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Benefactors Lecture, 2008



Central Banking at a Time of Crisis and Beyond: A Practitioner's Perspective



David A. Dodge, O.C.
*Former Governor, Bank of Canada
and Senior Advisor, Bennett Jones LLP*

Toronto, November 18, 2008

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Foreword

In Canada, the financial crisis that erupted in the summer of 2007 and intensified in the fall of 2008 followed more than a decade of unusual economic and monetary stability. The 2 percent inflation target that currently serves as the Bank of Canada's primary monetary policy goal first came into force at the end of 1995. Since then, Canadians have enjoyed not just remarkably stable inflation, but also output and interest rates that were less volatile than during any comparable period in living memory.

The current crisis thus poses a severe test on several fronts. Are the Bank of Canada's tools of monetary control – used alone or in concert with other central banks – sufficient to prevent a systemic collapse in the financial system, and the dire consequences for the real economy that would almost certainly follow? Will financial turbulence abroad prevent Canadians, no matter how adeptly they manage their own affairs, from pursuing domestic monetary targets? Even if it does not, might these stresses lead Canada to abandon the regime that apparently served so well for something different?

As Governor of the Bank of Canada from 2001 to 2008, David Dodge devoted great time and attention to the long-term goals of monetary policy and its implementation, to the need for monetary policy to react to surprises at home and abroad, and to the effects of the central bank's strategy and tactics on the efficiency and stability of the banking system. As a former academic economist and senior public servant in several key federal government departments, he has long reflected on the ways in which fiscal and other policies complement or conflict with the objectives of the central bank. It is hard to think of a better person to help Canadians sort through the near-term challenges posed by the financial crisis, and preserve – or even build on – the regime that has served Canada so well since the mid-1990s.

For help in putting David Dodge's insights into the monograph in your hands, my colleagues and I are very grateful to ScotiaBank, the sponsor of the C.D. Howe Institute's 2008 Benefactors Lecture. We also thank the many reviewers who commented on drafts of the lecture. I am personally grateful to Institute Editor James Fleming and Page Layout Designer Heather Vilistus for producing the finished document.

The C.D. Howe Institute's aim in the Benefactors Lecture series is to raise the level of public debate on issues of national interest. Since Canada will be contemplating renewing or replacing the current 2 percent inflation target over the next three years, it is particularly important to consider the case David Dodge makes here for ensuring that Canadians emerge from the present turbulence with a monetary regime that preserves the value of the money they use. As with all C.D. Howe Institute publications, the opinions expressed here are those of the author, and do not necessarily represent the views of the Institute's members or Board of Directors.

William B.P. Robson
President and Chief Executive Officer
C.D. Howe Institute

I want to begin by thanking the C.D. Howe Institute for the opportunity to deliver the 2008 Benefactors Lecture. It is a privilege I especially value as the Institute has contributed much to the debates about monetary policy in Canada.

My former colleagues at the Bank of Canada and I have always valued very highly the research, commentary and constructive criticism sponsored by the Institute, and I very much hope the Institute will continue and expand this work in the months and years ahead.

What I would like to do today is to provide a practitioner's perspective on monetary policy issues. In so doing, I will try to set out in non-technical terms the basic lessons I have learned about the appropriate framework for monetary policy in Canada and, perhaps, in other jurisdictions as well. I hope that my remarks provide an inspiration for the Institute to sponsor future work on the thorny policy issues that demand further thought and research.

Especially at this time of financial market turbulence, when the focus of debate is on very short-term issues, it is important that I begin by setting out the Bank's long-term monetary policy goals. I will then describe our basic inflation targeting and flexible exchange rate framework for monetary policy, arguing that this framework is ideally suited to achieving both price stability and maximum sustainable output. I will describe how the Bank of Canada sets the key policy rate within this framework, evaluating both the usefulness and limitations of the policy rate tool in achieving medium-term stabilization objectives.

I will examine critically the Bank of Canada's financial stability role along with the stabilization role that other financial regulators must play – and have, perhaps, failed in the past to play – in order to preserve confidence in our financial system. I will provide some thoughts on what precipitated current financial instability and conclude with some specific policy suggestions that should ensure a more stable future economic climate.

Long-Term Goals

Over the longer term, the best macroeconomic contribution that governments and central banks can make is to preserve confidence in three things: the future value of money, the soundness of public finance and the stability of the financial system. This means that fiscal policy must be aimed at keeping the ratio of public debt to Gross Domestic Product at manageable levels.

The goal of monetary policy should be to maintain reasonably stable prices; that is, predictably low consumer price inflation over the longer term. Financial stability policy must be aimed at preserving financial soundness over cycles of optimism and pessimism. But reasonably stable prices, a sound financial system and low levels of public debt will not by themselves

I wish to thank my former colleagues at the Bank of Canada and C.D. Howe Institute reviewers for very helpful comments on earlier drafts of this paper. I also want to acknowledge the valuable research help of Sarah Howcroft.

produce high levels of growth over the longer term. Such growth depends fundamentally on innovation and investment that enhance the productivity of both physical and human capital.

But confidence in macroeconomic and macrofinancial stability is, I would submit, a necessary precondition for firms, both foreign and domestic, to innovate and invest, for households to work and to save, and for governments to pursue microeconomic policies that facilitate innovation, encourage productive investment and promote rapid adjustment to changing circumstances. Sound macroeconomic and macrofinancial policy – just like the rule of law and security of the person and property – is thus a part of the overall Canadian governance framework. This framework gives Canadians and foreigners the confidence to invest in Canada, to innovate, to take risks and to save in the way most likely to enhance the welfare of Canadians over the long term.

I have deliberately started by focusing on the long term because the long term is easily forgotten, especially at times like this when attention is understandably on the immediate financial market crisis. Over the long term, the Department of Finance and the Bank of Canada share the responsibility – implicitly or explicitly – for our macroeconomic and financial stability.

In dealing with current policy issues, every central banker – indeed every minister of finance and every regulator – should always have one eye fixed on that longer-term horizon and be asking the question, “What effect will my actions have on confidence in the future stability of prices, in the soundness of public finances and in the strength of the financial system?”

