

Credibility and Monetary Policy

Patrick Perrier and Robert Amano, Research Department

- *According to economic theory, a highly credible monetary policy helps to reduce the degree of uncertainty surrounding the objectives of monetary policy. Thus, when the monetary policy pursued by the central bank is credible, shock-induced fluctuations in inflation, interest rates, output, and employment should be less pronounced than in the absence of such credibility.*
- *The adoption of inflation control as a monetary policy objective by some countries in recent years has led central banks, including the Bank of Canada, to take steps to enhance the credibility of monetary policy.*
- *To date, most of the studies on this topic have concluded that success in keeping inflation within a target range has helped to increase the credibility of Canadian monetary policy.*

The efforts made by Canada and other countries to control inflation have led their central banks to pay close attention to the credibility of their monetary policy, particularly during the last decade. A monetary policy that targets low inflation will be credible if the public believes that the central bank will take the measures necessary to achieve this objective. Inflation expectations will then be closely linked to the objective announced by the central bank.

Inflation expectations influence the negotiation of future economic and financial commitments. When the expected, targeted, and observed rates of inflation are the same and there are no longer any surprises in terms of price, wage, and interest rate trends, then transactions and exchanges among economic agents will proceed as was anticipated when the initial decision was made, and, hence, the economy's performance will be improved.

This article looks at the concept of credibility from both the theoretical and practical viewpoints. It discusses the advantages of high credibility, with a particular focus on Canada's experience with explicit inflation-control targets, and explains measures taken by the Bank of Canada to enhance the credibility of its monetary policy. It also reviews a number of studies that have examined the credibility of Canadian monetary policy over the past decade.

The Advantages of Credibility

The question of credibility can arise in two distinct situations: the first is a case where the inflation rate has exceeded a certain threshold and the authorities decide to reduce it, and the second occurs when inflation has been brought under control and the authorities seek to keep it within the target range. In the first case, the authorities have lost their credibility because they have been unable to prevent the situation from

deteriorating, perhaps because of a highly tenuous link between the operational objective of monetary policy and inflation. It is then up to the authorities to prove that they have both the determination and the ability to correct the situation. In the second case, the central bank has already proven its ability to reduce inflation, and the question of credibility relates essentially to whether it can maintain the inflation rate within the announced target range. While the first situation is of interest from a theoretical viewpoint, the following analysis deals essentially with the second situation, which reflects Canada's experience with the use of inflation-control targets since 1992.

When a central bank attempts to bring about a permanent reduction in an already moderate inflation rate, a credible monetary policy will make it easier to move to the new regime. If credibility is low, and if the public expects the central bank to abandon its efforts before it has achieved its objective, price and salary trends will adjust only gradually to the slowdown in aggregate demand caused by the disinflation process. A high degree of credibility, on the other hand, will speed up the transition to the targeted inflation rate, because economic agents will give greater weight to this rate in setting wages and prices.¹

A high degree of credibility will also help to keep inflation close to target when unforeseen events disrupt the behaviour of prices. Indeed, inflation control is not a precise art, and the inflation rate may diverge from the target rate at any time because of events beyond the control of the central bank. In such a situation, credibility will help to keep expectations focused on the target. If the public knows that the central bank will do its best to bring inflation back to target, then expectations will not react so strongly to fluctuating price trends, and this will tend to reduce the amplitude of fluctuations in the inflation rate, in output, and in interest rates.²

Moreover, high credibility allows the monetary authorities to make a more accurate judgment of the economy's capacity to produce goods and services and to generate employment without automatically

sparkling new inflation fears. This is a considerable advantage, given the high degree of uncertainty that surrounds estimates of potential output and the output gap.

Why Is It So Difficult for a Central Bank to Increase Its Credibility?

The term "credibility" refers to the degree of confidence that the public has in the central bank's determination and ability to meet its announced objectives. This means that the incentives for the central bank to stick to an announced policy must be significant and steady.

