Board of Governors of the Federal Reserve System

Speech

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Central Bank Commitment and Communication

One of the things I often tell my 25-year-old son is, "Keep your options open." In effect, this means that today he should make the best decision possible using the information he has at hand, and when tomorrow comes he should reconsider all of his options, and again the next day, and so on. In the terminology of economists, this strategy is usually referred to as "dynamic optimal policy under discretion." And the idea of complete discretion may sound like a great idea--after all, why should you restrict your choices? Nevertheless, in the context of central banking, the modern science of monetary policy indicates that a discretionary approach can lead to poor economic outcomes.[1]

Therefore, in my remarks today, I would like to explain how a commitment to keeping inflation low and stable can help foster the stability of economic activity as well as the stability of prices. After analyzing the pitfalls of discretion and the benefits of a firm commitment to a nominal anchor, I will discuss the role of central bank communication in promoting this commitment. I will then illustrate these conceptual principles by considering the experiences of other central banks that have adopted explicit numerical inflation objectives.

As usual, these remarks reflect only my own views and are not intended to reflect those of the Federal Open Market Committee or of anyone else associated with the Federal Reserve System.[2]

Pitfalls of Discretionary Monetary Policy
Starting in the 1970s, the economics profession began to recognize that the evolution of economic activity and inflation--and hence the design of optimal monetary policy--depends crucially on how households, firms, and financial market investors form their expectations regarding the future course of policy.[3] This recognition of the central role of expectations in macroeconomic outcomes led to the discovery of the *time-inconsistency problem*, a concept that sounds highfalutin but is actually quite intuitive.[4]

This problem arises whenever the possibility of short-run gains creates a temptation to renege on an existing plan, even though following that plan would produce a better outcome over the longer run. In essence, if a good long-run plan will not be followed consistently over time because the short-run gains of deviating from the plan are too tempting, then that plan is said to be *time-inconsistent*. In such a setting, the *time-consistent* policy is to reoptimize every period, whereas the preferable alternative would be to establish a *firm commitment* to the optimal long-run plan.

To take a common example that illustrates the time-inconsistency problem, someone may make a New Year's resolution about starting a diet. At some point thereafter, however, it becomes hard to resist having a little bit of Rocky Road ice cream, and then a bit more, and pretty soon the weight begins to pile back on.

The time-inconsistency problem arises in the context of monetary policy, because there is a temptation to give a short-run boost to economic output and employment by pursuing a course of policy that is more expansionary than firms or workers had initially expected.[5] Nevertheless, if the

economy is already at full employment, then this boost is merely transitory: As economic activity rises above its sustainable level, wages and prices begin to rise, and the private sector's inflation expectations start to pick up. Of course, the central bank must eventually remove the policy stimulus to avoid a continuous upward spiral of inflation. At that point, economic activity drops back to a sustainable level. However, inflation settles in at a permanently higher rate because prospects of future monetary expansions become embedded in expectations, and hence in wage and price adjustments, and the higher average inflation rate generates undesirable economic distortions.[6] Thus, failing to address the time-inconsistency problem poses the risk of ending up with a higher average inflation rate, with detrimental long-run consequences for economic efficiency and the general standard of living.

As my mother often told me when I was growing up, "The road to hell is paved with good intentions." Similarly, discretionary monetary policy, even though well intended, can lead to poor economic outcomes.

Benefits of a Firm Commitment to a Nominal Anchor

How can a central bank overcome the time-inconsistency problem? The answer is to establish a firm commitment to a nominal anchor--that is, to ensure that inflation remains low and stable over time. In a speech that I gave last week, I highlighted the merits of specifying an inflation objective in terms of a specific numerical value.[7] With an explicit numerical inflation objective, the central bank's strategy is aimed at keeping economic activity close to a sustainable growth path and at maintaining a low and stable inflation rate. Such a commitment ensures that the central bank resists the temptation to pursue short-run expansionary policies that are inconsistent with the long-run goals of price stability and maximum sustainable employment.

