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TOWARD 2021: REVIEWING THE MONETARY POLICY FRAMEWORK

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Choosing the Best Monetary Policy Framework for Canada

"WHEREAS it is desirable to establish a central bank in Canada to regulate credit and currency in the interests of the economic life of the nation, to control and protect the external value of the national monetary unit and to mitigate by its influence fluctuations in the general level of production, trade, prices, and employment, so far as may be possible within the scope of monetary action, and generally to promote the economic and financial welfare of Canada..."

Preamble, *Bank of Canada Act*

It is a pleasure to speak here at the Max Bell School of Public Policy. As many of you know, Bell was a shrewd business person and media mogul during an era that witnessed the Great Depression, the Second World War and Canada joining the world stage. He was also dedicated to public affairs and the greater good of Canadians.

It is therefore fitting that I am here today to add to a conversation about the best monetary policy framework for Canada. The Bank of Canada opened its doors during Bell's era, in 1935, to support the economic and financial welfare of Canada. What that has meant in practice has naturally changed quite a lot over the years to keep up with a complex and evolving world.[1]

For the last quarter of a century, the Bank's monetary policy framework has been focused on targeting low and stable inflation, in the context of a flexible exchange

[1] See: C. Ragan, "The Evolution of Canadian Monetary Policy: Successful Ideas Through Natural Selection," in *New Directions for Intelligent Government in Canada: Papers in Honour of Ian Stewart* (Ottawa: Centre for the Study of Living Standards, 2011).

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rate. This is not just the Bank's goal, it is shared with the federal government—both acting on behalf of the people of Canada. This is formalized in what is called the inflation-control agreement. It is renewed every five years and has been supported by six prime ministers of different partisan stripes. We are working on the next renewal, set for 2021, with our Finance colleagues.

Having a formal agreement with a democratically elected government supports the credibility of our shared objective. It gives the Bank the independence it needs to pursue that objective. The Bank has used this independence wisely. We have delivered low and stable inflation—pretty darn close to our target of 2 per cent on average over the last 25 years. We have managed to do this even in the face of big economic shocks, such as the run-up of oil prices in the mid-2000s and the plunge four years ago, and the global financial crisis in between.

Yet even a well-functioning monetary policy framework deserves an open-minded discussion, particularly in the post-crisis world we live in. There are a couple of challenges facing our framework that mean it may not serve the economic and financial welfare of Canada in the future as well as it has in the past.

This is important. The objectives that we set and how we go about achieving them have real implications for people in their everyday lives. This could not be more obvious than it is today, as interest rates rise to more normal levels. This is resulting in difficult adjustments in the finances of many. At the same time, the Bank's actions are supporting a stable economic environment for even more households.

My remarks today are intended to spark a good discussion. I will focus on two public policy questions that are shaping our work plan leading up to the 2021 renewal:

1. What alternative frameworks might do a better job than inflation targeting, if any? We know there are contenders, but we have not conducted a full horse race since the 1980s.
2. Regardless of whether we stick with inflation targeting or move to something new, what supporting policies can we bring to the table? We know the Bank of Canada's policy toolkit, along with other public policies, are critical to reinforcing our shared objectives.

Our research work will drill down in these areas, and will be informed by extensive engagement outside the Bank. Our annual economic conference this year, held a couple of weeks ago, was on this subject and yielded a very productive debate. And, our research is being published as we go, so Canadians can follow our progress.[2]

[2] See the Bank's web page devoted to the 2021 renewal cycle, where over the next three years work done under the inflation target renewal (ITR) research program will be posted. See also: information and research on past renewal cycles, a summary of issues and closing remarks from a September 2017 public conference on the ITR that was held at the Bank, and a webcast from the Bank's annual conference that took place earlier this month.

What are the main challenges for inflation targeting?

Let us remind ourselves what we are trying to achieve with our current monetary policy objective of 2 per cent inflation. The most obvious answer is low, stable and predictable inflation. In previous eras, episodes of runaway inflation in this country and others led to major recessions and years of stagnant growth.

Yet pursuing this objective achieves more than just price stability or "a nominal anchor" as economists call it: it steadies the economy at the same time. Stabilizing purchasing power makes it easier to plan personal finances and business investments. It also helps smooth the economic swings that result in job losses and financial stress.