There is a symbiotic relationship between monetary and fiscal policy in achieving longer-term macroeconomic stability and confidence. No central bank can pursue monetary and financial stability policy that maintains public confidence if governments at the same time recklessly create excessive public debt. In the end, poor fiscal policy will dominate good monetary policy.¹ And I would note that in Canada, Parliament has given the central bank only limited tools to promote financial stability.² Thus, ultimately, the responsibility for maintaining confidence in the future value of money rests with government, even when the central bank has been given total operational independence to set the policy interest rate.

The long term is of course an aggregation of a series of short and medium terms. Governments must face elections at least every four years or so; more often in recent times. Central banks are the creatures of elected governments and even central bankers’ terms are usually only four to eight years. And so, while finance ministries and central banks are the guardians of the longer term, they must focus on stabilization policies that are appropriate in the medium term. If they are perceived to be failing in the medium term, their ability to achieve longer-term goals is compromised.

1 Blanchard 2004.

2 See the *Bank of Canada Act*, the preamble of which reads: “Whereas it is desirable to establish a central bank in Canada to regulate credit and currency in the best 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.”

Of course, it is equally true that if public confidence in longer-term stability erodes, it is much more difficult for a finance ministry or central bank to stabilize output and employment in the medium term. Indeed, the evidence is that these shorter- and longer-term goals are mutually consistent. For example, a focus on longer-term price stability by central banks is consistent with stabilization of output employment in the shorter term.³ A focus on prudent levels of public debt – building budgetary surpluses in good times – and on encouraging automatic stabilizers to work in bad times, helps achieve short-term, output stabilization.

So the real issue for both finance ministries and central banks is how to set, and communicate, a framework for monetary and fiscal policy that promotes several objectives. Together, they must assure confidence in the future value of money, the soundness of public finances and the stability of the financial system. At the same time, they must establish a framework that stabilizes employment and output at sustainable high levels in the face of real economic shocks and uncertainties about the future.

Drawing on my experience over the past 40 years – but in particular my experience as governor in the past seven – let me now turn to a practitioner's view of the art and science of setting monetary policy.

In theory, the simultaneous achievement of the twin goals of monetary policy – reasonable price stability and stabilization of output at a level consistent with economic potential – is possible.⁴ If demand can be kept growing at precisely the pace that the potential output of the economy is expanding, then the overall rate of inflation will remain roughly stable at the targeted rate. So the task of the monetary authority is, again in theory, relatively simple: keep the supply of money and credit growing at a rate that is consistent with allowing demand for goods and services to grow at the same rate as the real economy's ability to supply those goods and services. In practice, of course, this task is extremely complicated for several reasons.

First, the monetary authority does not know with any certainty what the future potential growth of supply is likely to be. Indeed, we have only an imperfect understanding of what growth in potential supply over the past few quarters has been.

Second, the monetary authority in an open economy can have only the roughest idea about the future growth of foreign demand for domestically-produced goods and services or the future supply of foreign goods and services.

Third, the monetary authority can only estimate the impact the tools at its disposal will have on the future growth of money and credit.

And, finally, it can only estimate the impact of credit growth on domestic demand.

Faced with this array of uncertainties and unknowns, how then can or should a central bank go about its medium-term task of stabilizing employment and output at a level consistent with potential (thus maintaining reasonable price stability over the longer run)? I will deal with these issues in my discussion of implementing monetary policy, but first let me deal with the overall strategy that the central bank needs to adopt.

3 See Bank of Canada (2006) and Walsh (2008).

4 See Blanchard and Gali (2005, 2).

Policy Framework

Given the inevitable uncertainties, a central bank needs a policy framework that minimizes the chances of making big errors in predicting either the direction of large excess demand and high inflation, or the direction of large excess supply and recession.⁵ The bank's policy framework must be communicated clearly so that all actors – financial players, businesses, households and governments – can reasonably be assured of the general direction of the actions the central bank will take to keep inflation close to target and stabilize output at levels close to potential over the medium term.

Since the end of the Second World War, central banks in OECD countries have struggled to find such an appropriate framework. Furthermore, central banks in both OECD and emerging economies continue to wrestle with this problem in an increasingly interconnected financial and economic world. As I have traced this struggle in another lecture,⁶ I will not recount this history today. I will simply describe briefly the framework that Canada has adopted, and why I believe this framework is generally appropriate.

Canada's framework, as you know, is that the Bank of Canada should set the policy interest rate with the objective of keeping inflation (as measured by the rate of increase in the Consumer Price Index) at 2 percent over the medium term. When inflation threatens to exceed or fall below this target, the bank should try to bring it back in line over the medium term, the medium term being loosely thought of as eight calendar quarters.⁷ This framework has been established by agreement between the Bank and the Minister of Finance, an agreement that is subject to renewal periodically (currently every five years). However, the Bank has full operational independence and is accountable for achieving the target.

Monetary policy is conducted in the context of a freely floating Canadian dollar. Since 1998, the Minister of Finance and the Bank have agreed on a policy that precludes the Bank's direct intervention in exchange markets except in extreme circumstances.⁸

Why choose a framework that focuses only on inflation when the objective is also to stabilize output at a level consistent with capacity? Is there not a risk that a single-minded focus on inflation might lead to instability of output? Certainly, the view of many economists in the

5 For example, John Taylor characterized the objective function faced by a central bank, known as the Taylor Rule, as:

$$i_t = \pi_t + r_t^* + 0.5(\pi_t - \pi_t^*) + 0.5(\gamma_t - \gamma_t^*)$$

where i_t is the short-term nominal interest rate, π_t is the rate of inflation, r_t^* is the real interest rate associated with full employment, $\pi_t - \pi_t^*$ is the difference between the actual and the target level of inflation, and $\gamma_t - \gamma_t^*$ is the percent deviation of real GDP from full employment output. See Taylor (1993, 195-214).

6 Dodge (2008).

7 Bank of Canada (2001, 2006).

8 Policy available at: <http://www.bankofcanada.ca/en/backgrounders/bg-e2.html>.

1960s was that there existed a trade-off between inflation and output growth – and that higher rates of growth could be purchased at the acceptable price of a little more inflation.⁹

But experience over the past 40 years has demonstrated that no such trade-off exists over the longer run. A second finding is that those economies that have targeted low inflation have demonstrated no greater output volatility than those that have not. Indeed, the preponderance of evidence suggests that output volatility had been reduced.¹⁰ Our own experience in Canada indicates that inflation targeting “has been an important contributing factor” to improved stability of output and employment in Canada since 1991.¹¹

Why is this the case?