Mishkin (1997) illustrates the notion of credibility by drawing a parallel to a situation familiar to many parents. When in a public place, parents are always tempted to yield to the whims of a child, rather than risk a potentially embarrassing outburst, while telling the child sternly that this is the last time and there will be no such yielding in the future. But over the long run, this attitude becomes counterproductive, because the child will come to expect its parents to yield once again, and thus the child will become more and more demanding. The parents' threat not to yield anymore is simply not credible in the eyes of the child. In such a situation, the parents' threat is "time inconsistent," an expression used to describe an attitude or policy that may be considered desirable under the immediate circumstances but that can be harmful in the long run because it causes the situation to deteriorate.

The notion of time inconsistency was first applied to monetary analysis by Kydland and Prescott (1977). From the perspective of monetary policy, the time-inconsistency problems arise when the public believes that the central bank is unlikely to achieve all of its announced objectives because they are perceived to be incompatible. Most central banks have a mandate to preserve the purchasing power of money and to keep the economy in good health. While these objectives may be consistent in the long run,³ they may not be compatible over shorter horizons because of the relationship between the strength of aggregate demand, inflation, and inflation expectations.⁴ The authorities can improve the prospects of achieving their inflation

1. In practice, a first announcement of disinflation may have no beneficial effect on a central bank's credibility. Credibility will rise only after the central bank has shown its determination and its ability to reduce the inflation rate and to keep it at the targeted level.

2. This hypothesis is supported in a simulation study by Amano, Coletti, and Macklem (1999), which concludes that a gain in credibility can help reduce fluctuations in the inflation rate, interest rates, and output and, at the same time, (given the non-linear relationship they assume between inflation and the output gap) raise the average level of output.

3. Since the effects of monetary policy on economic activity are only temporary, any attempt by the central bank to make the economy produce beyond its capacity will lead to higher inflation in the long run, with no lasting increase in employment and output.

4. Macklem (1997) offers a detailed examination of this relationship.

objectives by acting in such a way that the public's expectations of inflation coincide with the announced inflation objective. Once the authorities believe that expectations are firmly anchored to the target rate, however, they may be tempted to give the economy a sharper boost than the public expects. The public will then make its economic and financial decisions on the expectation that the inflation rate will be higher than announced, in order to guard against the erosion of both wages and returns from investment that would result if inflation were to be higher than forecast.

How Can Credibility Be Improved?

To increase credibility, the monetary authorities must persuade the public that their objectives are not incompatible. Furthermore, if policy-makers are to do everything in their power to reinforce and preserve credibility, the cost of failing to meet their objectives must be high. Studies on the credibility of monetary policy have put forward some interesting proposals on these points.

One way to enhance the credibility of monetary policy is to appoint as governor of the central bank an individual who is recognized as having an inflation-tolerance threshold that is lower than the public's.⁵ In such cases, inflationary pressures caused by excess demand will not affect expectations, because the public is confident that the central bank will take steps to counter those pressures. Yet, in a democratic society it is not necessarily appropriate, or desirable, to appoint a governor whose inflation tolerance differs sharply from that of the public.⁶ In fact, the credibility of monetary policy might, thereby, be threatened.

Another way of dealing with the problem of time inconsistency is to negotiate an official and public agreement between the government and the central bank on an explicit target for inflation.⁷ In this way, the authorities will have greater accountability. The government and the central bank will declare

themselves jointly responsible for achieving the monetary policy objective, and the central bank will implement the appropriate strategy. Knowing that the central bank must pursue the stated objective, the public will adjust its inflation expectations accordingly.

Established targets represent an implicit contract between the central bank and the public, and the central bank will have to answer to the public for its actions and their results. Moreover, explicit targets give the public a concrete frame of reference for formulating inflation expectations and for assessing the effectiveness of monetary policy. As well, targets will encourage the central bank to be more open and more transparent in its operations.

