inflation projection are roughly balanced.⁹ In the press release excerpt above, this projection outcome is characterized as “the Bank considers the risks around its projected inflation path to be balanced.”

Even when risks to inflation are roughly balanced, risks to policy may be skewed. For example, if inflation at the start of the projection is close to the lower bound of the inflation-control range of 1 to 3 per cent, then policy risks may be skewed because policy-makers may be less likely to respond to a positive shock that leads to higher inflation than to a similar-sized shock that leads to lower inflation. This potential asymmetry in the response of policy is because, in this example, the risk of inflation falling outside the range is greater with a negative shock. In the above excerpt, the indication of a potential asymmetry to the downside in the risks to the policy rate associated with low inflation is signalled by the statement, “the fact that inflation has been persistently below target means that downside risks to inflation assume increasing importance.”

Another factor that weighed on policy risks at that time was associated with elevated levels of household debt. In general, many possible paths for the policy interest rate could provide reasonable confidence that the inflation target will be achieved over an acceptable time frame, although each path may have different implications for other aspects of the economic and financial environment (Bank of Canada 2016). In the above excerpt, the statement, “the Bank must also take into consideration the risk of exacerbating already-elevated household imbalances” suggests a factor that, all else being equal, could imply a potential asymmetry to the upside in the risks to the policy rate.

Finally, the decision on the policy stance reflects the outcome of managing the upside and downside policy risks: “Weighing these considerations, the Bank judges that the substantial monetary policy stimulus currently in place remains appropriate.”

The significance of the imprecise relationship between the Bank's assessment of the risks to the inflation outlook and its assessment of policy risks is illustrated in the press release on September 7, 2016. Being a non-MPR FAD, the press release was interpreting new economic data relative to what had been anticipated in the July MPR. The latest global and domestic data indicated a strong likelihood that the projection in October would be revised down relative to the projection in the July MPR. Aiming to be

⁹ Economic projections are usually described in terms of point estimates that may represent the mean, median or modal projection from a model, taking published data and point estimates of model parameters as a given, and based on estimates of the persistence of recent shocks.

transparent on this likely outcome, the press release noted that “risks to the profile for inflation [had] tilted somewhat to the downside since July.” This was not intended to signal there was an increased probability that the policy rate would be lowered at the next meeting, although it was interpreted that way by some market participants.

There is therefore a risk in communicating changes in the risks to inflation in a document intended to convey the policy stance. In principle, a likely downward revision to the projection for inflation need not imply a higher probability of an easing of policy at the next FAD. Even with a downward revision to the inflation profile, the level of the policy rate may still have been consistent with achieving the inflation target over an acceptable time frame. Alternatively, the new information could lead the Bank to anticipate a possible extension of the period before the policy rate would return to neutral. In practice, however, statements about the balance of risks to inflation were easily interpreted as relating directly to the perceived balance of risks around the policy rate.

Nevertheless, while the downside tilt to the inflation risks may have suggested an asymmetry to the downside in the risks to the policy rate, the statement “financial vulnerabilities associated with household imbalances remain elevated and continue to rise” indicated an asymmetry to the upside in policy risks. Overall, these risks were considered sufficiently balanced: “The Bank’s Governing Council judges that the overall balance of risks remains within the zone for which the current stance of monetary policy is appropriate.”

The Bank recognized that discussing both forecast and policy risks in a short document directly relating to policy decisions could create misunderstanding about its intended message. The Bank is now more explicit in discussing risks in the context of its rate decision. Risks to the inflation outlook are described in detail in MPRs, and broader risks that may have influenced policy deliberations are addressed, if necessary, in the opening statement at the press conference following FADs with MPRs.