The huge advantage of inflation targeting is that it anchors expectations. While it took a little while for expectations to conform to targets after we introduced our framework in 1991, expectations of future inflation have for more than a decade been fairly firmly anchored at the 2 percent target. In Canada, as elsewhere where inflation targeting has been adopted, this anchoring of expectations has made a major contribution to stabilizing output, wages and prices. While rather benign conditions have existed over much of this period, certainly the real value of an inflation-targeting framework is evident in the recent environment of huge changes in relative prices. The well-anchored expectations over the past few years stand in stark contrast to the experience of the rising oil and food prices in the 1970s. As Walsh puts it: “The formal primacy of inflation control in communication strategies of inflation targeting central banks is well suited to explain why – in the face of short-term increases in inflation – policy is consistent with medium-term inflation control.”¹²

My satisfaction with our framework does not mean that it is without critics. Nor does it mean that modifications or improvements cannot be made. However, based on my experience, the two most frequent critiques of the framework are, at least as yet, unsubstantiated. First, the criticism that focusing on inflation control means slower growth is not consistent with the empirical evidence, as I have just pointed out.

Second, the criticism that exclusive focus on consumer price inflation, with no consideration paid to asset price volatility, will lead to suboptimal economic performance is, I believe, not primarily a criticism of inflation targeting as the framework for setting the policy rate.¹³

Nevertheless, this criticism certainly relates to the other policy tools used to implement the inflation targeting framework, both the tools used by central banks and, in particular, those used by other regulators to promote financial stability. Effective prudential and market conduct regulation and ensuring that the central bank is seen as a clear lender of last resort are critical

9 Dodge (2008, 3-4).

10 Lin and Ye (2007, 11).

11 Bank of Canada (2006, 5).

12 Walsh (2008, 34).

13 See Cecchetti et al. (2002); Borio and Lowe (2002); Bank for International Settlements (2003); Bank for International Settlements (2005, 152); and Bank for International Settlements (2006, 152).

parts of the framework to promote financial stability over the medium term. Implicitly, they are also essential elements of a framework to promote price and output stability. I will return to this issue later, but first let me describe how we set the policy rate to keep inflation close to target and the economy growing close to potential.

Setting the Policy Rate

Historically, central banks have used a variety of instruments to influence the price and quantity of credit and, hence, the strength of demand for real goods and services. The key instruments have been the policy rate, reserve requirements and direct quantitative controls. In Canada, we abandoned direct quantitative intervention by the late 1960s. Then, in the early 1990s, the Bank of Canada determined that reserve requirements were no longer necessary, and since 1994 has relied almost exclusively on the policy rate as the key tool to influence the price and availability of credit, except during periods of financial stress when direct provision of liquidity has been important.¹⁴

As a practical matter, the stabilization objective of the central bank is to keep demand growing roughly in line with the growth of potential output with due regard to differences in the levels of demand and potential that might develop. By adjusting the policy rate to keep the output gap small, inflation is, in theory, controlled and maximum sustainable growth is achieved.

Thus the basic operating paradigm for the central bank is simple:

- When the output gap is positive (excess demand) and inflation threatens to be above target over the medium term, raise the policy rate to reduce future demand pressure by increasing the price of credit to households and businesses.
- When the output gap is negative (excess supply) and inflation threatens to be below target over the medium term, reduce the policy rate to reduce the price of credit to households and businesses and thus increase demand.

The problem is that central banks must make policy rate decisions in the real world, under conditions of uncertainty. There is:

1. Uncertainty as to future growth of demand and supply potential in the domestic economy.
2. Uncertainty as to demand and supply conditions in the rest of world.
3. Uncertainty as to the impact of changes in the rate policy on credit conditions and, hence, on demand, especially when the structure of financial markets is evolving rapidly.

The art of central banking is dealing with these uncertainties. In our uncertain world, how does a central bank go about analyzing expected future imbalances between demand and supply that will impact on future inflation? In practice, we start with projections derived from models based

¹⁴ Dodge (2008, 8).

on the average relationships that in the past have determined the growth of demand and supply. As long as these relationships are stable, the projections provide a good starting point.

These models are then rerun to take account of “shocks” that might occur, and a judgement is made as to the most likely outcome and the balance of risks surrounding that outcome. While projecting demand is very difficult, projecting future potential supply is even more challenging.

The first problem is that potential is unobservable. Even historic domestic potential must be inferred from data on nominal output, capital and labour inputs, etc. – data that are revised and revised again over time. Moreover for an open economy, global potential is very important. But even if we knew the past with certainty, the past is not always a good guide to the future. Overestimating potential was a huge problem in the 1970s, contributing to inflation. And big changes in relative prices over the past few years makes judging medium-term potential very difficult today.¹⁵ Central banks do make very considerable efforts to build models to predict future potential based on historical experience. But faced with major changes in technology, trade and relative prices, the likelihood of errors is large.

Movement in the rate of inflation is one signal of excess demand (or demand deficiency) relative to potential. We have found that core inflation is actually a pretty good indicator of emerging excess demand pressures and a reasonably good predictor of future inflation. At the Bank, we construct several alternative measures of core inflation, although we use CPIX as our main indicator.¹⁶ Thus, one of the huge advantages of the inflation targeting framework for monetary policy is that it should, and I emphasize should, prevent gross and sustained misjudgment of potential by “forcing” central banks to act to bring inflation back to target (Figure 1).

Of course, the evaluation of domestic potential supply is greatly affected by the evolution of demand-supply conditions beyond our borders – conditions that are not subject to the influence of Canadian monetary policy.

