Pierre Duguay: The Bank of Canada's research agenda and the future of inflation targeting

Remarks by Mr Pierre Duguay, Deputy Governor of the Bank of Canada, to the Canadian Association for Business Economics, Kingston, Ontario, 27 August 2007.

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The last few weeks have been a time of turbulence in financial markets. In times such as these, it is common for people to focus on day-by-day or even hour-by-hour events, and to lose sight of the future. But tonight, I want to focus on the future; specifically, the future of inflation targeting in Canada. I want to discuss the key issues facing us as we consider refining our monetary policy framework in the years ahead, and to speak about the Bank of Canada's research program in this important area. I will finish with some remarks on recent developments in the Canadian economy and in financial markets.

Inflation targeting – room for improvement?

It may seem as if the Bank of Canada has been talking about inflation targeting forever. But as an approach to monetary policy, inflation targeting is not all that old – less than 20 years. In the words of economics professor Ken Kuttner, inflation targeting is still in its adolescence.[1] And like many adolescents, it still has a few issues to work out.

But let me be clear: Whatever issues there may be, our policy framework of inflation targeting, supported by a floating exchange rate, remains the most effective approach yet devised for conducting – and explaining – monetary policy in a country like Canada. No central bank that has adopted inflation targeting has later abandoned it. Together with sound fiscal policy, inflation targeting has clearly made a significant contribution to Canada's economic welfare. Consumers and businesses have been able to manage their finances with greater certainty about the future purchasing power of their savings and income. Economic signals sent by movements in relative prices have been clearer, and labour markets have been able to function better. Low and stable inflation has also meant that interest rates, both in nominal and real terms, have been lower.

Inflation targeting has also been quite successful in anchoring inflation expectations and in dampening economic fluctuations, owing largely to the transparency of communications that the framework encourages. Well-anchored inflation expectations have helped to reduce the propagation of price shocks to wages and prices and to dampen the sensitivity of inflation to excess demand and supply. This has made the conduct of monetary policy more effective and efficient. In effect, we've created a virtuous circle. A better monetary policy framework has led to better inflation outcomes, increased policy credibility, and a more stable macroeconomic environment.

Reflecting the success of the inflation-targeting regime, the government and the Bank of Canada renewed the inflation-target agreement in November of last year for another five-year period. As part of that renewal, we took the opportunity to refine and clarify our framework, and we reached conclusions in three areas: the use of core inflation measures, the role of asset price movements in the conduct of policy, and the appropriate time frame for bringing inflation back to target following a shock. We concluded that we should continue to look at measures of core inflation as a way to gauge the strength of underlying inflation,

[1] K. Kuttner. "A Snapshot of Inflation Targeting in its Adolescence", in *The Future of Inflation Targeting*, 6-42. Proceedings of a conference held by the Reserve Bank of Australia, August 2004, (Sydney: Reserve Bank of Australia).

although our target remains total CPI inflation. As for asset price movements, we will continue to take them into account to the extent that they have implications for future inflation. And we will continue, generally, to aim to return inflation to the 2 per cent target over a six- to eight-quarter horizon, unless faced with shocks where a slightly shorter or slightly longer horizon would be more appropriate. Should such a case occur, we would communicate it transparently.

While inflation control is clearly the right assignment for monetary policy, there always remains the question of whether the specific regime established in the 1990s will deliver the greatest contribution to economic performance in the decades ahead. So, when the inflation-targeting agreement was renewed last year, the Bank published a background document that spelled out two basic questions, which we hope to answer: Is 2 per cent the right target? And should the Bank express its target in terms of a path for the **level** of prices, instead of the rate of inflation?[2] Let me spend a bit of time discussing these two questions.

Is 2 per cent the right target?