A strong commitment to an explicit numerical inflation objective has other significant benefits. First, the long-run inflation expectations of households and firms are a key factor in determining the actual behavior of inflation.[8] In the absence of a firm nominal anchor, these expectations may wander over time as the private sector revises its assessment of the rate at which inflation is likely to settle down, and those movements in long-run inflation expectations can generate pressure on the current inflation rate. Thus, by establishing a transparent and credible commitment to a specific numerical objective, monetary policy can provide a firm anchor for long-run inflation expectations, avoiding such pressures and thereby directly contributing to the objective of low and stable inflation. Moreover, such a commitment can play an important role in minimizing the risk of “inflation scares”--that is, episodes in which longer-term inflation expectations jump sharply in response to specific macroeconomic developments or monetary policy actions.[9]

Second, as I emphasized in a speech in late February, establishing a firm commitment to a nominal anchor can help stabilize output and employment.[10] Specifically, to counter a contractionary demand shock, the monetary authorities need to reduce the short-run nominal interest rate; however, the effectiveness of such a policy action may be hindered if long-run inflation expectations are not firmly anchored. For example, if the private sector becomes less certain about the longer-run inflation outlook, then an increase in the inflation risk premium could boost longer-term interest rates by more than the increase in expected inflation. The higher inflation risk premium would place upward pressure on the real costs of long-term financing for households and businesses (whose debt contracts are almost always expressed in nominal terms) and hence might partially offset the direct monetary stimulus. Thus, a central bank commitment that firmly anchors long-run inflation expectations can make an important contribution to the effectiveness of the central bank’s actions aimed at stabilizing economic activity in the face of adverse demand shocks.

Third, a strong commitment to an explicit inflation objective provides the central bank with greater flexibility to respond decisively to adverse demand shocks. Such a commitment helps ensure that an aggressive policy easing is not misinterpreted as signaling a shift in the central bank's inflation objective, and thereby minimizes the possibility that inflation expectations could move upward and lead to a rise in actual inflation. A strong nominal anchor can be especially valuable in periods of financial market stress; at such times, prompt and decisive policy action may be required to prevent

the financial market disruption from causing a severe contraction in economic activity that could further exacerbate uncertainty and financial market stress, leading to a further deterioration in macroeconomic activity, and so on.[11] Thus, by providing the central bank with greater flexibility in mitigating the risk of such an adverse feedback loop, the strong commitment to an explicit inflation objective can play an important role in promoting financial stability as well as the stability of economic activity and inflation.

Fourth, a strong nominal anchor can help minimize the effects of an adverse cost shock, such as a persistent rise in the price of energy. Generally speaking, such shocks tend to result in weaker economic activity as well as higher inflation. However, when longer-term inflation expectations are firmly anchored, an adverse cost shock is likely to have only transitory effects on actual inflation; hence, there may be no need to raise interest rates aggressively to keep inflation from moving upward. Thus, the commitment to a nominal anchor can help reduce output and employment fluctuations that impose unnecessary hardship on workers and, more broadly, the economy.

The bottom line is that a transparent and credible commitment to an explicit numerical inflation objective can provide significant benefits in facilitating the central bank's task of stabilizing both economic activity and inflation as well as fostering the stability of the financial system.

The Role of Central Bank Communication

Although a strong commitment to a nominal anchor is associated with significant benefits, establishing and maintaining such a commitment tends to be easier said than done. After all, my discussion of the time-inconsistency problem indicates that there are always pressures to renege on that commitment. Here I will argue that central bank communication to increase transparency and accountability can play a key role in helping central banks maintain a strong commitment to a nominal anchor.

The public announcement of an explicit numerical inflation objective increases the accountability of a central bank and therefore promotes the monetary authority's commitment to delivering low and stable inflation. As put by a former governor of the Bank of Canada, such objectives give the public a "precise yardstick for measuring how [the central bank] is doing."[12] The credibility of the central bank may rise over time as the public comes to appreciate its success in delivering inflation outcomes consistent with its stated numerical objective. Similarly, the temptation to pursue policy actions inconsistent with the objective--and hence renege on its commitment--may be diminished, because large or persistent deviations of inflation from the stated goal would be observed by the public and thus would be more likely to be called into question. As I argued in a speech last week, accountability is further enhanced if the inflation objective is stated as a numerical value rather than a range or comfort zone.[13]