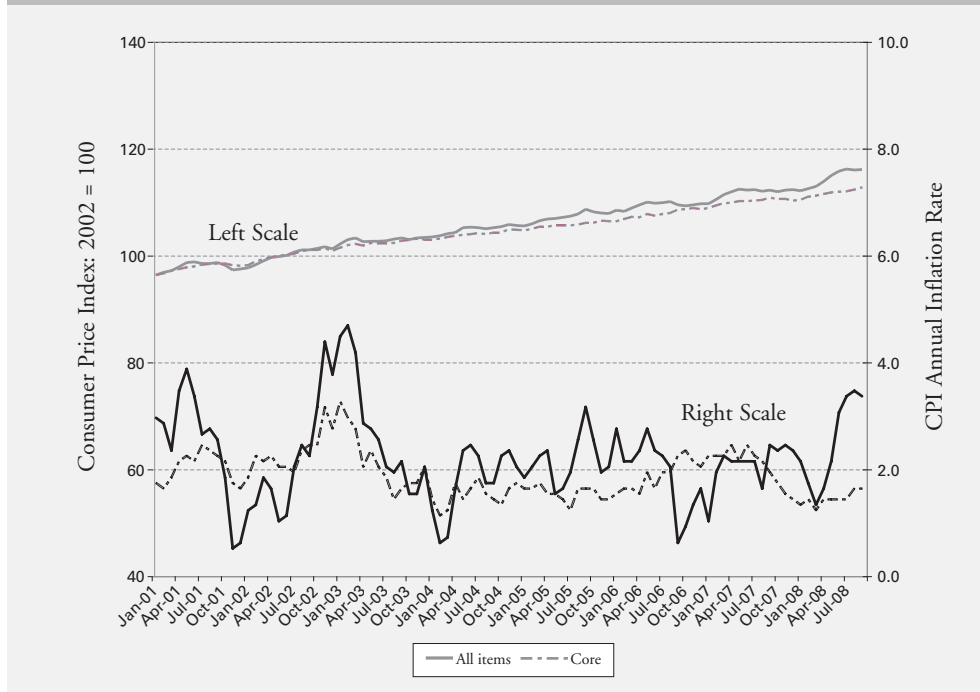
For a mid-sized, very open economy such as ours, what happens outside our borders has a huge impact on the Bank of Canada's ability to stabilize prices and output in the medium run. This means devoting considerable effort to modelling and assessing developments abroad and the impact of these developments on our output gap. And it means making efforts to secure a better functioning international system through the strengthening of global institutions such as the IMF.¹⁷

15 For a discussion of the impact on productivity of movements in relative prices, see Dupuis and Marcil (forthcoming).

16 Since May 2001, CPIX has excluded eight of the most volatile components of the consumer price index (fruit, vegetables, gasoline, fuel oil, natural gas, mortgage interest, intercity transportation and tobacco products), as well as the effect of changes in indirect taxes on the remaining components of the CPI basket as produced by Statistics Canada. Some alternative measures of core inflation are CPI-XFET (CPI excluding food, energy and the effect of changes in indirect taxes) and CPIW (where the weight of each CPI component is adjusted by a factor inversely proportional to the volatility of the component, and the effect of changes in indirect taxes is excluded). CPI can be found in CANSIM Table 326-0020, series V41690973, and CPIX in CANSIM Table, series v41693242.

17 The changing role of the IMF is discussed in Dodge (2006).

Figure 1: Stable Consumer Price Inflation, 2001 – 2008



Sources: Statistics Canada, Bank of Canada, C.D. Howe Institute.

As a practical matter, we have learned that the best mechanism to stabilize the impact of changing relative prices and evolving international supply and demand conditions is to allow our exchange rate to float freely. The implications for the Canadian economy of changes in the exchange rate depend on the cause of the change and, therefore, may require different monetary policy responses. To the extent that exchange rate movements reflect changes in demand for Canadian goods and services (Type One movements), these exchange rate shifts do the work of changes in our policy rate, and little or no additional adjustment of the policy rate is needed. When the movement is independent of demand for Canadian goods and services (Type Two movements), all other things equal, a domestic monetary response is normally required.¹⁸

While there have been short periods during this decade when exchange rate movements were driven by Type Two factors (for example, in winter 2002 and fall 2007), movements in the exchange rate have generally reflected changing terms of trade and changes to the balance between foreign demand for Canadian goods, services and capital on the one hand and Canadian demand for foreign goods, services and capital on the other.

Although pass-through of exchange rate movements to producer prices is relatively quick and direct, the pass-through to consumer prices is much weaker and slower.¹⁹ However, despite

18 Bank of Canada (2005, 3).

19 Murray (2008).

the weaker and slower impact on consumer prices, and despite the tendency of the exchange rate to temporarily overshoot during periods of rapid adjustment, exchange rate movements in the medium term generally proceed in the right direction to deal with much of the impact of changing global conditions on domestic prices and output. Generally speaking then, a floating exchange rate leaves the Bank free to use the policy rate to deal with demand conditions – especially from domestic sources – affecting the output gap and inflation.

Of course, there are significant time lags between changes in the policy rate and their impact on demand for goods and services. If credit spreads and the structure of the financial system are both stable, and this is a big if, a change in the policy rate will have a significant impact on output after about just two calendar quarters. Normally, it would take four to six quarters before the full output impact is felt, with the full inflation impact typically occurring after six to eight quarters. For this reason, central banks must be forward looking when setting rates, often moving the policy rates in a direction that appears to be inconsistent with recent economic performance.

Moreover, because of these lags, it may be necessary to move rates quickly and sharply in response to an event – such as 9/11 – which might have a significant but unknown impact on demand. Such a movement is appropriate as long as the policy rate is readjusted if it subsequently becomes clear that the impact on demand is much less than anticipated.²⁰