Despite these virtues, there are a couple of challenges linked to how we currently do business that have grown in importance since the crisis. These were front and centre of discussions at our annual conference.

One challenge is that the central bank is more likely to run out of *conventional* firepower in the event of an economic downturn. By that I mean the ability to lower the policy rate.[3] The reason for this is straightforward. Our estimate of the nominal *neutral* rate of interest—where monetary policy is neither stimulative nor restrictive—is currently in the 2 1/2 to 3 1/2 per cent range.[4] This is about 2 percentage points lower than in the early 2000s. Our policy rate cannot be set much below zero, so there is now a lot less room to lower interest rates in response to events that drag the economy down.

Estimates for Canada show that the probability of the Bank facing this challenge is now about 13 per cent, instead of about 3 per cent when the neutral rate was higher.[5] There are *unconventional* policy tools that could be deployed in this situation if needed, although as I will explain later, we still have much to learn about their effectiveness.[6]

A second challenge is that the lower neutral rate may encourage households and investors to take on excessive risk. This leaves the economy exposed to boom-

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[3] Bank of Canada research shows the policy rate could be lowered to -0.5 per cent if warranted, meaning the *effective* lower bound would be below zero. However, we consider a policy rate below zero to be in the unconventional policy space. For more detail, see J. Witmer and J. Yang, "Estimating Canada's Effective Lower Bound," *Bank of Canada Review* (Spring 2016): 3–14.

[4] See X. Chen and J. Dorich, "The Neutral Rate in Canada: 2018 Estimates," Bank of Canada Staff Analytical Note No. 2018-22 (July 2018).

[5] These estimates are based on simulations using the Terms-of-Trade Economic Model (ToTEM), the Bank's main policy model. The simulation results assume an effective lower bound of -0.5 per cent and the same distribution of shocks as observed over the 1995Q1–2015Q4 sample.

[6] See *Framework for Conducting Monetary Policy at Low Interest Rates* (Ottawa: Bank of Canada, December 2015) and S. S. Poloz, "Prudent Preparation: The Evolution of Unconventional Monetary Policies" (remarks to the Empire Club of Canada, Toronto, Ontario, December 8, 2015).

bust financial cycles.[7] It is a difficult problem, since monetary policy is ill-suited to dealing with this. I will speak later about other tools that can be more effective.

My bottom line here is that although our inflation-targeting framework has served us very well, we should look for ways to improve it.

What might do a better job?

This leads me to my first question: what other framework might do a better job? The Bank of Canada is not alone in this line of inquiry. In fact, many influential economists have urged us and other central banks to consider alternatives. There are many out there, but the most popular ideas these days are (i) raising the inflation target, (ii) targeting a *path* for prices or nominal income, or (iii) adding full employment to our objectives.[8]

The Bank considered many of these alternatives as part of past renewal processes. Yet we have not conducted a thorough side-by-side review of the main options since the original agreement was struck in 1991.

It is time that we do so. We need to be as clear as possible about the criteria we will apply in our assessment. My list of the most critical considerations in the post-crisis era are:

First, the framework needs to focus only on objectives that monetary policy can actually achieve. In the long run, monetary policy can only affect prices—this is what economists refer to as the long-run neutrality of monetary policy. What this implies is that monetary policy ultimately cannot resolve underlying, *structural* issues, such as long-term competitiveness or the quality of jobs. It must therefore focus on shorter-term stabilization objectives that help address *cyclical* issues affecting the economy. In other words, objectives that smooth the business cycle. These need to be clear and measurable, so that the public can plan accordingly and the central bank can be held accountable. A case in point: the clarity and simplicity of our inflation-targeting mandate has underpinned its success.