The Monetary Policy Report (MPR)

The MPR provides the most detailed real-time accounting of the main sources of risk and uncertainty that are influencing the policy discussions of the GC. The Bank started publishing the MPR in May 1995, but the timing, frequency and content of the MPR has evolved.¹⁰ While the main content of the MPR is a review of recent economic developments and a presentation the economic outlook, several features facilitate discussions of uncertainty. First, the MPR routinely discusses the assumptions underlying the economic projection. Deviations from these assumptions are one source of uncertainty to the

¹⁰ Originally, the MPR was published semi-annually, in May and November. Starting in 2000, the frequency of publication was increased to four times a year. Compared with MPRs published in May and November, the new additions, published in February and August, were more abbreviated and referred to as “Updates.” In November 2000, the Bank introduced a system of eight fixed dates each year on which it announces whether it will change the policy interest rate. Subsequently, starting in 2002, the timing of publication was pulled forward so that the MPRs and MPR Updates were published within a couple of weeks of the FADs in January, April, July and October. Subsequent changes to the timing of the publication pulled forward the publication to two days after the January, April, July and October FADs and then moved the publication timing to be synchronous with the FAD decisions. Another change was converting the two updates to full MPRs in 2009.

projection. Second, the MPR includes a discussion of risks to the outlook, which cover how some sources of uncertainty may affect the projection. Third, boxes in the MPR provide additional details on background analysis. While it may not be possible to estimate the size of the effects on the economy, boxes stylistically describe the channels through which a specific example of Knightian uncertainty might affect the economy.

In April 2009, the profile of economic uncertainty was raised when related discussions were moved from a subsection of “The Outlook” section to its own section, “Risks to the Outlook.” The next major innovation to the discussion of risks occurred with the October 2016 MPR when the Risks section was updated to provide more information on developments related to risks—both what had happened since the previous MPR and what was going to be monitored in the near term. This new content helps clarify the Bank’s assessment of when a risk may be receding and will likely be dropped in a future MPR; when a risk may become more important because aspects of it may be materializing, leading to a revision to the economic projection; or when the nature of a risk may be changing, for example, from being one- to two-sided.

The section “Risks to the (Inflation) Outlook” is the primary source of information on what the Bank sees as major sources of uncertainty and how they may affect the projection. Upside and downside risks to the inflation outlook discussed in MPRs mostly indicate measurement, shock or model uncertainty. For example, risks to the inflation outlook often note possible outcomes that may differ from assumptions underlying the projection (measurement uncertainty),¹¹ the implications for the projection if the evolution of future shocks were to differ from the expectation built into the projection,¹² and the possible outcomes that could result if the strength of the relationship between economic variables were to differ from that used in generating the projection (model parameter uncertainty).

The MPR has also used fan charts and uncertainty bands based on private sector forecast dispersion to provide information about uncertainty surrounding the inflation projection. The fan charts were introduced in the April 2009 MPR to reinforce the inherent uncertainty in economic projections. The ranges around the inflation projection in the fan charts are based on historical projection errors and reflect measurement, shock and model parameter uncertainty. In most cases, the uncertainty bands are symmetric around the inflation projection and the width of the uncertainty bands has been relatively constant (because the average behaviour of historical projection errors changes very slowly over time). The fan charts were asymmetric when they were first introduced because the policy interest rate was

¹¹ One example of measurement uncertainty that is regularly addressed in the MPR is associated with potential output. Bank estimates of the level and growth rate of potential output are subject to considerable uncertainty and their treatment in the MPR has evolved to emphasize this feature. The MPR provides ranges of estimates of each, as well as the values within the ranges on which the economic projection is conditioned. Transparency has also increased in recent years with the MPR now describing the drivers of the change in the output gap at the start of the projection from one MPR to the next. MPRs provide a breakdown of how much is due to the latest National Accounts data, including revisions to historical data and to estimates of the level of potential output.

¹² Economic models are simplifications of reality designed to help explain economic variation and inter-relationships between economic variables. By construction, they are approximations with deviations of actual data from model predictions defining economic shocks. When using a model to generate a projection, it becomes necessary to make assumptions about the future outcomes of shocks.

set equal to what was perceived at the time to be its effective lower bound and additional ease would have required the use of unconventional monetary policies (*Monetary Policy Report*, April 2009).