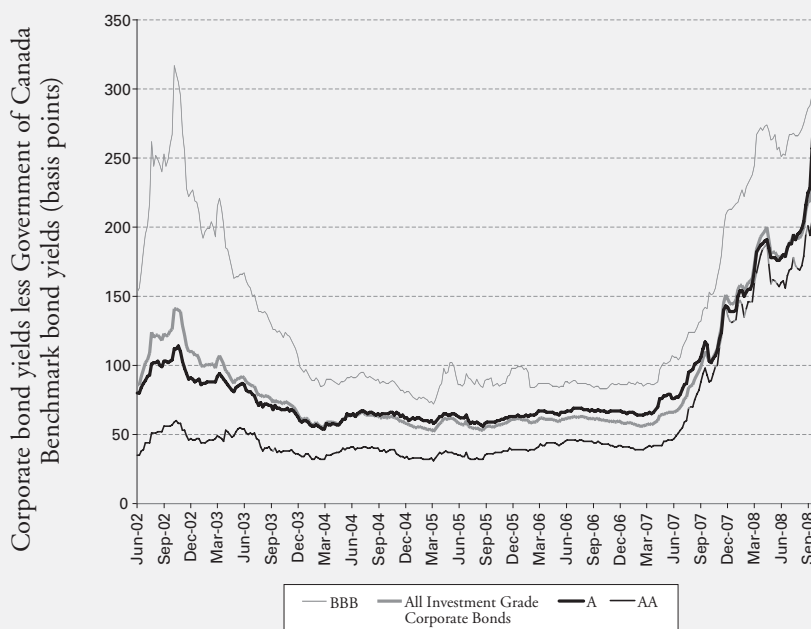
Despite the uncertainties and lags involved, if credit spreads and the structure of the financial system are stable, a floating exchange rate and adjustment of the policy rate to keep inflation close to target over the medium term will generally stabilize output growth with growth of potential. But while “if” is a little word, it has very large implications. How should a central bank adjust its policy rate in light of the uncertainties about the evolving structure of financial markets and the impact of this evolution on financial stability?

Monetary Policy and Financial Stability

Just as the central bank must deal with uncertainties about the future of demand and supply of goods and services when setting the policy rate, so it must deal with uncertainties about the evolution of the financial system. As the financial system evolves, so does the relationship between the policy rate and the availability and price of credit for both households and businesses. Over the past decade, we witnessed the explosive growth of derivatives and other new financial instruments that had the effect of easing very significantly covenants and conditions on which credit was made available. These changes in the structure of financial markets also had the effect of reducing the spread between the interest rate charged to “risky” borrowers and the rate on riskless government bonds. Finally, these changes over the decade to 2007 had the impact of reducing the effective price of credit, relative to the policy interest rate.

20 For example, after September 11, 2001, the Federal Reserve Board decreased the target for the federal funds rate by 175 basis points by the end of 2001, twice lowered rates further in the following two years, and held the rate at one percent until June 2004. The Bank of Canada, on the other hand, cut its policy rate by 200bp from September 2001 to January 2002, and then initiated a phase of tightening in April 2002.

Figure 2: Option-Adjusted Spreads, June 2002 – October 2008



Note: Option-adjusted spreads capture the difference between the yield of the index of Canadian corporate bonds and Government of Canada benchmark bonds of similar maturity, as measured in basis points. The corporate bond yields are adjusted to account for embedded options, so that they are comparable to government bonds, which do not carry options.

Sources: Merrill Lynch, Bank of Canada.

The challenge for central banks was how much to adjust policy rates to take these changes into account. In theory, a narrowing of risky spreads could be offset by an increase in the policy rate. When credit spreads reflecting risk are narrower than “normal,” a higher policy rate than “normal” might be required to achieve a given level of market interest rates and, consequently, a desired impact on demand for goods and services. And vice versa, when risky spreads are wider than “normal,” as they have been for the past 16 months or so, a lower policy rate might be required.

The problem is that, except in times of severe illiquidity in financial markets, the variation in spreads, at the short end of the yield curve in particular, is very small. For example, in the expansion phase of this cycle, from 2002 until early 2007, spreads hardly moved at all.²¹ It is certainly true that the spreads on longer-dated securities (for example, BBB-rated bonds over US treasuries) narrowed in 2003, but even here the narrowing was less than 100 basis points from levels prevailing in 2002 (Figure 2). So while it may be true that some upward adjustment

21 Over the period mid-2002 to mid-2007, Canadian (CDOR) spreads ranged between -62 and 21 basis points, while in Europe the London Interbank Offered Rate spreads fluctuated even less, between -1.5 and 16 basis points in the Euro-area and 6 to 20 basis points in the United Kingdom.

in central bank policy rates (over and above rates required to control inflation in the medium term) might have been warranted in the United States in 2003 to account for narrowing spreads, for Canada such adjustments would have been small.

When credit markets are under severe stress and credit spreads widen dramatically, then a more significant downward adjustment in the policy rate is warranted. Many central banks, including the Bank of Canada, have made such adjustments since the fall of 2007. But the main problem in the latter half of 2007 and this year has not been the price of credit per se, rather it has been that the system became illiquid.²² The task of central banks was to supply liquidity to the system – something that could not be achieved simply through a reduction in the policy rate, subject as it is to a lower bound of zero.²³

As a result of this analysis, I have reached the following practical conclusion:

While adjustment of the policy rate can work well to achieve inflation targets and reasonable output stability when the financial structure is stable and markets are normally liquid, in times of a rapidly evolving financial structure or in times of extreme liquidity or illiquidity in financial markets, the appropriate degree of financial and economic stabilization cannot be achieved exclusively through adjustment of the policy rate. While some modest increase of the policy rate from the level that would be judged appropriate to stabilize output and consumer prices might be warranted in periods of rapid asset-price inflation, I would continue to argue that large asset-price movements indicate the need for other policy tools to be brought to bear.

The rapid global escalation of asset prices from 2002 to 2006 was certainly a signal that something was going on in financial markets that might signal danger ahead.²⁴ Narrowing of “risky” spreads also signalled that some modest additional increase in policy rates was probably warranted, especially in the United States, even though inflation was subdued.²⁵ But it was the explosive growth of structured credit and real estate mortgage lending that indicated some action was warranted.²⁶

But what action? Very large increases in policy rates over 2003-2005, especially by the US Federal Reserve, undoubtedly could have checked the explosive growth of credit and deterioration of lending standards. Such increases would likely have produced a sharp global

22 Laidler (2004a, b).

23 A situation in which a central bank is unable to stimulate the economy through easing of monetary policy (i.e., reduction of policy rate) because the nominal interest rate is already at or close to zero is known as a liquidity trap. See Romer (2006, 531).

24 Bank for International Settlements (2004, 2005, 2006).

25 Note however that low, risk-free rates in Europe and North America reflected the excess of global savings largely due to high and rising savings rates in Asia and the Middle East – more than offsetting low and falling savings rates in the US, and some other parts of the OECD area including Canada. These global imbalances resulted in part from exchange rate misalignments – misalignments that would have been exacerbated by higher North American interest rates.