Second, the framework needs to support the well-being of Canadians—what I like to call the greater good. This requires looking at more than how well a

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[7] R. Rajan, "Why We Should Exit Ultra-Low Rates: A Guest Post by Raghuram Rajan," *New York Times*, Freakonomics blog (August 25, 2010); T. Adrian and H. S. Shin, "Money, Liquidity, and Monetary Policy," Federal Reserve Bank of New York Staff Report No. 360 (January 2009); C. Borio and H. Zhu, "Capital Regulation, Risk-Taking and Monetary Policy: A Missing Link in the Transmission Mechanism?" Bank for International Settlements Working Paper No. 268 (December 2008); C. A. Wilkins, "(S)low for Long and Financial Stability" (Official Monetary and Financial Institutions Forum City Lecture, London, United Kingdom, September 14, 2016).

[8] A coalition of more than 60 Canadian economists signed a letter in May urging Finance Minister Bill Morneau to expand the Bank's mandate to take goals such as "full employment" explicitly into account. In the United States, leading scholars and policy-makers including Christina Romer, David Romer, Lawrence Summers, Ben Bernanke, John Williams and Lael Brainard have urged the US Federal Reserve to consider price-level or nominal gross domestic product targeting.

monetary policy framework performs in terms of aggregate or "macro" outcomes, although this is still central to success. Different monetary policy frameworks can have different implications for other factors that matter to welfare such as financial stability, as well as the distribution of income and wealth. To be clear, I am not saying that the goals of monetary policy should be to target these factors, or that it is easy to measure them. Rather, I am suggesting that we consider them as best we can in the design of the framework.

Third, the framework should serve Canadians well in both good times and bad. This requires a set of bedrock objectives that apply in all circumstances.[9] The framework needs an effective and credible set of policy tools at the ready to achieve these objectives in both normal times and exceptional circumstances. It also, ideally, rests on a foundation where other policies that affect economic and financial stability complement monetary policy objectives.

Let me now turn to some of the main alternatives to our current framework and give you a tour of what we know about them already, and highlight some of the outstanding questions. Some of the options are like home renovations, work that improves the existing framework. Others are more like buying a completely new house. Those who look at the written version of my remarks will notice more footnotes than usual—a testament to the depth of good work in this area.

What about renovating the current framework?

For over two decades, Canada's monetary policy framework has centred on an inflation target of 2 per cent—within a control band of 1 to 3 per cent—and a floating exchange rate.[10] The control band is there because inflation fluctuates in response to temporary factors, such as changes in gasoline prices, that don't warrant a monetary policy response. It also allows the Bank to be flexible in how aggressively we pursue the target. The Bank chooses the pace of interest rate moves in a way that limits swings in aggregate income, while still achieving the target within a reasonable timeframe. We might also adjust the pace to limit the buildup of financial vulnerabilities.[11]

Some economists have suggested that we could address the issue of limited firepower by raising the level of the inflation target to, say, 3 or 4 per cent.[12] They argue that a higher inflation target would restore some conventional policy room

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[9] See M. Carney, "A Monetary Policy Framework for All Seasons" (speech to the U.S. Monetary Policy Forum, New York, New York, February 24, 2012).

[10] See "Why Has Canada's Inflation Target Been Set at 2 Per Cent?" Bank of Canada backgrounder, May 29, 2012.

[11] See "The Bank's Risk-Management Approach to Monetary Policy," Bank of Canada *Renewal of the Inflation-Control Target: Background Information—October 2016*.

[12] See O. Blanchard, G. Dell'Ariccia and P. Mauro, "Rethinking Macroeconomic Policy," *Journal of Money, Credit and Banking* 42, no. 1 (2010): 199–215; L. M. Ball, "The Case for a Long-Run Inflation Target of Four Percent," International Monetary Fund Working Paper No. 14–92 (June 2014); and J. C. Williams, "Heeding Daedalus: Optimal Inflation and the Zero Lower Bound," *Brookings Papers on Economic Activity Fall 2009*, no. 2: 1–37.

to manoeuvre, by allowing for a higher average nominal interest rate over time. This approach would be more like a simple home renovation to make the framework more effective in bad times.

Bank researchers examined this option during the last renewal cycle that was completed in 2016. They found that higher inflation would be felt by everyone, and most acutely by people living on fixed or lower incomes.[13] Moreover, we were concerned that the Bank's credibility would be undermined if people thought it was a slippery slope to even higher targets down the road. That seemed like a steep price to pay for some insurance against bad times. Instead, we thought that a credible set of unconventional policy tools could greatly reduce the need for this type of insurance.[14]

Would more commitment to the level of prices help?