While measurement, shock and model parameter uncertainty are often considered within the context of a single model, the model used may also be missing relevant details for making monetary policy decisions—model specification uncertainty. For example, one ongoing modelling challenge has been the specification of equations that capture the behaviour driving international trade, particularly exports. Since the global financial crisis, the projection for exports has frequently been overly optimistic relative to what was ultimately observed. For this reason, exports have regularly been a focus of supplemental analysis—the Bank has used new approaches to analyze export developments and the drivers and impediments to export growth, updated export equations in its two main macroeconomic models (ToTEM and LENS), and developed additional models for exports to inform the export projection (e.g., GRACE). The Bank has been transparent regarding this process, at times summarizing new analysis in MPR boxes, publishing related analysis in staff analytical notes and staff discussion papers, and providing references to these documents in MPRs.¹³

Knightian uncertainty is treated differently from other types of uncertainty since it cannot be quantified. When a source of Knightian uncertainty arises, the Bank must decide how to handle it within the base-case scenario and explain how (or whether) it has taken this uncertainty into account. The Bank can attempt to quantify a part of the uncertainty, assume the status quo or a discounted worst-case scenario, or make some other assumption about its effects. Economic projections that are subject to Knightian uncertainty are usually conditioned on an assumption. The November 2001 MPR described the reason why this approach was taken in the aftermath of the September 11, 2001, terrorist attacks in the United States, as well as the assumptions made:

While the terrorist actions have accentuated the slowing in global activity in the very near term, it is very difficult to assess how long-lasting the negative effects will be. This uncertainty is critical to the assessment of the economic outlook. The performance of the global economy will depend importantly on geopolitical developments and on the effects that the attacks have on confidence. Economic forecasts in this environment are subject to a much higher degree of uncertainty than usual. Rather than presenting a conventional forecast in these circumstances, we will present the Bank's working assumptions and the economic scenario that they generate. These assumptions will be updated as new information becomes available. The Bank's two working assumptions are: no further major escalation of terrorism; consumer and business confidence recover to normal levels in the second half of 2002.

Beyond the assumptions underlying the projections, deviations from the assumption may or may not be included among the risks to the inflation projection, depending on the nature of the specific source of uncertainty (**Table 1**).

¹³ For example, in the case of exports, published staff analysis includes Binette, de Munnik and Gouin-Bonenfant (2014); Binette, de Munnik and Melanson (2015); Binette, Chernis and de Munnik (2017); and Alexander, Cayen and Proulx (2017).

Table 1: Selected examples of uncertainty in the *Monetary Policy Report*

MPR	Uncertainty source	Assumptions	Treatment in balance of risks to inflation
November 2001	2001 terrorist attacks in the United States	No further major escalation of terrorism; consumer and business confidence to/will/would recover to normal levels in the second half of 2002	Not included
July 2012	European debt crisis	The European debt crisis would be contained	Downside risk to inflation
July 2012	US fiscal cliff	US fiscal drag would be smoother than associated with current fiscal legislation	Downside risk to inflation
January 2016	Canadian fiscal policy following the 2015 election	Base-case projection is consistent with fiscal policy announcements...up to January 2016	Expected but unannounced additional stimulus not included
July 2016	Brexit vote in the United Kingdom	Foreseeable consequences are incorporated into the Bank's base-case projection; wider ramifications not included	Not included
2017	US fiscal policy	January: the base-case projection for the US economy embeds an element of fiscal expansion April: fiscal stimulus assumed to begin somewhat later July: fiscal stimulus assumed in the January and April forecasts was removed	Not included directly, although stronger US growth an upside risk
2017	US trade policy	January: prospective protectionist trade measures in the United States not included in the base case April: some of the adverse impact of the elevated uncertainty on business investment and exports incorporated into the base case July: as in April	Downside risk to inflation associated with global protectionism

Following the federal election in the autumn of 2015 it was clear that fiscal policy in the projection would differ from existing legislation. While there had been announcements of fiscal stimulus, additional stimulus was expected. The projection in the January 2016 MPR was conditional on an assumption about fiscal policy that excluded unannounced but expected measures. Excluded measures were seen to be a positive risk to the outlook but were not included when assessing the balance of risks to the inflation projection:

Anticipated fiscal measures are not incorporated into the Bank's projection. The Bank's base-case projection is consistent with fiscal policy announcements made by federal and provincial

governments up to January 2016. Recent public statements by senior government officials indicate that the upcoming federal budget will include additional fiscal stimulus. This stimulus will boost domestic demand relative to that in the base-case projection, pulling forward the closing of the output gap. The size and timing of the effects, however, will depend on the details of the measures. When more details become available, the Bank will assess the impact of the fiscal package on the outlook for growth.