26 Day (2005, 17-18).

economic slowdown similar to the one we are now experiencing – a slowdown that very well could have led to the type of turmoil in financial markets we have indeed seen this year. Exchange rate realignment would certainly have helped to reduce global imbalances, and thus check asset price increases in both developed and emerging market economies. But what was really required in the OECD area – including Canada, but especially in the United States – was that other instruments of monetary and financial policy be brought to bear: instruments better suited to dealing with the problems at hand.

What are these instruments?

You will recall that, earlier, I said Canada had progressively abandoned quantitative measures to control credit growth after 1967 and that, by 1994, we had eliminated reserve requirements for chartered banks. These control measures were designed explicitly to be countercyclical – i.e., to slow the growth of credit in periods of optimism and rising profits in financial institutions by requiring them to set aside additional reserves and to tighten the terms and conditions for residential mortgages. In times of economic weakness or financial stress, financial institutions could draw down those hidden reserves to keep credit flowing and terms and conditions for residential mortgages could be eased.

However, these controls and the use of moral suasion by the central bank were not very transparent. Further, they were highly discretionary and distorted the pricing of credit. Thus, appropriately, the focus of the Bank of Canada and other central banks shifted from measures to control the quantity of credit to the one measure that influences the price of credit; that is, the policy rate.

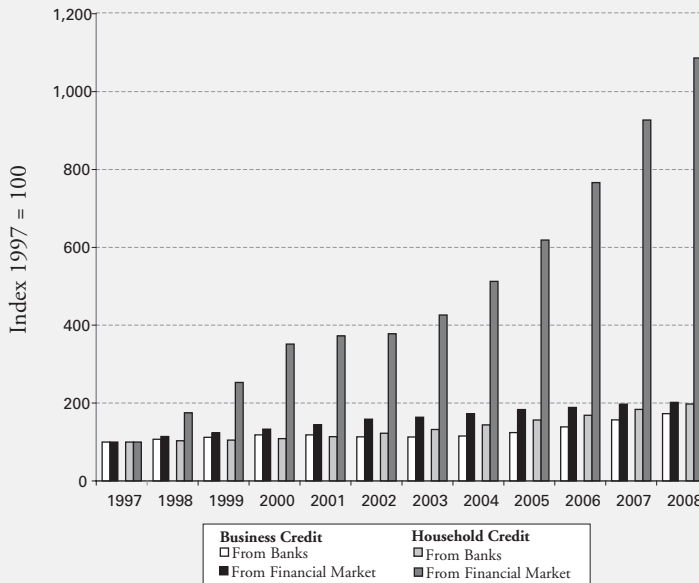
The federal government created new agencies – the Canadian Deposit Insurance Corporation (CDIC) and, later, the Office of the Superintendent of Financial Institutions (OSFI) – to provide oversight of financial institutions. Canada Mortgage and Housing Corporation (CMHC) and the Department of Finance were to provide oversight of the mortgage market. Provincial securities commissions would continue to oversee securities markets.

But none of these agencies (with the exception of the Department of Finance) had the macrofinancial stabilization motive or mandate of the central bank. Thus, over the past 40 years, the burden of stabilizing credit growth has shifted increasingly to one instrument alone – the policy rate.

And at the same time – especially over the past decade – a larger and larger fraction of credit has been supplied directly through the financial market, rather than through commercial banks. From 1997 through 2007, business credit supplied through commercial banks increased by 57 percent, while credit supplied through the financial market increased by 97 percent. Meanwhile, household credit supplied through banks and the market increased by 84 percent and 827 percent respectively (Figure 3).

I am not suggesting that we turn the clock back to the 1960s when the Bank of Canada focused largely on direct credit control rather than the price of credit. But I would argue strongly that all agencies with oversight responsibilities must assume some of the burden for

Figure 3: Canadian Business and Household Credit Supplied via Commercial Banks versus Financial Market



Sources: Bank of Canada.

stabilizing the financial system. In other words, agencies responsible for prudential regulation of financial institutions and oversight of mortgage and financial markets must have at least one eye focused on macrofinancial stabilization issues.

Regulation by these agencies should be explicitly structured to “lean against the wind.” They need to automatically dampen the incentives of financial institutions and financial market players to ease credit conditions during periods of optimism and restrict credit creation during periods of pessimism. These agencies, working with the central bank and Department of Finance, must act to dampen the natural procyclical behaviour of financial institutions and markets. Without such attention, the natural market cycles of optimism and pessimism can be greatly exacerbated and the risk of financial instability increased.²⁷

I think the real answer why such global financial instability was allowed to build over the last decade is that there were inadequate mechanisms, internationally and domestically, for bringing relevant agencies together to take appropriate financial stabilization actions. If prudential and securities regulators, deposit insurers, treasuries and agencies responsible for oversight of particular markets such as the mortgage market do not play their appropriate

²⁷ Barsky and Delong (1993).

stabilization role in concert with non-regulatory central banks, then I submit central banks, relying only on adjusting their policy rate, cannot be expected to do the job alone.

And if important parts of the market operate in a totally opaque way without oversight, the danger of instability is further increased.

Relying solely on the policy rate tool to stabilize the financial system would require very large movements in the policy rate on the upside – movements that in and of themselves would be destabilizing. And, of course on the downside, we have a zero lower-bound problem, as I said earlier.

A degree of co-operative stabilization action by all agencies with a financial oversight responsibility is required. In Canada, we have had a significant degree of stabilization co-operation among Finance, OSFI, CDIC and the Bank of Canada through the Financial Institutions Supervisory Committee and between these agencies and provincial securities regulators through regular Heads of Agencies meetings. Unfortunately, CMHC has been out of the loop and this needs to be corrected.

But, overall, while there is clear room for improvement, we in Canada have done fairly well this decade, at least relative to the poor performance of the G10 as a whole. And most importantly, Canadian financial institutions have generally done quite well in managing their risks and preserving their ability to keep lending in the downturn.

Market participants will always be subject to bouts of excessive exuberance and profound pessimism. It is the job of all agencies to work co-operatively with the central bank to put in place a robust financial framework to dampen – not exacerbate – the inevitably procyclical behaviour of financial market participants.

