

# Why Monetary Policy Matters: A Canadian Perspective

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*This article provides answers to several key questions about Canadian monetary policy. First, what is monetary policy? Second, why does the Bank of Canada focus on the control of inflation rather than other macroeconomic variables? Third, how do the Bank's actions influence the rate of inflation? And, finally, how can monetary policy deliver genuine and significant benefits to society?*

## **W**hat Is Monetary Policy?

Monetary policy is ultimately about maintaining confidence in the value of money by providing stability in the general level of prices. In Canada, monetary policy is conducted by the Bank of Canada adjusting very short-term interest rates to achieve a growth rate of real output consistent with maintaining a low and stable rate of inflation.

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The Bank of Canada's only policy instrument is the *target* it sets for the *overnight interest rate*. In Canada, banks lend funds to each other for very short periods at the overnight interest rate, a market-determined rate that fluctuates daily. The Bank of Canada is willing to extend loans to banks at a rate that is set 25 basis

points above the target overnight rate. In addition, the Bank will pay interest on any deposits that it accepts from banks, but at a rate 25 basis points below the target overnight rate. By "bracketing" the target overnight rate in this way with a higher lending rate and a lower deposit rate, the Bank of Canada is able to keep the actual overnight rate within a 50-basis point range. Furthermore, by changing its target for the overnight interest rate, the Bank of Canada can alter the actual overnight rate at which banks transact. Such changes in the overnight interest rate lie at the heart of how monetary policy affects the economy.

The Bank's decisions regarding its target for the overnight interest rate also influence the amount of money in the economy, but this linkage is indirect. By changing the overnight interest rate, the Bank of Canada's actions influence the entire spectrum of market interest rates. As these interest rates rise, firms and households reduce their demand for credit from commercial banks. Conversely, as interest rates fall, firms and households increase their demand for commercial-bank credit. With an increase in the amount of credit in the economy, there is an increase in the volume of transactions for goods and services, and thus an increase in the overall demand for money with which to make these transactions. Individual firms and households can satisfy changes in their transactions demand for money by drawing down their savings balances at commercial banks, often in the form of bank notes. Commercial banks occasionally run low on bank notes, and when they do, they can purchase

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them from the Bank of Canada by selling some of their holdings of government securities. Such a balance-sheet transaction for the Bank involves an increase in assets (government securities) and an increase in liabilities (newly issued bank notes).

Thus we see the connection between the Bank of Canada's target for the overnight interest rate, the amount of money in circulation, and the Bank's balance sheet. Changes in the target overnight rate lead to changes in other market interest rates and thus to changes in the demand for credit, the demand for money, and the demand for bank notes. The Bank accommodates these changes in the demand for bank notes by conducting the required balance-sheet transactions. To some observers, it may appear that the Bank can influence *both* interest rates and the amount of money independently. But this independence is illusory: there is but a single instrument for Canadian monetary policy—the Bank's target for the overnight interest rate.

## Why Target Inflation?

Based on a large body of theoretical reasoning and empirical evidence, the policies of most central banks are grounded in two essential propositions:

1. central banks are unable to directly influence variables other than inflation for any sustained period of time; and
2. high inflation is damaging to the economy and costly for firms and individuals.

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Central banks therefore focus on the control of inflation for two reasons. First, both theory and evidence suggest that monetary policy *cannot* have a systematic and sustained effect on macroeconomic variables other than the inflation rate. Given this limited scope for monetary policy, it would make little sense to adopt other long-run targets, such as the unemployment rate or the growth rate of real output. Second, high

inflation is damaging to the economy, in large part because of the uncertainty it generates. Low and stable inflation provides the best overall economic environment in which firms, workers, and consumers can prosper.