But couldn't a numerical inflation objective be easily changed at the whim of the central bank or the government? The time-inconsistency problem could then rear its ugly head, because raising the numerical inflation objective could be used to justify more expansionary monetary policy to generate higher employment and output in the short run. Although this temptation to renege on keeping inflation low and stable might be present, the transparency of a public change in the numerical inflation objective, which will subject it to public scrutiny and debate, makes it much harder to engage in such opportunistic behavior. Unless an adjustment of the explicit inflation objective is perceived to be driven by analytical considerations, it will be viewed as violating the public's trust. The resulting loss of credibility on the part of the central bank (or the government) could be devastating; hence, there are strong incentives not to change the inflation objective absent sound technical reasons for doing so. Indeed, adjustments to the numerical inflation objective or the inflation measure have rarely occurred in practice, and those adjustments have been consistent with clear scientific reasoning.[14]

However, two important communication challenges arise in establishing a firm commitment to an explicit numerical inflation objective. First, a central bank must make clear that this commitment should not be regarded as implying that the central bank will continuously maintain inflation at the

specified rate or even that the inflation rate will always return to that rate over a fixed time horizon, in the same way that one might pledge to lose 20 pounds in the next six or nine months. Given that every economy is constantly buffeted by various shocks, it is generally neither feasible nor desirable to try to keep inflation constant at some specific level. Thus, a commitment to keep inflation low and stable should be interpreted in a probabilistic sense--that is, policy will act in a manner that keeps inflation close to the inflation objective on average over time, and unusually large shocks may result in more persistent deviations from this objective.

A second challenge stems from the fact that the optimal monetary policy under commitment to an inflation objective is oriented toward minimizing variability in the real economy as well as keeping inflation low and stable.[15] As a consequence, when a given shock causes inflation to deviate significantly from the numerical objective, the central bank must communicate how its policy strategy will bring inflation back to this rate within a reasonable timeframe and how this strategy will minimize fluctuations in output and employment over that horizon.[16] For example, it is generally desirable to reduce inflation gradually following an adverse cost shock in order to alleviate the contractionary effects on the real economy.

These challenges highlight the extent to which central bank projections for economic activity and inflation play an important role in maintaining a strong commitment to a nominal anchor.[17] The central bank must clarify how the economic outlook shapes its current policy actions as well as the anticipated path of policy. Moreover, as the economy deviates from those forecasts, as it inevitably does, the central bank must explain how policy will adapt to achieve the broad economic goals of price stability and maximum sustainable employment.

Publicly announcing forecasts of inflation has the additional benefit of helping anchor inflation expectations, thereby enhancing the effectiveness of monetary policy actions to stabilize economic activity and lowering the economic cost of maintaining low and stable inflation. Another benefit of publishing such forecasts is that discussion of the forecast can be used to highlight the analysis and reasoning behind monetary policy decisions, which can help the public to better understand monetary policy actions and strengthen the central bank’s credibility.

Although communication is a crucial element in establishing and maintaining a strong commitment to a nominal anchor, with its attendant benefits, there are, of course, other elements as well. Even if a central bank recognizes that a policy geared solely toward near-term economic activity will lead to poor outcomes--high inflation with lower economic growth--it still may not be able to commit to a strong nominal anchor and avoid the time-inconsistency problem, because special interests may try to apply pressure on the central bank to boost employment in the short term through an overly expansionary monetary policy.[18]

How can the central bank be insulated from short-run pressures to pursue expansionary policy at the expense of high inflation? There is a broad international consensus that the central bank should have full authority to determine the short-run setting of its policy instruments, without any external interference.[19] In addition, I believe that central bank communication is crucial in promoting public support for maintaining low and stable inflation. Indeed, in a democratic society, every government agency is ultimately accountable to the public, and the establishment of transparent objectives and of a clear policy strategy plays an essential role in facilitating that accountability.