However, a strategy based on explicit inflation-control targets brings along with it certain risks. As noted above, it takes several quarters before monetary policy actions affect inflation, and the inflation rate can be disrupted at any time by unforeseen events that make control particularly difficult. These two factors also complicate any assessment of the central bank's success and could damage its credibility, since it will then be difficult to determine to what extent the outcome is attributable to the central bank's actions, or to other indiscernible factors. The central bank can ease this problem through an effective communications program that will clearly explain to the public why the measures it has taken are consistent with the announced objective.

Since the ultimate goal of inflation-control targets is to promote a healthy economy, economic performance is a decisive factor in achieving and preserving the credibility of monetary policy. If the economy experiences a prolonged downturn because of events beyond the control of monetary policy, credibility may be compromised even if the central bank takes appropriate measures to achieve the announced objective.⁸ Indeed, that objective could become the focus of a public debate that might induce the government to abandon its stance. The credibility of monetary policy can be established only after a fairly long period of time characterized by an inflation rate that is close to the target and by a sound performance of both employment and output.

5. This possibility was first raised by Rogoff (1985).

6. See Laidler (1997).

7. In the case of New Zealand, such an agreement was enshrined in law—the Reserve Bank of New Zealand Act of 1989. This gave the central bank the mandate to formulate and implement a monetary policy for achieving and maintaining general price stability. Moreover, the act stipulates that the performance of the central bank governor will be assessed in light of this objective, and dismissal could result if inflation targets are not met. See Walsh (1996) for a discussion of New Zealand's experience with inflation targets.

8. See Drazen and Masson (1994).

Canada's Situation

For several years, the Bank of Canada has been working to develop a program that will help it achieve its inflation-control objective.

Besides making clear the authorities' determination to bring inflation gradually under control, the explicit targets adopted by the Bank of Canada and the Canadian government in 1991 were intended to reinforce the credibility of the price-stability objective. This objective had been previously announced by the Bank on several occasions but had never been accompanied by a specific commitment in terms of the inflation rate. The announcement of explicit targets in 1991 was, therefore, intended to clarify and confirm the commitment to price stability while providing the public with a frame of reference for monitoring and assessing progress towards this goal.

The setting of inflation targets marked the beginning of considerable progress in terms of transparency and in holding the Bank accountable for its decisions. This strategy led the Bank to seek better communication with the public and to open discussion on ways to achieve price stability.

Since adopting inflation targets, the Bank has undertaken a program to keep the public informed of its monetary policy objectives and to explain how its actions are consistent with those objectives. This program has given rise to the following initiatives⁹:

- The *Monetary Policy Report*, launched in May 1995, appears each May and November, and a formal update of that report will be published each February and August, beginning February 2000.
- The Bank has initiated a great many communications activities all across Canada. The Bank's managers and regional representatives explain to the public the objectives of monetary policy and the means for achieving them.
- Since 1994, the overnight interest rate has been used as a short-term operating target and an operating range has been established for this rate.
- The Bank Rate has been aligned with the operating range for the overnight interest rate.

9. Governor Thiessen has mentioned these initiatives in several speeches. (See Thiessen 1995 and 2000.)

- Each time the bank changes its key rates, it issues a press release explaining the reasons for the change.

Evidence of the Credibility of Canadian Monetary Policy

Any attempt to evaluate the credibility of monetary policy must start with an assessment of inflation expectations. Since these expectations cannot be observed, they must be measured through estimation.

Trends in the exchange rate and in medium- and long-term interest rates yield useful information about the credibility of monetary policy. When targets are highly credible, price increases above expected levels should result in an appreciation of the Canadian dollar and a negligible reaction in long-term interest rates. Markets will believe that inflation is not going to erode investment yields because they expect the Bank to react to this unexpected surge and bring the inflation rate back towards the target. Based on their analysis of exchange rate fluctuations, Amano, Fenton, Tessier, and van Norden (1997) obtained results that suggest that Canadian monetary policy had been credible since 1992. Similarly, in their analysis of long-term interest rates, St-Amant and Tessier (1998) obtained results that corroborated the credibility of the targets.