Now, a bigger innovation to the policy framework would be to set a target path for the level of aggregate prices, rather than an inflation rate. This is akin to buying a new house, but in the same neighbourhood.

For example, the central bank could commit to keeping the level of aggregate prices on a steady growth path—say, 2 per cent a year. A way to implement this would be to target an average inflation rate over the medium term.[15] This type of framework depends on history; target misses are not treated as bygones, unlike under the current inflation-targeting regime. That means if inflation were to undershoot 2 per cent, the central bank would be committed to making up for it with higher inflation in later years. The opposite would be true with overshoots.

The Bank studied variants of price-level targeting (PLT) extensively leading up to the renewal in 2011.[16] This type of history-dependent framework could, in theory, make monetary policy more effective, by reducing the frequency of encounters with the lower bound for interest rates. And it would also make it easier to get up from that level. Moreover, since lower- and middle-income households hold more

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[13] People in low-income households, especially the elderly, are more vulnerable to higher inflation since they tend to rely more on nominal liquid assets like cash for transactions, which lose purchasing power when inflation is high. See S. Cao, C. Meh, J.-V. Ríos-Rull and Y. Terajima, "The Welfare Cost of Inflation Revisited: The Role of Financial Innovation and Household Heterogeneity," Bank of Canada Staff Working Paper No. 2018-40 (August 2018).

[14] See J. Dorich, N. Labelle St-Pierre, V. Lepetyuk and R. Mendes, "Could a Higher Inflation Target Enhance Macroeconomic Stability?" *Canadian Journal of Economics* 51, no.3 (July 2018): 1029–1055.

[15] M. Nessén and D. Vestin, "Average Inflation Targeting," *Journal of Money, Credit and Banking* 37, no. 5: 837–863; W. C. Dudley, "Important Choices for the Federal Reserve in the Years Ahead" (speech at Lehman College, Bronx, New York City, April 18, 2018); "Rethinking the Fed's 2 Percent Inflation Target: A Report from the Hutchins Center on Fiscal & Monetary Policy at Brookings with Contributions from Lawrence H. Summers, David Wessel, and John David Murray," The Brookings Institution (June 2018).

[16] See "Price-Level Targeting," Bank of Canada *Renewal of the Inflation-Control Target: Background Information—November 2011*.

long-term debt, such as mortgages, this type of framework could benefit them the most because it would provide greater certainty about the real value of their future debt payments.[17]

These benefits could only be realized if the regime were understood and credible. In practice, people may not fully grasp how PLT works. And, promising to make up for past errors is like saying "the cheque is in the mail." It would take time to establish trust in our commitment.[18] Our researchers studied how people would respond to PLT, in a laboratory-type setting right here in Montréal. They concluded that participants found the idea too difficult to understand.[19]

Despite our earlier assessments, a question that we should pursue further is whether the current low neutral rate environment changes the calculus on PLT or average inflation targeting.

What about extending the objectives beyond prices?

There are other frameworks that are also like buying a new house, but in the next town over. These include extending the Bank's objectives beyond stabilizing only prices to add, say, employment or nominal income.

Variants of these options were considered thoroughly in the 1980s before we finally settled on inflation targeting in 1991. The Bank thought at the time that inflation targeting alone would achieve similar outcomes to targeting stability of both prices and output. This is like getting "two for one" and is now known as the "divine coincidence." The Bank also judged that the added complexity was not worth the risk that comes with getting into territory better left to elected officials.

As it turns out, central banks that operate under a *flexible* inflation-targeting regime already consider a range of labour-market indicators and other economic activity measures when setting policy. These contain valuable information about the future path of inflation, in keeping with the divine coincidence. When a trade-off between stabilizing inflation and real activity does arise, we consider both. In this way, we already have something in common with dual-mandate central banks, such as the US Federal Reserve and the Reserve Bank of New Zealand.

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[17] C. Meh, J.-V. Ríos-Rull and Y. Terajima. "Aggregate and Welfare Effects of Redistribution of Wealth under Inflation and Price-Level Targeting," *Journal of Monetary Economics* 57, no. 6 (2010): 637–652.