The old adage correctly states that "Actions speak louder than words," and, clearly, just announcing an objective for inflation does not mean anything unless the actual policies pursued by the monetary authorities are consistent with the objective. Words, however, do matter if those words help ensure that the appropriate policy actions will be taken and strengthen the public's confidence that the central bank will continue to act in a manner consistent with its long-run objectives. As I have argued here, the increase in transparency and accountability, which results from clear communication about inflation objectives and about how monetary policy will be conducted to achieve these objectives, creates stronger incentives for central banks to avoid the pursuit of short-run overly expansionary policies. This approach also helps establish a credible commitment to

pursuing policies that keep inflation under control and economic activity growing on a sustainable path.

The International Experience

My discussion so far has been pretty theoretical. But one might reasonably ask whether communication about inflation objectives and about how monetary policy is conducted to achieve these objectives actually helps strengthen the commitment to fostering low and stable inflation, and thereby produces better economic outcomes. More specifically: Does communication of inflation objectives lead to increased public support for the central bank? Improved inflation performance? More firmly anchored inflation expectations?

Over the past two decades, most of the major foreign central banks have adopted frameworks which have the overriding objective of bolstering public confidence that policymakers will act to keep inflation low and stable. While self-declared "inflation targeters" are the most prominent in this regard, other central banks also have introduced explicit inflation objectives of some kind, generally in the form of a preferred inflation point or range.[20] To address the questions that I listed earlier, I will draw lessons from the international experience with explicit numerical inflation objectives, while deferring further consideration of the United States until the conclusion of these remarks.

Central Bank Independence. I have already noted that increased central bank independence helps support a commitment to a strong nominal anchor and thus should lead to better inflation performance. Evidence supports the conjecture that macroeconomic performance is improved when central banks are more independent. For example, when central banks in industrialized countries are ranked according to the degree of legal independence of the central bank, those countries with the highest degree of central bank independence are found to have the best inflation performance.[21]

I have also argued that adopting an explicit objective can help strengthen the accountability of monetary policy actions and hence may promote public support for the operational independence of the central bank. Although there has been a pronounced trend toward increased central bank independence at the same time that monetary policy frameworks have adopted explicit inflation objectives, it would be unwarranted to claim that this correlation implies causation from adoption of explicit inflation objectives to central bank independence. However, this is where case studies can help us.

One example that illustrates how having an explicit inflation objective encouraged public support for stabilizing inflation and for the independence of the central bank occurred in Canada in 1996. At that time, there was an important public debate about whether monetary policy was excessively contractionary.[22] In this case, the existence of an explicit inflation objective channeled that debate into a substantive discussion over what should be the appropriate target for inflation, with both the Bank of Canada and its critics obliged to make explicit their assumptions and estimates of the costs and benefits of different levels of inflation. Indeed, the debate, as well as the Bank of Canada's record and responsiveness to that debate, led to increased support for the Bank, with the result that criticism of the Bank and its conduct of monetary policy became much less of a political issue.

Another interesting example, which I do not have time to discuss in detail here, occurred with the granting of operational independence to the Bank of England in May 1997 after it had adopted an explicit numerical inflation objective.[23] In explaining the decision to grant operational independence to the Bank of England, the government specifically pointed to the Bank's successful performance in providing forecasts and clear explanations of the likely effects of a range of policy alternatives, thereby increasing accountability and making the central bank more responsive to political oversight.

Inflation Outcomes. The adoption of a monetary policy framework with an explicit inflation objective has hinged on the belief that such a framework ultimately delivers better inflation outcomes. Thus, it is legitimate to inquire whether inflation outcomes in the economies that have adopted such frameworks have been in line with the stated objectives.

Chart 1 displays the inflation objective and the relevant measure of realized inflation in a sample of industrialized economies. Overall, the economies that adopted explicit inflation objectives have experienced substantial improvements in their inflation performance; indeed, in each case the central bank has been largely successful at keeping inflation in line with the stated objective, sometimes even more than might have been anticipated when establishing that objective.[24] Of course, inflation has occasionally deviated from the objective, as one would expect from the fact that every economy is continuously buffeted by various sorts of shocks. Nonetheless, these inflation deviations have been relatively small and transitory by historical standards. Most important, there is little evidence of a systematic *upward* bias in inflation, which would arise if the central bank were attempting to stimulate output beyond what would be consistent with maintaining low and stable inflation.