Faced with the current and real threat of financial and economic meltdown, the relevant regulatory agencies in Europe and the United States have been co-operating more closely with governments. Central banks have supplied enormous amounts of liquidity; governments have purchased financial assets and injected capital into the banking system; deposit insurers in some countries have increased insurable limits and taken over failing banks; finance ministries have taken various actions to underwrite or guarantee bank funding; securities commissions and accounting standards bodies have eased mark-to-market rules; and prudential regulators have taken some actions to ease capital adequacy rules for pension plans and insurance companies. These actions should begin to stabilize global financial markets in 2009. However, the period of deleveraging will continue for several quarters, and risky spreads will remain wider than normal. Spreads between bank lending rates and their borrowing costs will remain wider than normal for a few years as banks recapitalize themselves. All this implies very low rates of global growth in 2009 and probably 2010, with significant resumption of growth coming only in 2011 or 2012.²⁸

28 This is a somewhat more pessimistic outlook for 2010 than that contained in Bank of Canada (2008).

Key issues need to be addressed:

1. Prudential regulators need to have a more or less automatic tool to increase financial institutions' required capital when risky spreads significantly narrow or leverage increases. They also need to be able to reduce required capital when spreads widen significantly beyond some normal level or leverage contracts dramatically. This could be through adjustments to regulatory capital or through required general reserves.²⁹ I stress the need for a mechanism that will fairly automatically increase the requirement and incentive for increased capital or reserves during periods of economic optimism and rising profits. I am afraid that this means revising the 2004 Basel II arrangements – arrangements that encourage even greater procyclical behaviour than did Basel I.

I also stress the need for the general (global) use of maximum raw leverage ratios for banks. OSFI's 20-to-1 maximum ratio in normal times has served Canada rather well, although it may have put our banks at a competitive disadvantage earlier this decade.

Our international regulatory framework needs to be structured to provide greater incentives for the prudent management of credit risk and constrained use of leverage on the upswing in the business and credit cycle, and to reduce the disincentive to extend credit at the bottom of the cycle. Symmetry is essential.

2. Accounting standards bodies have inappropriately forced mark-to-market rules on financial institutions, rules that exacerbate the volatility of reported profits of financial institutions, thus providing market incentives for excessive risk taking on the upswing and excessive credit contraction on the downswing. The almost religious zeal with which accounting standards bodies have foisted detailed rules requiring financial institutions to continuously mark assets to market for reporting purposes has been a major contributor to volatility over this decade. Financial institutions should smooth profits by setting aside reserves during good times when market prices are likely to exceed the long-run value of assets, and vice versa in bad times. Accounting standards bodies as well as prudential regulators have an important role to play in establishing general rules that provide appropriate incentives for financial institutions to set aside general reserves or increase measured capital during the upswing.³⁰
3. Markets only function efficiently when there is reasonable symmetry of information. The most important role of market regulators is to set the basic principles of disclosure so that the purchaser of any security – equity, fixed income or derivative – has access to adequate information for a firm judgement as to the financial position and creditworthiness of the issuer. Securities

29 The Spanish system of general reserve requirements introduced in 1999 appears to have had positive stabilizing effects (de Lis et al., 2000).

30 Treasuries may also have to revisit the tax treatment accorded general reserves.

regulators have carried out this role reasonably well for traditional equity and fixed-income markets, although there is always room for improvement. But to function properly, markets for swaps, derivatives of various types, CDOs, etc., also require accessible information and oversight to ensure that basic principles of disclosure are applied. Thus, I believe that securities regulators will need to establish rules for structured products and derivatives to bring about much greater transparency with respect to the underlying credits.

Only with more adequate information will the purchasers of securities have the incentive and ability to assess the credit quality of the underlying financial assets and make a true assessment of the underlying credit risks involved, and especially the very low-probability, high-cost risks of counterparty default. By exposing information on underlying credits and counterparties, the procyclical tendency to ignore low-probability risks in times of exuberance is reduced.

Because much “traditional banking business” is now conducted directly through financial markets, securities regulators have had thrust upon them a need for a broadened financial market focus. At the moment, they are currently neither professionally equipped nor legally mandated to carry out this broadened focus. But such a change in focus is required, and this will pose an enormous challenge for all countries – including Canada.

4. Government-backed insurance of high-ratio residential mortgages plays an important role in improving the efficiency of the mortgage market. But it also plays an essential role in ensuring macrofinancial stability in times of stress. Only government can take on the tail risks involved and underwrite the losses that can occur in times of extreme stress. But the problem is that government is always under pressure to ease the terms and conditions for mortgage insurance when house prices are rising rapidly – the precise time when terms and conditions should be tightened. This easing at precisely the wrong time happened in the United States and was in the process of taking place in Canada this decade. What is needed is an automatic procedure to ensure that loan-to-value ratios of insured mortgages vary inversely with the rate of increase in house prices. As well, other terms and conditions will need to be tightened when house prices are rising very rapidly and loosened when house prices are falling. In Canada, we need the Department of Finance and CMHC to assume some responsibility for stabilization of the housing and mortgage markets by automatically adjusting terms and conditions for insurance in such a way as to dampen exuberant markets – not to add fuel to fire as they have done. Symmetrically, the Department of Finance and CMHC can then automatically support the housing and mortgage markets in times of financial stress.

31 For example, (Dodge 2006, 2007).

5. Central banks need to devote more effort to monitoring and assessing financial market developments, including market and institutional liquidity issues, and to discussing these developments with other relevant agencies. Central banks are in the best position to assess and analyze macrofinancial developments and to make this analysis available to other agencies and the private sector. We have done this at the Bank of Canada since 2003 through our semi-annual Financial System Review. Although we were generally right in our assessment of the risks that were building, both in Canada and abroad, in retrospect it is clear we were perhaps too circumspect in our language and too timid in our conclusions, especially our analysis of global macrofinancial stability. We worked closely with our Financial Institutions Supervisory Committee partners – CDIC, OSFI and Finance – but even closer co-operation is desirable going forward.
6. A huge degree of international co-operation will also be required in forging the preceding four changes. Central banks and prudential regulators have the Bank for International Settlements to foster and support effective co-operation. This forum could usefully be expanded to include securities regulators, such as the International Organization of Securities Commissions. But finance ministries are not present at BIS discussions. Thus, the IMF has a very important role to play, for it brings together finance ministers and central bankers. In the end, it will be governments that will have to co-operate to establish a stronger international monetary and financial structure. Canada (in particular, the Bank of Canada) has been a strong advocate for closer international co-operation. Heads of government should give support for greater international co-operation and strengthening of the international institutions to secure co-operation. Finance, central bank and regulatory officials need leaders' support in ongoing co-operative discussions. But in the end it will have to be national authorities which write and enforce the rules in the context of internationally accepted general principles.
7. And the financial institutions themselves have a lot of work to do to improve their own risk management and credit practices. The report of the International Institute of Finance (2008) provides useful principles in this regard.