Surveys of inflation forecasts offer another means of gauging market expectations and assessing credibility. Johnson (1998) used this kind of data to analyze several countries, including Canada, according to whether or not they had adopted explicit inflation targets.¹⁰ He focused first on the gap between the forecast increase in the implicit price index and the target rate for the 1991–96 period. He next examined forecasting errors for the 1984–96 period to assess the hypothesis that inflation would be more predictable the more credible the targets were. His results corroborate the hypothesis that the targets established by the Bank of Canada for the period under examination were credible. But Johnson noted that it is difficult to determine the real contribution of targets to reducing the variance of forecasting errors, because the same results were observed for countries that had not adopted explicit targets. Perrier (1998) took the statistical approach proposed by Johnson and applied

10. Johnson used survey data from the publication *Economic Forecasts: A Monthly Worldwide Survey*, which debuted in 1994.

it to CPI forecasts from the Conference Board of Canada's *Survey of Forecasters*. The results of this study, which examined the 1984–96 period, suggest that Canadian monetary policy enjoyed a significant degree of credibility following the adoption of inflation targets and that they have helped to make the trend inflation rate more predictable.

The results of these studies may simply mean that people have adapted their inflation expectations to the sluggishness of the recovery from the 1990 recession and to the international environment of weak and stable inflation that has prevailed for several years. Johnson (1997) proposed a methodology for distinguishing the impact of policy announcements on expectations from the impact of business-cycle considerations. He used the data from the *Survey of Forecasters* to see whether announcements by the Bank of Canada (some of which concerned target-setting) had the desired effect on inflation expectations between 1988 and 1993. He concluded that some announcements had, indeed, caused a decline in expected inflation rates.

Chart 1 shows inflation forecasts from two surveys, the *Survey of Forecasters* by the Conference Board and the *Consensus Forecasts* from Consensus Economics. The data from the Conference Board survey cover inflation forecasts over a two-year horizon, while those from the Consensus Economics survey have a horizon of six to ten years. The chart includes an additional indicator of expectations—the spread between

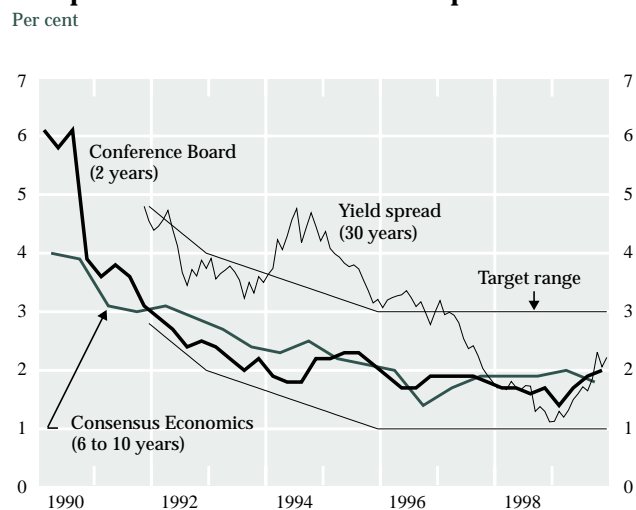
the yield on conventional 30-year Government of Canada bonds and that on Real Return Bonds of comparable maturity.

These surveys suggest that expected inflation, which stood at about 5 per cent in 1990, declined to around 2 per cent by 1999—i.e., to the midpoint of the inflation-control target range. Moreover, according to these surveys, for the entire period during which the Bank has had a target range for inflation, expected inflation rates remained within that range. On the other hand, the measure of expectations derived from the difference between the yield on conventional bonds and that on bonds indexed to the consumer price index suggests a much slower gain in credibility for the central bank. According to this measure, expected inflation rates fluctuated around 4 per cent for the 1992–95 period and fell outside the target range in 1994, suggesting that the credibility of monetary policy was rather weak. However, using this yield gap as a measure of inflation expectations is in itself problematic.¹¹ In addition, the size of public deficits during the first half of the past decade may well have created uncertainty about the longer-term outlook for monetary policy, and this would have been reflected in the yield spreads.¹² In any case, this measure of expectations finally began to decline and ended up close to the middle of the target range, where it has remained. In light of the inflation-expectations measures in Chart 1, it is reasonable to think that explicit inflation-control targets have enhanced the credibility of Canadian monetary policy.