I also want to emphasize that this improvement in inflation performance has *not* been at the expense of higher employment and output fluctuations; indeed, the variability of output and employment fluctuations has generally declined in those economies where the central bank has maintained an explicit inflation objective.[25]

Inflation Expectations. Economies with explicit numerical inflation objectives have (fortunately) not been alone in enjoying relatively low and stable inflation over the past couple of decades; indeed, in some cases, inflation was already low and stable prior to the adoption of the explicit objective. It is thus legitimate to investigate whether the establishment of an explicit inflation objective has had other measurable effects, particularly with regard to the anchoring of long-run inflation expectations.[26]

Chart 2 presents realized inflation along with a survey-based measure of mean inflation expectations at the two-year-ahead and six-to-ten-year-ahead horizons. The evidence supports the view that medium- to long-term expectations have become well anchored around the official objectives. First, survey-based measures of long-term inflation expectations have converged toward the official inflation objective in all countries. This fact is consistent with central banks making credible, long-term commitments to pursuing their objectives, even in countries where the objective must be renewed on a regular basis.

Moreover, surveys of professional forecasters in each of these economies reveal that, on average, forecasters expect deviations in realized inflation to disappear within two years or less. In effect, these forecasters anticipate that the central bank will take the policy actions necessary to ensure that inflation lines up with the explicit objective over a reasonable time horizon. Econometric analysis of financial market data also indicates that long-run inflation expectations are firmly anchored in each of the economies in which the central bank has an explicit numerical inflation objective.[27]

Conclusion

In a speech last week, I argued that the science of monetary policy provides a strong rationale for framing the inflation goal in terms of a specific point objective rather than a range or comfort zone.[28] My remarks today provide further elaboration about how the establishment of a firm commitment to an explicit numerical inflation objective contributes to better outcomes for both inflation and economic activity. First, I have explained the pitfalls of discretionary monetary policy and the benefits of a strong commitment to a nominal anchor. Second, I have considered how central bank communications promote such a commitment. Third, I have highlighted some key lessons from the experiences of other major industrial economies that have adopted explicit inflation objectives.

Finally, you may have noticed that I haven’t said much about the United States in this speech. Nevertheless, the principles emphasized in my remarks today and in last week's speech have potentially important implications for the ongoing process of refining the Federal Reserve's policy framework and of enhancing our communications. Indeed, as Chairman Bernanke has recently indicated, our communication strategy is "a work in progress," and the Federal Reserve "will continue to look for ways to improve the accountability and public understanding of U.S. monetary

policy making."[29] I hope that these remarks will be helpful in contributing to the continuation of that process.

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Footnotes

1. Mishkin (2007c) provides extensive discussion of the modern science of monetary policy and its implications for the design and communication of the policy framework. Return to text

2. I would like to thank Spencer Dale, Christopher Erceg, Etienne Gagnon, Linda Kole, Andrew Levin, and Ricardo Nunes for assistance and helpful comments in preparing this speech. Return to text

3. This change in views occurred as a result of the so-called rational expectations revolution, which was launched by a series of remarkable papers by Nobel Prize-winner Robert Lucas (1972, 1973, 1976). Return to text

4. The time-inconsistency problem was first outlined in papers by Kydland and Prescott (1977) and Calvo (1978). Return to text

5. Barro and Gordon (1983) first described the time-inconsistency problem as it applied to monetary policy. Return to text

6. As described in Mishkin (2008c), a higher average inflation rate tends to generate distortions in relative prices, a reduction in the level of investment in physical capital, and a decline in private-sector holdings of currency and other non-interest-bearing financial assets. Return to text