The potential for large changes to fiscal and trade policy following the November 2016 election in the United States has been a source of considerable uncertainty to the outlook for Canada. Pre-election campaigning spoke of cuts to corporate taxes and large increases in spending on infrastructure. Financial markets incorporated the likelihood of both in their economic forecasts, and asset prices responded strongly. While explicit details were not available, it was determined in January 2017 that an assumption deviating from current US legislation was needed to generate a projection that was reasonably consistent with market expectations and other indicators. While consistency with market expectations is not generally imposed on Bank projections, the implications of anticipated policy changes had generated large market responses and improvements in sentiment indicators that would have been difficult to reconcile with a projection that excluded any changes. However, by July 2017, the prospects of expansionary US fiscal policy had become less clear, given delays in decision-making processes. Consequently, the fiscal stimulus assumed in the January and April forecasts was removed.

In contrast, recognizing the considerable uncertainty regarding the nature and likely extended timeline for any changes to trade agreements, the January 2017 projection was based on a status quo assumption regarding trade legislation. Since it was impossible to provide estimates of the impact of tightened trade policies without having details on specific changes, to be transparent about how the Bank was thinking about trade protectionism, the April MPR included a box discussing stylized implications of a rise in trade protectionism. The Bank also made clear that independent of actual changes to trade policy, uncertainty about possible changes could still affect current business decisions, and such effects were embedded into the economic projection.

Press conference opening statements

Opening statements during the MPR press conference have evolved into an important policy communications tool. For rate decisions that are accompanied by an MPR, the Bank holds a media lock-up and technical briefing followed by a press conference by the Governor and Senior Deputy Governor. On those occasions, the press conference begins with an opening statement. Like many of the Bank's communications tools, the opening statement has evolved over the years. Before July 2015, the opening statement essentially repeated the rate decision press release, with a brief mention of the risks to the outlook. It conveyed little new information, but set the stage for the ensuing question period at the press conference and provided broadcast media with footage of the Governor reading the key messages of the decision.

Beginning in July 2015, the Bank began to use the opening statement to explain areas of in-depth discussion by GC during the deliberation process. While less comprehensive than minutes of policy

deliberations that are provided by other central banks following their rate decisions, the opening statement now serves a similar purpose, in a more concise and arguably more efficient vehicle. The opening statement, usually about 1,000 words long, outlines the key issues that GC wrestled with, how these issues were assessed and the factors that fed into the interest rate decision.

Recognizing that the opening statement explains the key issues that preoccupied GC during its deliberations, financial markets now monitor the opening statement with almost as much attention as they do the rate decision press release issued earlier that morning. Said one influential Bank-watcher: “The governor’s opening statement used to be a rehash of things reporters had already read. Now, Poloz uses the opportunity to give a flavour of the debate that went into the latest interest-rate decision. The statements provide less detail than would an official record of the policy meeting, but they may accomplish the same thing—so long as the governor continues to be forthcoming.”¹⁴

In the two years since the opening statement began to be used as a discussion of the decision process as well as the decision, the increased focus on issues that preoccupied Governing Council is evident in the statement’s language. A content analysis shows the increased use of subjective verbs. Examples include “Governing Council was particularly concerned about...” or “Governing Council felt that...,” “Governing Council expects...,” “judges...,” “focused on...” This shift in language provides a better sense of how GC has grappled with uncertainties during its deliberations.

The opening statement is particularly forthright about uncertainties clouding the outlook and the extent to which GC takes these uncertainties into account in its deliberations. For example, in October 2015 the Governor noted the larger-than-normal amount of downside risks facing emerging-market economies, particularly in the context of normalization of US monetary policy. However, he also noted that some of these economies have become more resilient through structural changes, stronger fiscal positions and more flexible exchange rates. “Given these factors, if uncertainty fades about the prospects for China and other emerging markets, there is some upside risk to our commodity price assumptions, with implications for Canada,” he said.