When the Bank and the Government of Canada first agreed on a series of targets for inflation in 1991, a 2 per cent rate of inflation was seen by the Bank as a step towards price stability, which had yet to be defined. But it was also seen by most as a very ambitious target. After all, it had been decades since the Canadian economy had experienced a sustained period with inflation at 2 per cent or less. Indeed, during the 1980s, we had had trouble containing inflation to 4 per cent. In addition, there were fears at the time that the introduction of the Goods and Services Tax could rekindle inflationary pressures. But inflation quickly fell into line following the announcement of the targets, and has averaged very close to 2 per cent since the end of 1991.

Since then, we have seen that the economy functions better at a low rate of inflation. But this experience raises the question: Would a lower inflation rate lead to further efficiency gains for the Canadian economy? There are a number of reasons to think so. Lower inflation would reduce the misallocation of resources by reducing price dispersions and making price signals clearer. It would also reduce the costs of updating prices and the economic distortions coming from a non-indexed tax system.

We have been researching this issue for some time. Back in 1998, the Bank published a number of papers that examined the theoretical arguments and the empirical evidence on the potential benefits of lower inflation, most notably a paper by McGill University's Chris Ragan and several papers by Bank researchers.[3] But it has proven difficult to quantify the expected benefits of lower inflation. In a recent commentary, David Laidler of the C.D. Howe Institute expresses lingering pessimism about finding material efficiency gains. He focuses instead on the distributional benefits of lower inflation, arguing that these will take on increased importance as our population ages and a growing number of Canadians rely on fixed incomes.[4] However, advances in modelling offer new ways of quantifying the expected efficiency gains. These have been explored in two recent papers by Bank staff: one co-authored with Steve Ambler – the outgoing Special Adviser at the Bank of Canada[5] – the

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2 Bank of Canada. *Renewal of the Inflation-Control Target: Background Information* (Ottawa: Bank of Canada. 2006).

3 See C. Ragan, *On the Believable Benefits of Low Inflation*, Working Paper 98-15 (Ottawa: Bank of Canada, 1998) and D. Coletti and B. O'Reilly, "Lower inflation: Benefits and costs." Bank of Canada Review (Autumn 1998): 3-21.

4 D. Laidler, *Better Late than Never: Towards a Systematic Review of Canada's Monetary Policy Regime*, C.D. Howe Institute Commentary. (Toronto: Renouf Publishing, 2007).

5 R. Amano, S. Ambler, and N. Rebei, *The Macroeconomic Effects of Non-Zero Trend Inflation*, Working Paper 2006-34 (Ottawa: Bank of Canada, 2006).

other with Laval professor Kevin Moran.[6] Their early results suggest that this is an avenue worth pursuing further.

But while there may be benefits to be gained from a lower inflation target, there may also be costs involved in getting there. As I mentioned earlier, Canadians' expectations of inflation have now become firmly anchored on 2 per cent. Adjusting those expectations down to a lower level, say 1 per cent, may not be easy, although the cost of lowering inflation expectations can be expected to be lower than when inflation targeting was first adopted, given the credibility that the Bank – and our inflation-targeting framework – have acquired. However, the lengthening of non-indexed wage and debt contracts would raise some transition costs.

Two main arguments have traditionally been advanced against the idea of targeting a lower inflation rate. The first is the concern about downward wage rigidity: That it is more difficult to adjust real wages downwards in an environment of very low inflation because this will likely involve cuts to nominal wages. The second argument is that central banks could have problems implementing a stimulative policy in a very-low-inflation environment because nominal interest rates cannot go below zero.

With respect to downward wage rigidities, research described at the time of the 2001 renewal of the target,[7] as well as labour market developments generally, do not appear to provide a compelling argument against a lower inflation target. But the zero-bound constraint on interest rates remains a critical issue. The adoption of price-level targeting, however, could help central banks deal with the zero-bound constraint. So let me now turn to the topic of price-level targeting.

A target for the price-level path?

The essential difference between a target for the price level (which could rise over time) and an inflation target is that under pure inflation targeting, past deviations from the target do not have an impact on the future targeted rate of inflation. Movements in the price level that are perceived to be "one-off" events are ignored. Bygones are bygones. But with price-level targeting, past inflation performance does matter. If inflation had been below trend, causing the price level to fall below target, monetary policy would need to generate above-trend inflation for a while in order to return the price level to the target over time. Symmetrically, if inflation had been above trend, lifting the price level above its target, the central bank would need to bring about temporarily below-trend inflation to return the price level to its target path over time.