7. Mishkin (2008c). Return to text

8. Mishkin (2007a). Return to text

9. Goodfriend (1993). Return to text

10. Mishkin (2008b). Return to text

11. Mishkin (2008a). Return to text

12. Dodge (2002). Return to text

13. Mishkin (2008c). Return to text

14. Two cases are worth noting here. First, the New Zealand government raised the upper bound of the Reserve Bank of New Zealand's inflation band by 1 percentage point in 1996 (from 2 percent to 3 percent) and raised the lower bound by 1 percentage point in 2002 (from 0 percent to 1 percent); these changes were consistent with the science of monetary policy, which had reached a consensus that allowing inflation to remain very close to zero could have detrimental consequences for the economy (Mishkin, 2008c). Second, the Bank of England's inflation objective was modified in late 2003, establishing a target of 2 percent for the consumer price index (CPI) that replaced the previous target of 2-1/2 percent for the retail price index excluding mortgage interest (RPIX). In that case, as noted by the Governor of the Bank of England, there were significant conceptual reasons for switching to the RPIX as a measure of U.K. inflation, while the downward adjustment of 1/2 percentage point in the numerical objective reflected the average magnitude of deviations between CPI inflation and RPIX inflation over the previous decade or so (King, 2004). Return to text

15. Mishkin (2007b). Return to text

16. Svensson (1997). Return to text

17. Indeed, the Federal Reserve has published quantitative forecasts for several key macroeconomic variables (output growth, unemployment, and inflation) as part of its semiannual reports to the Congress since 1979. Several months ago, the Federal Reserve enhanced its communications by publishing these forecasts on a quarterly basis, lengthening the horizon of the projections, and providing additional quantitative and qualitative information (Bernanke, 2007; Mishkin, 2007d). Return to text

18. Almost two centuries ago, British economist David Ricardo summarized the argument for granting operational independence to the central bank: "It is said that Government could not be safely entrusted with the power of issuing paper money; that it would most certainly abuse it.… There would, I confess, be great danger of this if Government--that is to say, the Ministers--were themselves to be entrusted with the power of issuing paper money" (Ricardo, 1823). Return to text

19. For an example of how the time-inconsistency problem can be modeled as resulting from political pressure, see Mishkin and Westelius (2006). Independence to set policy instruments also insulates the central bank from the myopia that can be a feature of the political process. Instrument independence thus makes it more likely that the central bank will be forward-looking and adequately allow for the long lags from monetary policy actions to inflation in setting its policy instruments. Return to text

20. I discussed the relative merits of inflation objectives stated as points or ranges in Mishkin (2008c). Return to text

21. Further analysis and discussion is given by Alesina and Summers (1993), Cukierman (1993), and Debelle and Fischer (1994); Forder (2000) and Cukierman (2006) have surveyed the more recent literature on central bank independence. Return to text

22. This debate was triggered by a speech given by the president of the Canadian Economic Association. For further discussion of this episode, see Bernanke and others (1999). Return to text

23. Until May 1997, the setting of the monetary policy instrument had been determined by the government, not by the Bank of England. At that point, the newly appointed Chancellor of the Exchequer, Gordon Brown, announced that the Bank of England would henceforth have the responsibility for setting both the base interest rate and short-term exchange-rate interventions. For

more discussion of this episode, see Mishkin and Posen (1997) and Bernanke and others (1999). Return to text

24. The following anecdote provides a measure of the extent to which some policymakers were pleasantly surprised by their central bank's success in keeping inflation in line with its objective. The Governor of the Bank of England must write an open letter to the Chancellor of the Exchequer when inflation deviates from the official target by more than 1 percentage point. About a year after the Bank of England was granted operational independence, the Bank's chief economist wrote that "[even] if inflation shocks were to disappear entirely, the continued presence of demand shocks would imply that [open letters] would still be triggered more than 40 percent of the time" (Bean, 1998). A decade later, inflation has remained within 1 percentage point of the target in all but a single month, or less than 1 percent of the time. Return to text

25. See the empirical analysis and discussion of Fatás, Mihov, and Rose (2007) and Mishkin and Schmidt-Hebbel (2001, 2007). Return to text

26. I will spare the audience a thorough discussion of the methodological issues involved in the measurement of inflation expectations. Some recent work on the topic was presented at the Conference on Price Measurement for Monetary Policy, hosted by the Federal Reserve Bank of Dallas on May 24-25, 2007. Return to text