The Bank of Canada takes the view that it can make its best contribution to the health of the Canadian economy by maintaining low and relatively stable inflation. To formalize this objective, the Bank, together with the Government of Canada, adopted a system of *inflation targeting* in 1991. In the first three years, the inflation target was reduced gradually, but since 1994, the target has been unchanged, and the Bank has aimed to keep the annual rate of inflation close to 2 per cent and within a range of 1 to 3 per cent.<sup>1</sup> In such an environment of low and stable inflation, Canadian firms and households can make better spending, saving, and investment decisions that lead to steadily rising living standards.

## Canada's Inflation Performance and Why It Matters

The main problem with inflation is the *uncertainty* it generates in the economy, both for relative prices and for the path of inflation itself. This uncertainty leads households and firms to make decisions they would be unlikely to make in a more certain, low-inflation, environment. Given this connection between inflation and uncertainty, the only effective way to avoid the uncertainty associated with inflation is to reduce inflation itself.

How does inflation interfere with the operation of the price system? In an economy in which the vast majority of transactions are made in private, decentralized markets, and prices are determined by the interaction between buyers and sellers, market prices play a key role in transmitting information and guiding the economy's allocation of resources. The presence of inflation in a market economy—and its associated uncertainty—means that prices can no longer convey this valuable information so clearly, with the result that market outcomes lack the efficiency that would be achieved in a non-inflationary world.

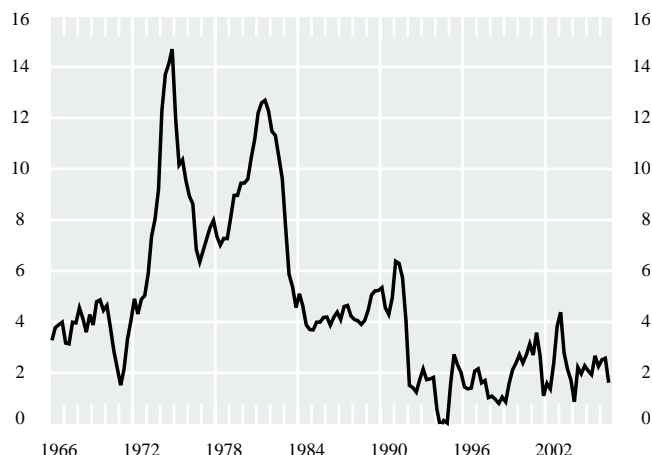
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1. The inflation-targeting agreement between the Bank and the Government has been renewed four times since it was first adopted in 1991. The most recent renewal, in November 2006, is scheduled to expire in December 2011. Background documents relating to the current agreement are provided in this issue at pp. 45–59.

Chart 1

## Canada's CPI Inflation, 1966–2006

Inflation rate (%)



A world of no inflation does not mean a world of complete certainty or unchanging relative prices. Far from it. Relative prices are constantly adjusting in a world in which changes in consumer tastes and the development of new technologies are continually occurring. But this volatility is unavoidable and is standard fare in market economies. The problem with high inflation is that it makes what is already a confusing world even more difficult to understand. Monetary policy aimed at maintaining low and stable inflation can make a genuine contribution to the quality of life by making the decision-making environment clearer for everyone.

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An indication of the success of Canada's monetary policy is that inflation is much less newsworthy today than it was during the 1970s, when it was often a headline issue. Whereas inflation was above 14 per cent in 1973 and almost 13 per cent in 1979, inflation over the past decade has remained very close to 2 per cent. It is also

true that inflation has been much less volatile in the past decade than it was during the 1970s and 1980s (see Chart 1).

## The Stability of Output Growth and Why It Matters

All economies are subject to shocks and thus display fluctuations in the growth rate of aggregate output. These fluctuations are often referred to as *business cycles* even though they rarely display the smoothness and regularity suggested by the term.

Relative stability in output growth is desirable for two reasons. First, relatively smooth output growth makes it more likely that actual output will remain close to *potential output* (the economy's production capacity). With actual output remaining close to potential output, firms and workers avoid situations in which they are pushed to work beyond their limits (*excess demand*) and also avoid situations in which they are idle for considerable periods of time (*excess supply*). Such situations are costly, both for economic and for social reasons. The second reason it is desirable to have relatively stable output growth is that by avoiding situations of excess demand or excess supply, the pressures for inflation to either rise or fall are kept to a minimum. Low and stable inflation can be sustained only if actual output is kept relatively close to potential output.

