

The Changing Face of Central Banking in the 1990s

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- *During the 1990s, with impetus for change coming from various sources, including an increased emphasis on price stability, governments and central banks in the industrialized countries endeavoured to improve and adapt the frameworks within which monetary policy is implemented.*
- *While targets for the exchange rate or for the growth rate of money continue to play a role in some countries, explicit targets for the rate of inflation have become increasingly popular as the numerical focus for monetary policy.*
- *Central banks have acquired greater operational independence to pursue their policy objectives. They have also become more open institutions. Increased emphasis on communication and transparency is seen as important not only in terms of accountability to the public, but for increasing the effectiveness of policy actions and for reducing economic uncertainty.*
- *Many of the changes implemented by central banks were influenced by the perceived importance of improving their credibility, in turn making it easier for them to achieve their policy objectives. Although the contribution of the evolving policy framework is difficult to pin down, inflation and inflation expectations fell dramatically over the decade.*

During the 1990s, central banks made significant changes to the way they operate. The impetus for change came from various sources. The evolution of economic theory has always had a constant, but sometimes subtle, influence on current thinking about monetary policy and how it should be practised. More compelling pressure for change has come from economic and financial upheaval, changing political circumstances, and technological progress. The desire for more information from key public institutions has also been a factor in recent years. Finally, their own experience and interaction with each other have influenced how central banks now operate.¹ In the face of these forces, central banks have shown themselves to be more adaptable than the staid exteriors they often present to the public might suggest.

From an institutional perspective, the 1990s will be remembered primarily for the creation of the European Central Bank (ECB)—a new, transnational central bank. The ECB (and its predecessor, the European Monetary Institute) faced the challenging task of establishing a policy framework that would operate effectively across its 11 member states. Other institutions, such as the Bank of England, the Bank of Japan, and the Swedish Riksbank, also underwent comprehensive legislated reforms in the latter half of the 1990s that significantly affected the way they functioned. Much earlier, around the beginning of the decade, the Reserve Bank of New Zealand underwent reforms that may well have influenced other banks. Changes elsewhere were, perhaps, less dramatic but

1. The adoption of best practices has been facilitated by recent efforts to survey and publish comprehensive comparisons of central bank activities. The Bank of England recently published a survey of the policy frameworks of 77 national central banks (Fry et al. 1999). An earlier survey by the Bank for International Settlements (1997) compared methods of policy implementation. The International Monetary Fund is preparing a supporting document for its *Code of Good Practices on Transparency in Monetary and Financial Policies*, which will examine a wide range of central bank activities.

still important. Thus, while the thrust of legislation governing the Bank of Canada's responsibility for monetary policy remained relatively unchanged during the 1990s, the cumulative impact of the broad range of initiatives undertaken by the Bank has been substantial.

This article is primarily concerned with changes associated with the monetary policy frameworks of central banks in the industrialized economies. A monetary policy framework has several elements, including a readily identified objective, a strategy for achieving that objective (which may include numerical targets), operational mechanisms for implementation, and institutional structures designed to support the conduct of monetary policy. In line with these elements, the article first discusses views on price stability as the objective of monetary policy and then reviews various policy strategies, including targeting the exchange rate, money growth, and inflation itself, as a means of achieving this objective. It then looks at changes in central banking with respect to the institutional structures in place for carrying out monetary policy, such as central bank independence, accountability, and transparency.

Clarifying Objectives

A clear objective is an important starting point for any policy framework. For a number of central banks, however, the legislation by which they were governed in the post-war period did not always facilitate a clear understanding of objectives—often describing multiple, and sometimes inconsistent, policy objectives. The disappointing experience of the 1970s and 1980s (when high inflation coexisted with high unemployment), together with the evolution of economic theory, reinforced the view that there is no long-run trade-off between inflation and unemployment—that is, that higher rates of inflation cannot be used to boost economic growth and reduce unemployment in a lasting fashion. Indeed, this experience lay behind a growing consensus that price stability is the most appropriate objective for monetary policy.

Crucially, support for price stability came not only from central banks, but from governments as well. Reflecting this, the treaty governing the ECB states that “the primary objective of the ESCB [European System of Central Banks] shall be to maintain price stability.”² In the late 1990s, various governments

2. Treaty Establishing the European Community, article 105(1), December 1991.

introduced new legislation explicitly identifying price stability as the objective of central bank policy—the United Kingdom (effective June 1998), Japan (April 1998), and Sweden (January 1999). Similar legislation had been passed much earlier (1989) in New Zealand. In some countries, the message that price stability is the only appropriate goal for monetary policy has been reinforced through joint statements by central banks and governments. Thus, while the preamble to legislation governing the Bank of Canada refers to a number of potential objectives, joint statements by the Bank and the Canadian government—the first made in 1991—focus on the importance of price stability.³

[There is] a growing consensus that price stability is the most appropriate objective for monetary policy.

Monetary authorities have stressed that a focus on price stability does not imply the neglect of economic growth and employment. Rather, price stability is regarded as the key contribution that monetary policy can make to promoting sustainable growth and maximizing the level of employment. Consider the legislation governing the U.S. Federal Reserve. Although it has been modified on several occasions since the Fed was established in 1913, the legislation retains the dual objectives of price stability and full employment. Nevertheless, numerous public statements by U.S. monetary officials have emphasized the importance of controlling inflation, often referring explicitly to price stability. In the long run, price stability and full employment are seen as entirely consistent. Cecchetti and Ehrmann (1999) present evidence indicating that the Fed's level of aversion to inflation over the 1990s was, in fact, similar to that of most other central banks.