27. See Castelnuovo, Altimari, and Rodriguez-Palenzuela (2003); Levin, Natalucci, and Piger (2004); and Gürkaynak, Levin, and Swanson (2006). There is also some evidence that the dispersion of inflation expectations may decrease with adoption of explicit inflation objectives. Mankiw, Reis, and Wolfers (2003) have shown that simple survey statistics, such as the mean or median inflation expectations, can sometimes hide substantial cross-sectional dispersion in survey responses. If a central bank's credibility in meeting the inflation objective truly increases over time, one should then observe less disagreement among inflation forecasters. The international evidence on this aspect is unfortunately scant due to limited data availability. Beechey, Johannsen, and Levin (2007) recently showed that the cross-sectional dispersion of long-run inflation expectations in the European Central Bank (ECB) Survey of Professional Forecasters, as measured by the standard deviation, has more than halved since the ECB, with its explicit inflation objectives, was launched in 1999. Although this evidence cannot be used directly to measure the impact that the adoption of an explicit inflation objective has on the dispersion of inflation expectations, it nevertheless suggests that there are additional benefits to increasing a central bank’s credibility. Return to text

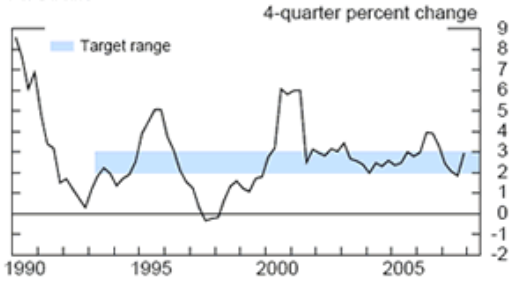
28. Mishkin (2008c). Return to text

29. Bernanke (2007). Return to text

Chart 1

Inflation Objectives and Realized Inflation in Selected Economies[1]

Australia



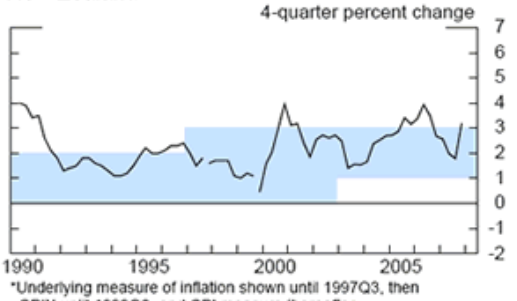
Canada*

*The initial objective called for a gradual reduction of inflation to 3% by late 1992, then to 2½% by mid-1994, and to 2% by late 1995. In December 1993, the range became 1 to 3%.

Euro area*

*The primary objective of the ECB's monetary policy is to maintain price stability (defined as a rise in CPI below 2%). As of May 2003, it aims at inflation rates of below, but close to, 2% over the medium term.

New Zealand*

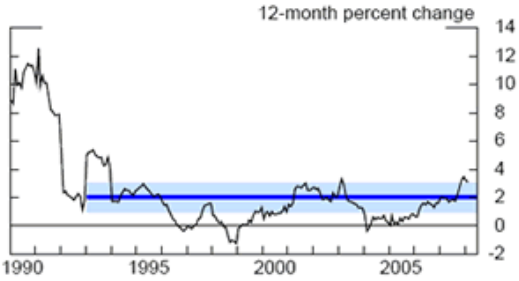


*Underlying measure of inflation shown until 1997Q3, then CPIX until 1999Q3, and CPI measure thereafter.

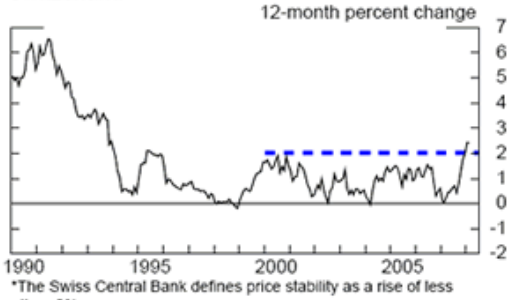
Norway*

*The Norges Bank targets consumer price inflation though, the direct effects of interest rates, taxes, excise duties and extraordinary temporary disturbances are not taken into account.

Sweden



Switzerland*



*The Swiss Central Bank defines price stability as a rise of less than 2%.