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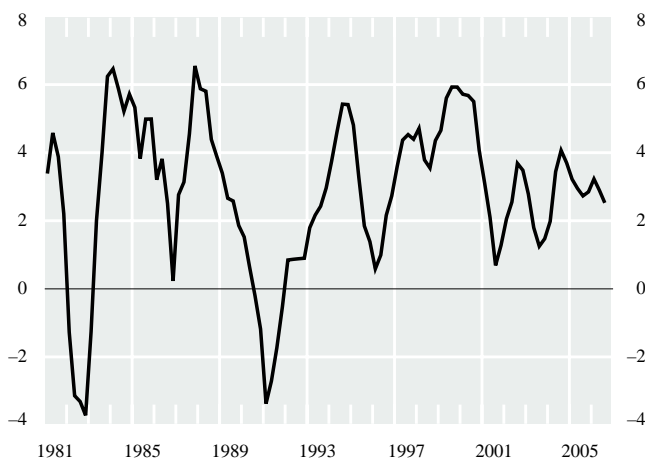
The Bank of Canada seeks to maintain low and stable inflation by providing some stability to the growth rate of aggregate output. When shocks to demand are expected to cause actual output to rise above or fall below the economy's production capacity, the forward-looking central bank acts to offset these shocks. This is why many economists view an inflation-targeting policy as an *output-stabilizing policy*.

During the 1980s, the annual growth rate of output was usually between –3 per cent and +6 per cent, but on a few occasions was outside of this range. Since 1992, however, output growth has always been in the nar-

Chart 2

## Real GDP Growth, 1981–2006

Per cent per year



rower range of +1 per cent to +6 per cent. As is clear from Chart 2, Canadian output growth has become more stable since the 1991 adoption of inflation targeting.<sup>2</sup>

Has this reduced volatility in output growth been a consequence of the Bank of Canada's adoption of inflation targeting, or have Canadians simply been lucky in the years following 1991? It is often very difficult in macroeconomics, especially over relatively short periods of time, to determine cause and effect, for the simple reason that many variables are changing simultaneously. However, it is difficult to look back on the past 15 years and conclude that Canada has simply been lucky in avoiding the large numbers of significant shocks that were present in the previous decade. On the contrary, the years following 1991 have seen many shocks, and the Canadian economy has been pushed in various directions. Given this recent history, it seems reasonable to conclude that *some part* of the greater stability in output growth is the result of the Bank of Canada's monetary policy.

Some recent economic research examines this question systematically and reaches the same conclusion.<sup>3</sup> The evidence suggests that the volatility of economic shocks

2. For a description of the precise measures of volatility used for calculating inflation and output growth, see the longer version of this article on the Bank's website ([www.bankofcanada.ca/en/ragan\\_paper/index.html](http://www.bankofcanada.ca/en/ragan_paper/index.html)).

3. For all references to cited research, see the full-length version of this paper, located on the Bank's website ([www.bankofcanada.ca/en/ragan\\_paper/index.html](http://www.bankofcanada.ca/en/ragan_paper/index.html)).

hitting Canada after 1991 increased relative to the earlier period, but that the lower volatility of inflation and output growth was due to an *even greater* improvement in monetary policy. In other words, not only did the Bank of Canada's monetary policy improve following the adoption of inflation targeting in 1991, but it improved enough to *more than offset* an increase in underlying economic volatility, with the overall result being better macroeconomic performance.

## How Does Monetary Policy Work?

We have just seen that inflation has been lower, and inflation and real output growth have both been more stable, in the years following the 1991 adoption of inflation targeting than in the preceding decade. How does monetary policy work to accomplish these outcomes?