[18] Research shows that benefits are eroded if people use rules of thumbs to form expectations (*Renewal of the Inflation-Control Target: Background Information—November 2011*), or if they doubt that the policy-maker will fully commit to maintaining a level path (G. Cateau and M. Shukayev, "Limited Commitment, Endogenous Credibility and the Limits of Flexible Price-Level Targeting," Bank of Canada Staff Working Paper, forthcoming).

[19] R. Amano, J. Engle-Warnick and M. Shukayev, "Price-Level Targeting and Inflation Expectations: Experimental Evidence," Bank of Canada Staff Working Paper No. 2011-18 (September 2011). In other experimental work, O. Kryvtsov and L. Peterson ("Expectations and Monetary Policy: Experimental Evidence," Bank of Canada Staff Working Paper 2013-44 [November 2013]) find that participants incorporate in their expectations the stabilizing responses of monetary policy to fluctuations in inflation.

That said, there are some differences. Canada's framework is less definitive about the importance of employment and labour-market conditions in determining the appropriate path for interest rates. This can matter, since monetary policy can have different distributional consequences, depending on the weights placed on the objectives.[20] In fact, redistribution is a channel through which monetary policy can play a stabilizing role: those who gain the most from expansionary monetary policy are more likely to spend a greater share of their disposable incomes on consumption.[21]

We need to update our analysis of the trade-offs, given the structural changes in the Canadian economy over the last few decades. Does the divine coincidence still hold as well as it did in the past? Could monetary policy under a dual mandate be as effective as fiscal policies—such as taxes and transfers—at achieving full employment?

An alternative to a dual mandate would be to target the growth rate or level of nominal gross domestic product (GDP).[22] While technically quite different, I see this as being in the same neighbourhood as the dual mandate because it puts more weight on other aspects of the economy that matter for welfare.

Nominal GDP targeting has received renewed attention recently because it could reduce the chances of running out of conventional firepower, much in the same way as PLT. It also allows more flexibility to deal with situations where there is a trade-off between price and output stabilization. A good example of this is when oil prices are rising in an economy that is a net importer of oil, because this pushes inflation up while also weakening the economy.

Still, adopting a nominal GDP target shares the same drawbacks I mentioned earlier with respect to other frameworks like PLT or a dual mandate. There are other practical issues too, because GDP is subject to frequent revisions, and so the objective would be a moving target. More research is needed here as well.

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[20] N. Gornemann, K. Kuester and M. Nakajima, "Doves for the Rich, Hawks for the Poor? Distributional Consequences of Monetary Policy," Board of Governors of the Federal Reserve System International Finance Discussion Paper No. 1167 (May 2016).

[21] A. Auclert, "Monetary Policy and the Redistribution Channel," National Bureau of Economic Research Working Paper No. 23451 (May 2017); O. Coibion, Y. Gorodnichenko, L. Kueng and J. Silvia, "Innocent Bystanders? Monetary Policy and Inequality," *Journal of Monetary Economics* 88 (June 2017): 70–89; G. Kaplan, B. Moll and G. L. Violante, "Monetary Policy According to HANK," *American Economic Review* 108, no. 3 (2018): 697–743; M. Doepke and M. Schneider, "Inflation and the Redistribution of Nominal Wealth," *Journal of Political Economy* 114, no. 6 (December 2006): 1069–1097; C. Meh, J.-V. Ríos-Rull and Y. Terajima, "Aggregate and Welfare Effects of Redistribution of Wealth Under Inflation and Price-Level Targeting," *Journal of Monetary Economics* 57, no. 6 (September 2010): 637–652; C. Meh and Y. Terajima, "Inflation, Nominal Portfolios and Wealth Redistribution in Canada," *Canadian Journal of Economics* 44, no. 4 (November 2011): 1369–1402.

[22] C. Romer, "Dear Ben: It's Time for Your Volcker Moment," *New York Times*, October 29, 2011, BU6; J. Frankel, "Nominal-GDP Targets, Without Losing the Inflation Anchor," in *Is Inflation Targeting Dead? Central Banking After the Crisis*, edited by R. Baldwin and L. Reichlin (London: Centre for Economic Policy Research, 2013): 90–94; L. Summers, "Why the Fed Needs a New Monetary Policy Framework," The Brookings Institution (June 2018).