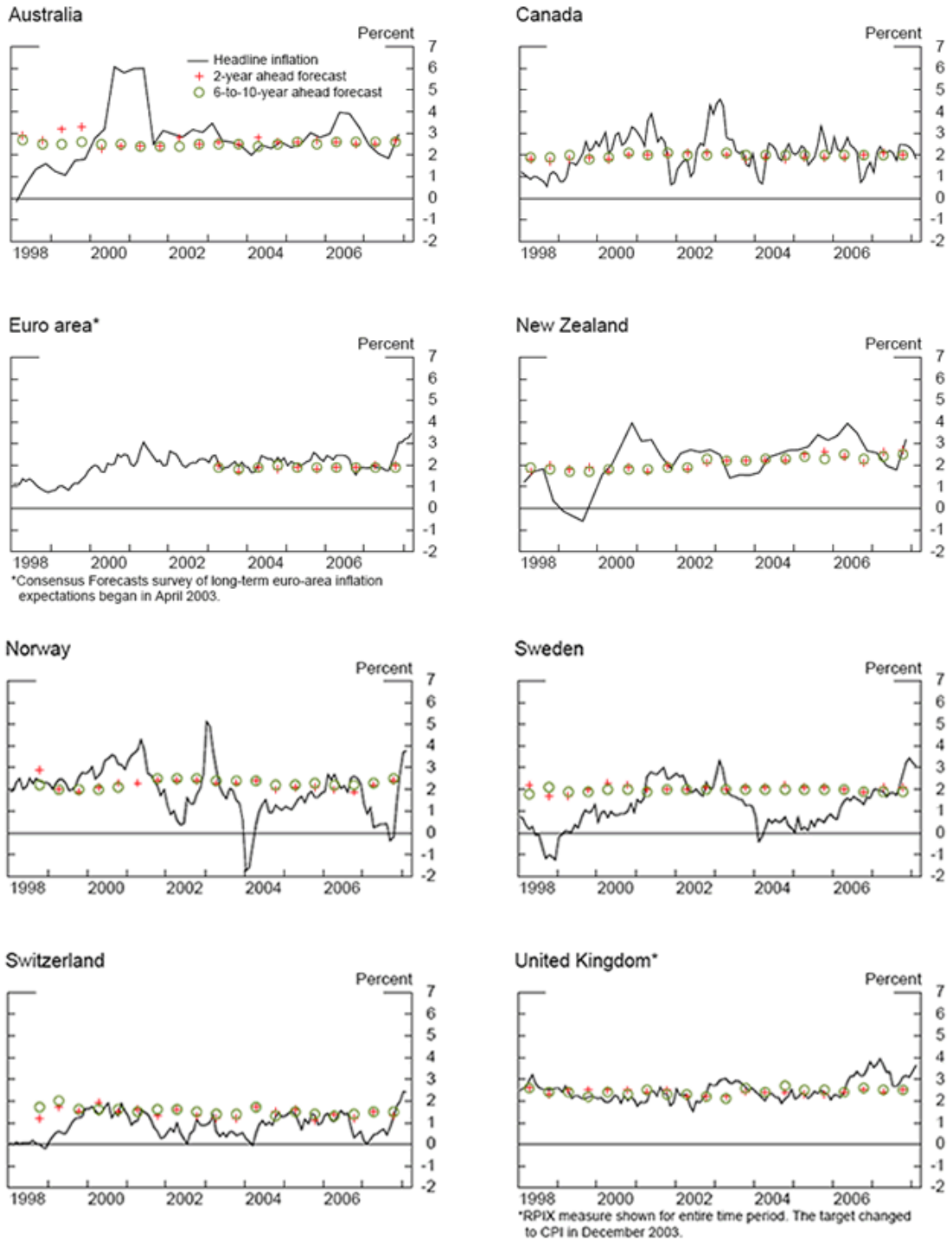
United Kingdom*

*RPIX shown prior to December 2003, CPI thereafter.
Note: The Governor of the Bank of England must write a letter to the Chancellor when inflation is more than 1 p.p. away from the target.

[1] Headline inflation shown unless noted otherwise.

Chart 2

Realized and Expected Inflation in Selected Economies[1]



[1] Inflation forecasts are the mean of individual long-term forecasts surveyed by Consensus Economics Inc. and published in Consensus Forecasts.

- Slide Show

Accessible version of charts

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