At the heart of the Bank of Canada's monetary policy is a commitment to maintain low and relatively stable inflation—in particular, to keep the annual rate of inflation close to 2 per cent. The Bank's commitment is essential for influencing firms' and households' *expectations* of inflation. Faced with a shock that threatens to push inflation either above or below the inflation target, Canadian firms and households are confident that the Bank of Canada will act to bring inflation back to the 2 per cent target. This confidence in the Bank's policies comes from the Bank's past record of doing what it claimed it would do: keep inflation low and stable.

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When the Bank of Canada has clearly stated objectives, and takes policy actions that affirm those objectives, the result is an increase in its *credibility*. This credibility, in turn, helps to keep expectations of future inflation close to the inflation target—what is sometimes called an *anchoring* of inflation expectations. The anchoring of inflation expectations is an essential part of successful monetary policy.

The complex set of linkages between the Bank of Canada's policy actions and the rate of inflation is

called the *transmission mechanism* of monetary policy. The transmission mechanism is best understood by tracing through the effects of a hypothetical policy decision. Consider, for example, a situation in which a positive demand shock occurs. If the shock persists, output will eventually rise above potential output, and inflation will increase. The Bank of Canada could attempt to prevent this future increase in inflation by raising its target for the overnight interest rate. How would such a policy action help to contain inflationary pressures? There are several steps in the transmission mechanism:

1. The increase in the target overnight interest rate tends to increase longer-term interest rates and, as a result of the subsequent inflow of financial capital to Canada, tends to cause an appreciation of the Canadian dollar.
2. The increase in longer-term interest rates dampens the growth of households' consumption and firms' investment; the appreciation of the dollar dampens the growth of Canadian net exports.
3. Taken together, these effects on consumption, investment, and net exports imply a dampening in the growth of Canadian aggregate demand.
4. The reduction in the growth of aggregate demand leads firms to reduce the growth in their actual output.
5. By keeping actual output from rising above potential output, the pressures for inflationary wage-and-price increases are avoided.

Thus, we see how the Bank of Canada's action to raise its target for the overnight interest rate sets in motion a complicated sequence of cause and effect that helps to keep inflation from rising. But this process takes time. How much time elapses between the Bank's policy action and the other effects, especially the final effect on the rate of inflation?

The Bank of Canada's actions on the overnight interest rate have almost immediate effects on the exchange rate and other interest rates, but the effects on aggregate output build only gradually over time. Current estimates suggest that it takes between 12 and 18 months before most of the effect on aggregate output is realized. The full effect on inflation is not apparent for between 18 and 24 months. And even these estimates are subject to considerable variation; as the late Milton Friedman

famously said, the time lags in monetary policy are both long and variable.<sup>4</sup>

The long time lags inherent in the transmission mechanism mean that central banks must be *forward looking* in their policy decisions. Vigilant central bankers are often accused of fighting demons that are non-existent. The problem is that if central bankers delay their policy response until inflation actually appears in the data, it will be too late to have the desired impact. Being forward looking means *anticipating* where the demons will surface and acting in a pre-emptive manner. Furthermore, a central bank that is successful in anticipating future inflationary pressures, and also in taking the appropriate actions to prevent their full realization, can easily be accused of seeing dangers that are not genuine. The truth, however, may be that the dangers were avoided only because of the central bank's vigilance.

## Uncertainty and the Need for Information

Given the time lags inherent in monetary policy, the Bank of Canada must be forward looking. But in a world without crystal balls, being forward looking means being uncertain. Indeed, central banks face three different types of uncertainty. First, most economic data are uncertain, being subject to considerable revision several months, and sometimes years, after they are first released. Second, uncertainty exists regarding current and future economic developments in the domestic and world economies. Finally, there is considerable uncertainty about the details of the transmission mechanism itself—that is, uncertainty about the precise nature of the linkages between key macroeconomic variables.