Economic theory suggests that targeting a path for the price level would benefit the economy by adding certainty about prices over the long term. This should support economic efficiency by reducing the risks associated with long-term financial contracts. Providing added certainty about future prices would be of particular benefit to people living on fixed incomes. And as I mentioned earlier, price-level targeting might also help central banks avoid some of the difficulties associated with the "zero-bound" issue. If people anticipate that the central bank would take the appropriate measures to achieve the target, expectations about the future price level could become very well anchored. In these circumstances, it would take smaller moves in nominal interest rates to bring about the needed change in aggregate demand, and hence the zero bound is less likely to become a problem. Let me explain. If a shock were to bring the price level below the target, the anticipation that prices would return to target over

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[6] R. Amano, K. Moran, S. Murchison, and A. Rennison, *Trend Inflation, Wage and Price Rigidities, and Welfare*, Working Paper 2007-42 (Ottawa: Bank of Canada, 2007).

[7] Bank of Canada. *Renewal of the Inflation-Control Target: Background Information* (Ottawa: Bank of Canada. 2001).

time would lower real interest rates and help boost demand, thus requiring a smaller reduction in nominal interest rates. Put another way, the drop in prices below target would induce buyers to take advantage of the temporarily low prices. This would alleviate the problems posed by the zero bound.

There is, however, concern about how a central bank would need to respond to certain shocks under price-level targeting. Under inflation targeting as it is now practised, one-off relative price movements or changes in indirect taxes would not trigger a monetary response as long as inflation expectations remain anchored. By focusing on the future trend of inflation, an inflation-targeting central bank accommodates one-off shifts in the price level and need not disturb the balance between aggregate demand and supply. But under price-level targeting, persistent relative price shocks would require a monetary policy response designed to bring about offsetting changes in other components of the consumer price index, which may involve shifts in the balance between aggregate demand and supply. It may be possible for a central bank to target the level of a core price index, which is less subject to relative price movements, rather than the total index. But this could add significantly to the communications challenges posed by price-level targeting.

These communications challenges are likely to be greater for a central bank that practises price-level targeting than for one that practises inflation targeting. The general public can easily relate to a well-publicized and straightforward number like the inflation rate, and to an inflation target that remains constant over time. It could be more difficult to communicate that the central bank's target was a particular level of a price index, which itself could be rising over time, and that the path of inflation needed to get to this target number would change, depending on whether the price level was above or below the target. Yet, a solid public understanding is important if the full benefits of increased certainty about the future price level are to be realized.

Any debate about the pros and cons of price-level targeting is bound to be based on theory, because only one country has had any real experience with it: Sweden in the 1930s. So we don't have much empirical evidence. That said, we now have the ability to construct the kinds of complex economic models – multi-goods models with relative price movements – that are important for conducting research into price-level targeting.

The Bank of Canada’s research agenda

Given the nature of the questions we have regarding both a lower inflation target and price-level targeting, there is a clear need for a lot of research to be done in a short period of time if we are to have a thorough discussion of the alternatives before the next renewal in 2011. And so the Bank has begun a concerted and ambitious research program for the next three years.

But we know that this task is too large for us to accomplish ourselves. We very much want to get others involved in this research agenda, so that we can benefit from their knowledge and expertise. The Bank has held special sessions connected with meetings of various economic groups, and we will be hosting joint conferences with other central banks, as well as our own research conference.

The Bank has also launched a new website: www.inflationtargeting.ca. This site is intended to be a hub where interested researchers can find out what research has been done, and what is being planned.