The bottom line is there are several intriguing frameworks that merit further exploration, although none is perfect. This is why I want to see a side-by-side assessment of them, based on the considerations I outlined earlier. It will be impossible to do a purely quantitative assessment, given the limitations of policy models and the data, so a heavy dose of judgment will be required. That is okay; we will have a good basis to challenge the status quo.

What are the supporting policies?

Let me turn to my second question, which is how the Bank of Canada's toolkit, along with other public policies, can support whatever monetary policy framework we end up choosing.

This is critical, since none of the options materially changes the need for an unconventional policy toolkit. The Bank has a full range of unconventional policy tools, including explicit forward guidance about interest rates, negative nominal interest rates, and programs such as quantitative easing and other types of asset purchases. During the crisis, the Bank successfully used a conditional commitment to guide market expectations about future interest rates. We pledged in April 2009 to leave the policy rate unchanged for a year, depending on the outlook for inflation.[23]

The Bank has never had to use negative nominal interest rates, quantitative easing or other asset purchases, although these have been implemented in other countries. The unconventional tools used in the United States and Europe in the wake of the crisis prevented a bad situation from becoming even worse. That said, whether these tools are effective at achieving inflation objectives is still an area of debate.[24] It is also too early to tell whether they have important negative spillovers, particularly if they are used for a long time.

Because of this, improving clarity about our toolkit as part of the inflation-control agreement is a necessary step forward. Having a credible contingency plan in place makes it easier to achieve the inflation target, even in normal times.[25]

There are several lines of inquiry here. One is a suggestion highlighted by former Federal Reserve Chair Ben Bernanke to stick with inflation targeting in normal times but switch to a temporary price-level target when conventional policy is

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[23] See Z. He, "Evaluating the Effect of the Bank of Canada's Conditional Commitment Policy," Bank of Canada Staff Discussion Paper No. 2010-11 (August 2010). For more on how the conditional commitment and other examples of forward guidance have worked in practice, see M. Woodford, "Methods of Policy Accommodation at the Interest-Rate Lower Bound." In *Proceedings – Economic Policy Symposium – Jackson Hole*, 185–288. Jackson Hole, Wyoming: Federal Reserve Bank of Kansas City.

[24] A. Reza, E. Santor and L. Suchanek, "Quantitative Easing as a Policy Tool Under the Effective Lower Bound," Bank of Canada Staff Discussion Paper No. 2015-14 (November 2015); S. D. Williamson, "Quantitative Easing: How Well Does This Tool Work?" Federal Reserve Bank of St. Louis *Regional Economist* (third quarter 2017).

[25] R. Amano, T. Carter and S., Leduc, "Precautionary Pricing: The Disinflationary Effects of ELB Risk," Bank of Canada Staff Working Paper (forthcoming).

constrained by the lower bound.[26] The idea is that making it clearer in extraordinary circumstances that the central bank is aiming for higher inflation would help push up prices through a shift in expectations. This is another idea for the list, but undoubtedly imperfect as well. Japan's experience with trying to boost inflation expectations raises questions about how successful this type of strategy might be, particularly in the current low inflation environment.[27]

This prompts a more delicate question about how much heavy lifting monetary policy should actually do.[28]

Most countries have some automatic fiscal stabilizers in place, such as unemployment insurance or a progressive income-tax schedule, which help during a downturn. Preliminary work at the Bank suggests that, compared with a situation where monetary policy is "the only game in town," the stabilization properties of the Canadian fiscal system do help reduce the chances of the policy rate being below zero.[29]

Several participants at our recent conference on the inflation-targeting framework raised the question of which combination of monetary and fiscal policies is best suited to address extraordinary circumstances. At the same time, context matters: fiscal policy needs to be on a sustainable track for monetary policy to achieve price stability.[30] These are important issues for further study, but they are outside the central bank's remit.