Conclusion

A few brief concluding remarks:

1. Our general framework of inflation targeting works reasonably well both in anchoring expectations and guiding policy to stabilize output at a level close to potential. Some modest improvements may be possible; in particular, some elements of price level targeting should be considered in the Bank's next five-year review.

2. While a freely floating exchange rate is not entirely without problems, it is absolutely essential to price and output stabilization over the medium term. What needs urgently to be worked on is the global framework for exchange rates and macro adjustments – a consistent set of principles for all developed and emerging market economies.
3. While central banks probably do need to take greater cognizance of changes in financial market structures in setting policy rates, the scope to do so is limited both on the up- and downside. But central banks do have an important role to play in providing macrofinancial analysis to all agencies at all times and in providing liquidity to financial institutions in times of stress.
4. Most importantly, other financial regulatory agencies (and the financial institutions themselves) have an important role to play in stabilizing financial and credit markets.

Much effort will need to be devoted to improving the stabilization function of these agencies in the months and years ahead. Perhaps the time has come for a new Porter Commission in Canada. Even more importantly, the time has come for G20 leaders to put their weight behind a strengthened international monetary system and increased international co-operation among treasuries, central banks, financial regulatory agencies and the financial institutions themselves. And, certainly, the time has come for the C.D. Howe Institute to push forward vigorously with its work on monetary and financial policy so it can continue to make a major contribution to the policy debate in the months and years ahead.

References

- Bailliu, Jeannine and Eiji Fujii. 2004. "Exchange Rate Pass-Through and the Inflation Environment in Industrialized Countries: An Empirical Investigation." Working Paper 2004-21. Bank of Canada. June.
- Bank for International Settlements. 2003. "Monetary Stability, Financial Stability and the Business Cycle: Five Views." BIS Papers No 18. September.
- . 2004. 74th Annual Report. June.
- . 2005. 75th Annual Report. June.
- . 2006. 76th Annual Report. June.
- Bank of Canada. 2005. "Monetary Policy Report Update." January.
- . 2006. "Renewal of the Inflation-Control Target: Background Information." November.
- . 2008. "Monetary Policy Report." October.
- Barsky, Robert B., and J. Bradford DeLong. 1993. "Why Does the Stock Market Fluctuate?" *Quarterly Journal of Economics*. 108: 2 (May), pp. 291-312.
- Blanchard, Olivier, and Jordi Gali. 2005. "Real Wage Rigidities and the New Keynesian Model." Working Paper 11806. National Bureau of Economic Research. November.
- Borio, Claudio, and Philip Lowe. 2002. "Asset Prices, Financial and Monetary Stability: Exploring the Nexus." Working Paper No. 114. Bank for International Settlements. July.
- Cecchetti, Steph G., Hans Genberg, and Sushil Wadhvani. 2002. "Asset Prices in a Flexible Inflation Targeting Framework." Working Paper 8970. National Bureau of Economic Research. June.
- Day, Jim. 2005. "The Subprime Mortgage Market in Canada." Bank of Canada. Financial System Review. December.
- de Lis, Santiago Fernández, Jorge Martínez Pagés, and Jesús Saurina. 2000. "Credit Growth, Problem Loans and Credit Risk Provisioning in Spain." Banco de España Working Papers 0018, Banco de España.
- Dodge, David. 2006. "The Evolving International Monetary Order and the Need for an Evolving IMF" Lecture to the Woodrow Wilson School of Public and International Affairs. Princeton, New Jersey. March 30. www.bankofcanada.ca/en/speeches/2006/sp06-6.html.
- Dodge, David. 2008. "Monetary Policy Forty Years On." Eric J. Hanson Memorial Lecture. University of Alberta. Edmonton. February 4.
- Dupuis, David, and Phillippe Marcil. Forthcoming. "Effects of Large Relative Price Movements." Bank of Canada Working Paper.
- Laidler, David. 2004a. "Monetary Policy after Bubbles Burst: The Zero Lower Bound, the Liquidity Trap and the Credit Deadlock." *Canadian Public Policy*. University of Toronto Press, vol. 30(3), pages 333-340, September.
- . 2004b. "Sticking to its Knitting: Why the Bank of Canada Should Focus on Inflation Control, not Financial Stability." C.D. Howe Institute Commentary 196. Toronto: C.D. Howe Institute. February.
- Lin, Shu, and Haichun Ye. 2007. "Does Inflation Targeting Make a Difference? Evaluating the Treatment Effect of Inflation Targeting in Seven Industrial Countries." *Journal of Monetary Economics*. (54)2521-2533. Cited in Walsh, 2008.

- Murray, John. 2008. "Some Puzzles Related to Exchange Rate Pass-through." Prepared for Socio-Economic Conference 2008, hosted by Statistics Canada. Ottawa: May 5.
www.bankofcanada.ca/en/speeches/2008/050508_e.pdf.
- Romer, David. 2006. *Advanced Macroeconomics: Third Edition*. New York City. McGraw-Hill/Irwin.
- Taylor, John B. 1993. "Discretion versus Policy Rules in Practice." *Carnegie-Rochester Conference Series on Public Policy* 39. December.
- Walsh, Carl. 2008. "Inflation Targeting: What have we Learned?" John Kuszczyk Memorial Lecture, prepared for *International Experience with the Conduct of Monetary Policy under Inflation Targeting*. Bank of Canada. Ottawa, Ontario. July 22-23.
- White, William R. 2006. "Is Price Stability Enough? Working Paper No. 205. Bank for International Settlements. April.

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