The conduct of monetary policy is therefore best viewed as a problem of *decision making under uncertainty*. The Bank of Canada needs to be forward looking, aware of many possible shocks that may occur in the near future. It must also be aware that economic developments shown to be present by current data may not persist for long, or may in the near future be revealed, through a revision of the data, never to have existed at all. Thus the Bank is forced to perform a precarious balancing act, sometimes taking action in

4. Recent research at the Bank suggests that the effect on inflation may be occurring sooner than previously thought. See the background document on the renewal of the inflation-targeting agreement (p. 53, this issue), particularly the discussion related to Coletti, Selody, and Wilkins (2006).



anticipation of what is likely to happen, while at other times waiting to see what new data confirm to be genuine. Not surprisingly, good judgment based on considerable experience is an essential part of good monetary policy.

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In addition to judgment and experience, the Bank requires a great deal of information in order to conduct the best possible monetary policy. To deal with the uncertainty regarding the various linkages between macroeconomic variables, the Bank conducts a significant amount of *economic research*, both theoretical and empirical, and subjects the results of this research to ongoing testing. The nature of modern economies is such that this job will never be finished, and the complete set of answers will never be known with certainty. Economic relationships depend in important ways on human behaviour, which itself depends on the specifics of time, place, and circumstance.

Dealing with the uncertain developments in the domestic and world economies requires information of a different kind. In order to know what events are occurring and what events are likely to occur in the near future, the Bank assembles and analyzes a great deal of current data. This exercise is often called *current analysis*. The large number of relevant variables, as well as the inherent complexity involved in understanding each individual variable, means that the task of current analysis for any central bank is Herculean. A great many people at the Bank are therefore assigned the task of sifting through and analyzing data on hundreds of variables. Only when the various shocks to the economy are observed and understood can the Bank hope to incorporate that information fruitfully into its overall decision making.

Insights gleaned through economic research are combined with the knowledge embodied in current analysis to conduct the Bank's regular projection or forecasting exercise using its large and complex statistical model of the Canadian economy, the *Terms-of-Trade Economic Model* (ToTEM). Based on the knowledge of economic relationships gained from many years of research, ToTEM is a mathematical representation of the interaction of the various agents in the

Canadian economy—households, firms, and governments. The model shows how these economic relationships must evolve over time to be consistent with the underlying assumptions of the agents' behaviour. The model then incorporates past and current data from the Canadian and world economies and projects the most likely future path of Canadian macroeconomic variables.<sup>5</sup>

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For two reasons, the world rarely turns out as the model predicts. First, the model itself, as complex as it is, is nonetheless a highly simplified description of the actual economy. Second, the data that are fed into the model, as good as they are, are also imperfect, and our best predictions regarding what is actually happening in the Canadian and world economies may well turn out to be wrong in some way. Nonetheless, the economic projection provides the Bank of Canada with a logically consistent and well-articulated starting point regarding the future evolution of the Canadian economy, and also a starting point for analyzing the likely future impact of its policy actions. This forecast is then combined with a great deal of other information, including judgments regarding the balance of various risks to the projection, to inform the Bank's policy decisions.

## Conclusion

This article has barely scratched the surface of Canadian monetary policy. It has provided a broad outline of what the Bank of Canada does and why. Economies are complicated structures, and we continually strive to learn more about them. Similarly, monetary policy has its impact on the economy through a complex process. As we continue our theoretical research and our analysis of data, our knowledge of this complexity will grow. But so will our questions about it. Given the importance of monetary policy to our well-being, this continued effort is well worth the investment.

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5. See Fenton and Murchison (2006).

## Literature Cited

Coletti, D., J. Selody, and C. Wilkins. 2006. "Another Look at the Inflation-Target Horizon." *Bank of Canada Review* (Summer): 31–37.

Fenton, P. and S. Murchison. 2006. "ToTEM: The Bank of Canada's New Projection and Policy-Analysis Model." *Bank of Canada Review* (Autumn): 5–18.

All other research cited in this article is referenced in the longer article on the Bank's website:  
[www.bankofcanada.ca/en/ragan\\_paper/index.html](http://www.bankofcanada.ca/en/ragan_paper/index.html).