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[26] See B. Bernanke, "Temporary Price-Level Targeting: An Alternative Framework for Monetary Policy," The Brookings Institution, (October 2017); R. Mendes and S. Murchison, "Should Forward Guidance Be Backward-Looking?" *Bank of Canada Review* (Autumn 2014): 12–22; and J. Hebden and D. López-Salido, "From Taylor's Rule to Bernanke's Temporary Price Level Targeting," Board of Governors of the Federal Reserve System Finance and Economics Discussion Series (FEDS) Working Paper No. 2018-051 (July 2018). Mendes and Murchison (2014) explore a similar idea to Bernanke (2017) but through state-contingent forward guidance.

[27] See H. Nakaso, "Evolving Monetary Policy: The Bank of Japan's Experience" (speech at the Central Banking Seminar, hosted by the Federal Reserve Bank of New York, 2017).

[28] E. M. Leeper, "Monetary Science, Fiscal Alchemy." In *Proceedings – Economic Policy Symposium – Jackson Hole*, 361–434. Jackson Hole, Wyoming: Federal Reserve Bank of Kansas City; M. Eichenbaum (2018), Talk at G7 Meeting on Unconventional Fiscal Policy (presented at Montebello, Quebec); S. S. Poloz, "The Doug Purvis Memorial Lecture—Monetary/Fiscal Policy Mix and Financial Stability: The Medium Term Is Still the Message," Bank of Canada Staff Discussion Paper No. 2016-13 (June 2016); and C. Meh and S. S. Poloz, "Investing in Monetary Policy Sovereignty: Ideas from the Periphery," paper for conference proceedings "Monetary Policy Spillovers in a Financially Integrated World," National Bank of Denmark (2018).

[29] ToTEM simulations show that if government expenditures and transfers did not respond at all to the economic cycle, the probability of the policy rate being below zero would be about 17 per cent instead of about 13 per cent.

[30] F. S. Mishkin and K. Schmidt-Hebbel, "One Decade of Inflation Targeting in the World: What Do We Know and What Do We Need to Know?" National Bureau of Economic Research Working Paper No. 8397 (July 2001); T. J. Sargent and N. Wallace, "Some Unpleasant Monetarist Arithmetic," *Federal Reserve Bank of Minneapolis Quarterly Review* 5, no. 3 (Fall 1981): 1–17; C. Sims , "Fiscal Policy, Monetary Policy and Central Bank Independence," (paper delivered to Economic Policy Symposium, Jackson Hole, Wyoming, August 25–27, 2016); F. Bianchi and L.

There is an emerging consensus that effective macroprudential policies can also give monetary policy more room to manoeuvre. For example, during a period in which policy interest rates are low for a long time, a tightening of mortgage-financing rules or eligibility criteria can lean against a buildup in financial vulnerabilities such as elevated household debt. That allows more room for monetary policy to focus on bringing inflation to target.

There is still much to learn about the effects of different macroprudential measures and their interaction with monetary policy. As we learn more, we can take a page from the inflation-targeting book. This means working with our partners to further strengthen the macroprudential policy framework by being clearer about objectives, tools and governance. Doing so would enhance the predictability and efficiency of both macroprudential *and* monetary policies.

Conclusion and next steps

Let me conclude with a few words on the direction our work will take leading up to the next agreement on Canada's monetary policy framework in 2021.

There is no doubt that our inflation-targeting framework has promoted the economic and financial well-being of Canadians. A decade of experience in the post-crisis world, though, shows us it is not perfect.

It is time to conduct a thorough review of the alternatives. The Bank will develop a comprehensive side-by-side assessment of the most promising frameworks to see if any are better. In its work, the Bank will engage with academics and other central banks, as well as a wide range of private sector stakeholders and interested Canadians.

We need to keep it simple: focus on clear objectives that monetary policy can actually achieve, and assess how it affects people. This is more ambitious than it sounds. We will need to improve our methods to account for considerations such as distributional effects and financial stability. We also must ensure that the right supporting policy tools and measures are available in extraordinary circumstances.

As we work to strengthen our monetary policy framework, we are counting on people keenly interested in public policy—perhaps some of you—to contribute to our work.

Melosi, "The Dire Effects of the Lack of Monetary and Fiscal Coordination," Federal Reserve Bank of Chicago Working Paper No. 2017-19 (July 2017).