In other cases, the opening statement has been used to signal markets when the Bank considers uncertainty to be particularly high. In April 2016, Governor Poloz warned that the structural adjustment under way in Canada’s economy “translates into increased uncertainty around the size of the output gap and the speed at which it will close, and therefore the point at which the disinflationary pressures we see today will dissipate.”

Perhaps the most explicit discussion of uncertainty in an opening statement to date can be found in the one that opened the April 12, 2017, press conference. In it, Senior Deputy Governor Carolyn Wilkins discussed at length how heightened levels of uncertainty, particularly about US tax and trade policies, influence the Bank’s outlook. The statement explains in detail how the Bank incorporated these and other uncertainties into its projections and, ultimately, Governing Council’s decision to maintain the target for the overnight rate at 1/2 per cent. A key source of uncertainty at that time was the range of potential changes to US trade policy under consideration: “We do not know which of these will be

¹⁴ K. Carmichael, “The Bank of Canada is changing how it talks to Bay Street,” *Canadian Business*, June 16, 2016.

enacted; their timing is uncertain; and each would affect the global economy and Canada through a different, complex set of channels... Although it is fair to say that the possible outcomes are almost certainly negative for Canada, we cannot reliably model them at this stage. Instead, we have incorporated an extra degree of caution into our forecast for exports relative to our January forecast, including the potential implications of the softwood lumber dispute.”

Post-MPR briefings

Following each MPR, members of Governing Council and other senior officers provide briefings in regions of Canada and the main two global financial centres. There are briefings in Ottawa, Toronto and Montréal after each MPR release. In addition, there are also semi-annual briefings in Vancouver, Calgary, Quebec City, New York City and London after each April and October MPR, as well as occasional briefings in Edmonton, Winnipeg and Halifax. Audience sizes vary between 10 and 120 people, and the attendees are usually economists, analysts and other market participants, and business leaders. These briefings provide an opportunity for Governing Council to reinforce the key messages from the MPR and provide more in-depth commentary to influential Bank-watchers. They tend to be informal sessions in which those in attendance ask questions, provide their own views on the Bank’s analysis and increase their understanding of the Bank’s outlook.

A 2015 survey of participants at the post-MPR briefings found their main reason for attending was to “learn first-hand about the rationale behind the Bank’s current policy decision” (94 per cent). The sessions met survey participants’ expectations, with most people (80 per cent or more) agreeing or strongly agreeing with such statements as “the session covered the material I expected” and “met my objectives for attending.” A similar majority said they considered attending the sessions to be important and would recommend them to their colleagues. The Bank continues to look for ways to expand and improve this briefing program, guided by feedback from participants.

Speeches

Public speeches are an important channel through which the Bank explains its views on the economy and the implications for monetary policy. While the Bank of Canada does not offer a policy path, speeches can reduce market uncertainty about the path by providing additional insight about the issues on which the Bank is focused and how economic developments are being taken into account. The Bank also uses public speeches to explain how various shocks or trends influencing the Canadian economy could influence policy thinking, thereby helping Bank-watchers better understand the reaction function.

On average, members of GC deliver 18 to 20 public speeches per year. With these speeches, its key publications and press conferences, the Bank aims to provide the right amount of information—not too little that market participants and Bank-watchers are unable to follow the Bank’s evolving views, and not too much that the result is a cacophony of messaging that muddies rather than clarifies the information the market uses to read the Bank.

A public speech has the following characteristics: the text is published on the Bank’s website in both official languages at the time of delivery; the audience tends to be a broad interest group (e.g., a local

board of trade or chamber of commerce); media are permitted to attend; and a media lock-up is held at the Bank's headquarters in Ottawa. The speech itself is webcast live, and all remarks are attributable to the speaker. Upcoming speeches are announced on the Bank's website in its upcoming events listing. The Governor's and Senior Deputy Governor's public speeches are supported with a press release. For the Governor's public speeches, a press conference is typically held afterward.

The Bank's ongoing analysis and description of the economy—and the implications for policy—comprise the principal story that the Bank communicates to the public. While every speech is closely scrutinized for new information that Bank-watchers can use to anticipate policy changes, since mid-2016 the Bank has been scheduling a public speech more regularly between the release of its quarterly MPRs to update the public on its thinking about how the economy is evolving. These regular "progress report" speeches are delivered roughly quarterly, as part of Governing Council's public speaking agenda and are scheduled shortly after the release of the National Accounts. In addition to providing economic updates, the progress reports may update the evolution of risks identified in the MPR. They also tend to delve into a related aspect of the real economy—such as business investment, housing, labour or productivity—and analyze these topics in depth.