At the Bank of Canada, we want to be confident that we have developed the best policy framework to deliver on our mandate of promoting the economic and financial welfare of Canadians. Inflation targeting has proven its worth in helping Canada achieve solid economic performance. But it is still relatively young, and there is some room for it to grow. Over the next few years, we hope to answer some of the lingering questions we have had about inflation targeting.

We are not yet at the end of monetary history. With the Bank's research agenda, we hope to write the next chapter of the story. And we hope that many others, including some of you here tonight, will join us in that effort.

Recent economic and financial developments

Let me now turn to recent developments. I'll start with some words about the events in global financial markets. Over the past few weeks, there has been significant turmoil in financial markets around the world, and risk aversion has increased substantially. At the heart of the matter has been a reassessment of risk in credit markets triggered by concern about exposures to U.S. sub-prime mortgages. It has been extremely difficult to re-establish market prices for certain assets, particularly highly-structured asset-backed instruments. This is due in part to insufficient transparency – both about the actual assets that are backing these securities and about the distribution of exposure to these assets. The difficulty for market participants to evaluate risk and price it appropriately, together with the risk of an abrupt correction, was highlighted in the June issue of our *Financial System Review*. For some time we had been commenting that the narrow yield spreads on risky assets was raising questions about whether risk was being priced appropriately, a concern shared by other central bankers.

Signs of difficulty within global financial markets have been evident in the market for asset-backed commercial paper (ABCP) and in the drying up of liquidity in money markets more generally. Yields on short-term government debt fell sharply as investors tried to shift into risk-free assets, and demands for liquidity put upward pressure on overnight interest rates.

Most major central banks responded by providing liquidity to support the functioning of markets, conducting operations to reduce the upward pressure on overnight interest rates. The Bank of Canada undertook normal open market buyback operations to provide liquidity. It also temporarily expanded the list of collateral eligible for use by market participants in these buyback operations to include all securities already eligible for collateral in the Large Value Transfer System. As well, the Bank increased its supply of settlement balances as it normally does when it sees increased demand for cash balances.

Let me emphasize that the Bank of Canada's operations to provide liquidity do not represent a change in the stance of monetary policy, but are meant to meet increased demand for liquidity to help re-establish well-functioning financial markets.

Within the private sector, there have been important initiatives to support the functioning of markets. Canada's major chartered banks have confirmed that they are supporting their own bank-sponsored asset-backed commercial paper programs. As well, a number of major investors and liquidity providers have been pursuing an orderly restructuring for third-party structured finance asset-backed commercial paper. These initiatives should help support the functioning of financial markets in Canada.

Now let me conclude by turning to developments in the Canadian economy. I think it would be useful to recall what the Bank said in the *Monetary Policy Report Update (MPRU)* that we published in July. In that document, we said that economic growth and inflation in Canada in the first half of this year had been stronger than expected, and that the economy was now operating further above its production potential than was projected at the time of the April *Report*. Our base-case projection was for average annual economic growth of about 2 1/2 per cent through 2009, slightly below our estimate of the growth rate of potential, allowing the economy to return to its production potential in 2009. Inflation was projected to be slightly higher than in the April *Report*, returning to the 2 per cent target by early 2009. We identified both upside and downside risks to our inflation projection, noting that these appeared to be roughly balanced. The main upside risk related to the strength of household spending. The main downside risks related to the effects on the Canadian economy of the stronger Canadian dollar and of the ongoing adjustment in the U.S. housing sector. We increased our key policy interest rate to 4 1/2 per cent on 10 July, and said at that time that in line with our outlook, some modest further increase in the policy rate may be required.

Economic data published since the July *MPRU* have been roughly in line with expectations. Domestic demand in Canada has remained robust, against the backdrop of strong labour and housing markets. But given recent events in global credit markets, we need to assess the extent to which the risks around our July projection have shifted. Specifically, we are asking ourselves two questions: First, how much greater is the risk to the Canadian economy now posed by developments in the U.S. economy? And second, to what extent would the re-pricing of credit risk lead to a sustained tightening of credit conditions in Canada?

We will be considering these questions as we prepare for our next interest rate announcement on 5 September.