Chart 2 compares inflation expectations derived from the Conference Board data with the performance of the overall CPI. Note that, since 1992, the date set for achieving the first target, inflation expectations have reacted very little to changes in the overall CPI, suggesting that the targets have helped to focus inflation expectations on the target rate and have thus enhanced the credibility of monetary policy. In fact, if targets were not credible, inflation expectations should track changes in the CPI very closely. As the chart shows, this is what happened in the period prior to the adoption of targets.

Other, more descriptive, methods can be used to obtain information on the credibility of Canadian

Chart 1
Comparison of Selected Inflation Expectations



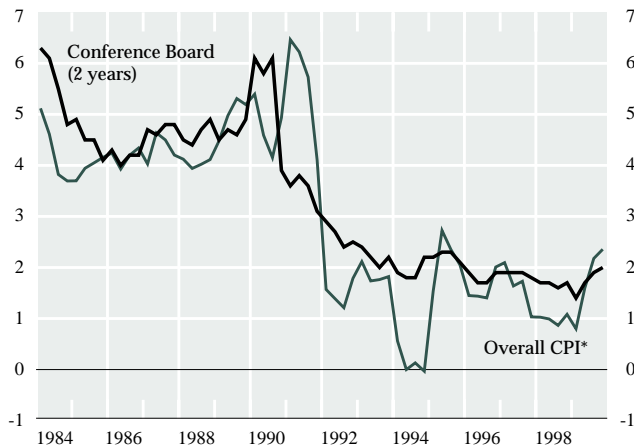
11. See Côté, Jacob, Nelmes, and Whittingham (1996) for a full discussion of this measure of inflation expectations.

12. See Clinton (1998).

Chart 2

Expected and Observed Inflation Rates

Per cent



* The low point in 1994 reflects a cut in taxes on tobacco products.

monetary policy. Amano, Coletti, and Macklem (1999) show that the life of collective wage agreements has been growing longer in Canada and that the proportion of such agreements containing cost-of-living adjustment (COLA) clauses has steadily declined. They suggest that this may reflect the greater credibility of Canadian monetary policy (Table 1). In addition, the proportion of mortgages with terms in excess of five years is higher than that observed during the 1980s,¹³ and many financial institutions have been offering 7- to 10-year mortgages in the last few years. Both of these facts suggest that inflation targets have gained credibility.¹⁴ Finally, the recovery in the corporate bond market is a further indication of increased credibility.¹⁵

13. See Montplaisir (1996–1997, 41).

14. Some banks are even offering a 25-year term.

15. See Miville and Bernier (1999, 3).

Table 1

Selected Indicators from Major Wage Settlements

Period	Average life of wage settlements (months)	Proportion of wage settlements with COLA clauses (per cent)
1978–84	21.6	23.8
1985–89	27.0	21.3
1990–94	24.6	19.6
1995–99	33.5	10.4

Source: Human Resources Development Canada

Conclusion

The preceding discussion has shown that a high degree of credibility can facilitate the achievement of policy objectives by dampening economic fluctuations and, more specifically, by diminishing the potential cost of measures to achieve those objectives. The public is aware that the monetary authorities may be tempted to abandon their stated objectives for short-term considerations, and thus the authorities should put in place measures that will help establish and maintain their credibility. In Canada's case, these measures were intended to increase the degree of transparency at the central bank and allow the public to assess the Bank's initiatives and achievements more fully.