Beginning in 2018, progress report speeches will be scheduled to closely follow the FADs that will occur in March, May, September and December, and will be accompanied by a question-and-answer session for media with the GC member delivering the speech. This innovation will allow the Bank to explain more clearly the thinking behind the FAD decisions that are not accompanied by an MPR and press conference.

In 2017, the Bank delivered three progress report speeches: one by Deputy Governor Lawrence Schembri in March, one by Senior Deputy Governor Carolyn Wilkins in June and one by Governor Stephen Poloz in September. Each contained an update to the outlook for the economy and a nod to the issues that were clouding the Bank's outlook. For example, the March speech by Schembri contained the following:

...recent economic data are largely consistent with our outlook of a gradual strengthening in global economic growth. However, uncertainty remains elevated because of prospective policies that put at risk the progress made in recent decades to liberalize trade and foster economic integration. (Schembri 2017)

In Governor Poloz's speech in September 2017, he explained how uncertainty reinforces the need for a central bank to rely on incoming data—tying the concept of uncertainty to data dependence in monetary policy decision making:

The appropriate path for interest rates in this situation is very difficult to know, because there are a number of important unknowns around the inflation outlook. These unknowns are unusual, as they are mostly the product of the unusual nature of the situation we find ourselves in—the legacy of the global financial crisis, the protracted period of slow economic growth and extremely low interest rates, and so on. Accordingly, we need to keep updating our

understanding of the economy in real time. That is why we say that the outlook for inflation, and therefore monetary policy, is particularly data dependent right now.

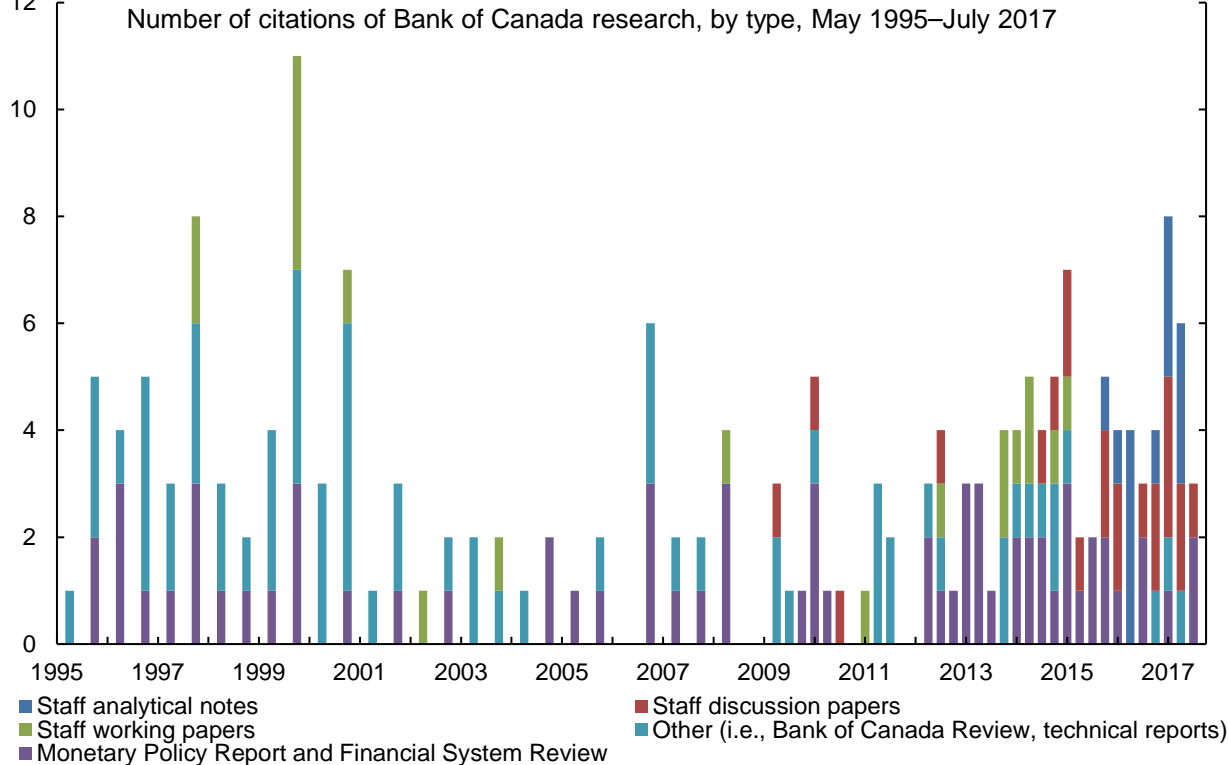
What does it mean, in practical terms, to say that monetary policy is “data dependent”? After all, central banks always depend on data to measure their economy’s progress relative to expectations. What I mean in this context is that in a period of heightened uncertainty about how the economy is evolving and the implications for inflation, we need to pay very close attention to *all* the information we receive, including data, sentiment indicators and intelligence, and make continuous inferences about not just how the economy is evolving, but how its behaviour may be changing. (Poloz 2017)

Publication of staff analysis

Staff analytical notes and **staff discussion papers** are an important means by which staff analysis prepared for Governing Council as background information for the policy rate decision is shared with the public. Staff analytical notes are short articles focusing on topical issues that are usually relevant to the current economic and financial context. Staff discussion papers are completed staff research studies on a wide variety of subjects relevant to central bank policy. MPRs refer to these documents so that interested readers can access more detailed analysis on topics discussed in MPRs. Staff research is produced independently from the Bank’s Governing Council. This research may support or challenge prevailing policy orthodoxy or differ from official Bank views. Therefore, in reading the notes, it is important to keep in mind that the views are those of the authors and that the GC may not agree with all of the authors’ conclusions.

The establishment of the staff analytical notes series in 2015 helped the Bank share more of its background analysis with the public on a timely basis. This was done in response to external interest in the analysis that GC has access to before making a decision. Staff analytical notes also provide useful background on issues discussed in the MPR. Bank transparency has increased, both with improved timeliness of publication of the analysis and with an increase in the amount of background analysis released to the public (**Chart 1**).

Chart 1: Citations of Bank of Canada Research in the *Monetary Policy Report* have increased and diversified



5. Conclusion

This paper has outlined the various ways in which the Bank of Canada explains its economic outlook and monetary policy decisions, with an emphasis on how uncertainty is managed in monetary policy communications. Discussion of uncertainty becomes particularly important at specific times, for example, when a large shock has hit the economy and must be considered in the outlook, or when a central bank’s view or its policy stance is changing.

Communicating uncertainty leads to tension between the need to uphold the central bank’s credibility—its ability to anticipate and influence economic outcomes—and its desire to be open about what it doesn’t know. In its communications, a central bank must strike a balance between these two competing priorities. “Helping people to appreciate the underlying reality and the limitations of our craft without invalidating our core value proposition is a challenging task,” Governor Poloz notes (Poloz 2014). One of the ways the Bank of Canada is achieving this is by pointing to key elements of fundamental uncertainty, analyzing the associated policy risks carefully and openly, and laying out complementary research as it learns more about those risks.

Market views and the views of the central bank will not always be aligned. Indeed, normal market function depends on a variety of views about the economy. The aim of monetary policy communications should not be alignment but understanding—helping markets comprehend the central bank’s policy objectives and providing a coherent rationale for policy decisions.

The Bank continues to seek ways to clarify the uncertainties facing its outlook, their possible impacts, and how they influence policy decisions. This may require additional efforts to communicate the importance of uncertainty, such as publishing more analysis of alternative scenarios to the base-case projections. More broadly, the Bank of Canada continues to seek ways to improve its communications to all audiences. It is providing more of the data behind its research and publications in machine-readable formats via the Bank of Canada website, making it easier for outside researchers to incorporate its work in their own analysis. It is providing more content in digital, shareable formats and broadening its audiences via social media. And, like many other central banks, it is working to simplify all of its communications to be more easily understood by everyone.

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