Most of the studies cited in this paper conclude that the credibility of Canadian monetary policy has probably increased since inflation-control targets were established. The authors of these studies have pointed out, however, that it is difficult to distinguish the specific contribution of these targets from the impact of other factors—notably the decline in inflation itself. The results obtained to date are only qualitative, but it is reasonable to think that the public is paying increasing attention to the targets set by the Bank and the government when it comes to making economic and financial decisions.

Literature Cited

- Amano, R., P. Fenton, D. Tessier, and S. van Norden. 1997. "The Credibility of Monetary Policy: A Survey of the Literature with Some Simple Applications to Canada." In *Exchange Rates and Monetary Policy*, 1–64. Proceedings of a conference held by the Bank of Canada, October 1996. Ottawa: Bank of Canada.
- Amano, R., D. Coletti, and T. Macklem. 1999. "Monetary Rules When Economic Behaviour Changes." Bank of Canada Working Paper No. 99-8.
- Clinton, K. 1998. "Canada-U.S. Long-Term Interest Differentials in the 1990s." *Bank of Canada Review* (Spring): 17–38.
- Consensus Economics Inc. 1991–1999. *Consensus Forecasts*. Various issues. London, England.
- Coté, A., J. Jacob, J. Nelmes, and M. Whittingham. 1996. "Inflation Expectations and Real Return Bonds." *Bank of Canada Review* (Summer): 41–53.
- Drazen, A. and P. Masson. 1994. "Credibility of Policies Versus Credibility of Policymakers." *Quarterly Journal of Economics* 109: 735–54.
- Johnson, D. 1997. "Expected Inflation in Canada 1988-1995: An Evaluation of Bank of Canada Credibility and the Effect of Inflation Targets." *Canadian Public Policy* 23: 233–58.
- . 1998. "The Credibility of Monetary Policy: International Evidence Based on Surveys of Expected Inflation." In *Price Stability, Inflation Targets, and Monetary Policy*, 361–95. Proceedings of a conference held by the Bank of Canada, May 1997. Ottawa: Bank of Canada.
- Kydland, F. and E. Prescott. 1977. "Rules Rather Than Discretion: The Inconsistency of Optimal Plans." *Journal of Political Economy* 85: 473–91.
- Laidler, D. 1997. "Inflation Control and Monetary Policy Rules." In *Towards More Effective Monetary Policy*, 67–93, edited by I. Kuroda. Proceedings of the seventh international conference organized and sponsored by the Institute for Monetary Studies, Bank of Japan. New York: St. Martin's Press Inc.
- Macklem, T. 1997. "Capacity Constraints, Price Adjustment, and Monetary Policy." *Bank of Canada Review* (Spring): 39–56.
- Mishkin, F. 1997. "Strategies for Controlling Inflation." NBER Working Paper 6122.
- Miville, M. and A. Bernier. 1999. "The Corporate Bond Market in Canada." *Bank of Canada Review* (Autumn): 3–8.
- Montplaisir, M.-C. 1996-1997. "The Maturity Structure of Household Financial Assets and Liabilities." *Bank of Canada Review* (Winter): 33–46.
- Perrier, P. 1998. "Un examen de la crédibilité de la politique monétaire au Canada." Bank of Canada Working Paper No. 98-12.
- Rogoff, K. 1985. "The Optimal Degree of Commitment to an Intermediate Monetary Target." *Quarterly Journal of Economics* 100: 1169–89.
- St-Amant, P. and D. Tessier. 1998. "Résultats empiriques multi-pays relatifs à l'impact des cibles d'inflation sur la crédibilité de la politique monétaire." Bank of Canada Working Paper No. 98-23.
- Thiessen, G. 1995. "Uncertainty and the Transmission of Monetary Policy in Canada." *Bank of Canada Review* (Summer): 41–58.
- . 2000. "Accountability and Transparency in Canada's Monetary Policy." *Bank of Canada Review* (Spring): 19–22.
- Walsh, C. 1996. "Accountability in Practice: Recent Monetary Policy in New Zealand." *FRBSF Economic Letter* No. 96-25. San Francisco: Federal Reserve Bank of San Francisco.