Choosing a Strategy

Once a clear objective is established, central banks still need a strategy for achieving and maintaining an acceptably low level of inflation. While different

3. See Bank of Canada (1991), “Targets for reducing inflation,” *Bank of Canada Review*, March. Subsequent statements were made in 1993 and 1998. Another example is Australia—see “Statement on the Conduct of Monetary Policy,” Reserve Bank of Australia, August 1996.

approaches have been tried over the post-war period, the focus in the past decade has typically been on strategies that involve targeting the exchange rate, the rate of money growth, and the rate of inflation itself.⁴

Exchange rate targeting

Fixing a country's exchange rate can, in principle, be used as part of a coherent strategy to achieve low inflation over time, by tying domestic monetary policy to that of a partner country which itself has low inflation. But since monetary policy decisions are then effectively ceded to the partner country, this means that monetary policy will be unresponsive to domestic economic conditions and indifferent to growth in output and employment.

Although enthusiasm for fixed exchange rates tended to wane over the course of the post-war period, exchange rate targeting has continued to feature prominently in Europe. At the beginning of the 1990s, nine EU countries were members of the Exchange Rate Mechanism (ERM), a fixed exchange rate regime.⁵ The creation of the ERM was motivated partly by a desire for closer ties among European countries. Underpinned by the German mark, it also gave participating countries the opportunity to take advantage of the strong anti-inflation reputation of the Bundesbank. The United Kingdom joined the ERM in October 1990 (after which U.K. inflation fell from over 10 per cent to under 2 per cent by January 1993). In addition, Finland, Norway, and Sweden all began to target stable exchange rates against the European currency unit (ecu) in the early 1990s.⁶

The limitations of this approach were highlighted when divergent economic conditions within Europe (partly as a result of German reunification in 1991), as well as uncertainty about progress towards European monetary union (EMU), cast doubt on the sustainability of the ERM. Under mounting pressure, the United Kingdom and Italy left the ERM in September 1992, and the three Nordic countries abandoned their pegs against the ecu.

Nevertheless, membership in the ERM expanded in the second half of the 1990s. Italy rejoined in 1996, and new members were added: Austria, Finland, and

Greece. At the beginning of 1999, for the 11 initial participants in EMU, full monetary union replaced the ERM. Four EU countries have remained outside of EMU, two of them as participants in ERM II (Denmark and Greece). Britain and Sweden, however, have not returned to a fixed exchange rate approach.⁷

Money-growth targeting

In the 1970s, many central banks adopted the approach of targeting the growth rate of the money supply for controlling inflation. In some cases, this replaced earlier exchange rate targets. This approach, though attractive because of the significant control the central bank could exert over the money aggregates, was nevertheless dependent on the existence of a robust relationship between money growth and inflation. In practice, this relationship proved to be unstable, partly because of the rapid pace of financial innovation (see Thiessen 1982 and Freedman 1983 for a discussion of related difficulties in Canada). Consequently, the importance of money-growth targeting has diminished significantly.

Still, the practice of announcing monetary targets persisted into the 1990s in some countries (Table 1). For example, the U.S. Federal Reserve is required by legislation to announce annual targets for the rate of domestic money growth. There is no requirement that these targets be met, however, and they currently play

Table 1
Money-Growth and Inflation Targets for Selected Countries

| | January 1990 | | January 2000 | |
|----------------|------------------|----------------------|------------------|----------------------|
| | Money target (%) | Inflation target (%) | Money target (%) | Inflation target (%) |
| New Zealand | | 0-2 | | 0-3 |
| Australia | | | | 2-3* |
| Canada | | | | 1-3 |
| Sweden | | | | 1-3 |
| United Kingdom | 1-5 (M0) | | | 2.5 |
| Switzerland | 2 (M0) | | | <2 |
| United States | 3-7 (M2) | | 1-5 (M2) | |
| Germany/ECB | 4-6 (M3) | | 4.5 (M3) | <2 |

* On average over the business cycle

4. Mishkin (1999) is a useful reference on different policy strategies.

5. Belgium, Denmark, France, Ireland, Italy, Luxembourg, Netherlands, Spain, and West Germany. Exchange rates were allowed to move around a central parity rate within specified bands, although devaluations of the central parity were common occurrences for some countries.

6. The ecu was a unit of account composed of a weighted basket of EU currencies, but ceased to exist in January 1999 when the euro came into being.

7. Greece is poised to join EMU. Both Britain and Sweden have committed themselves to a public referendum before proceeding with monetary union.

a limited role in policy decisions. The Bank of England maintained a target range for the narrow money aggregate through most of the decade, adding a target range for broad money growth in 1992. Nevertheless, the money supply objective performed only a secondary role in the 1990s and was dropped altogether in 1998.

Germany and Switzerland were more persistent practitioners of money-growth targeting. Notably, both countries enjoyed low rates of inflation in the 1990s, but success did not come from rigid adherence to the announced targets. The Bundesbank often missed its annual growth targets, sometimes by a significant margin. Nevertheless, it emphasized the ongoing usefulness of targets as a guide for discussions on monetary policy, both within the Bank and in the public domain. In Switzerland, financial instability led the Swiss National Bank (SNB) to stop setting annual targets in 1990. They were replaced by medium-term, five-year growth rates that served more as guides than as targets. The SNB abandoned money targets at the end of 1999.

As part of a “two-pillar” strategy, the ECB introduced an annual “reference value” for the growth of broad money in the euro area. The ECB has emphasized that the reference value is not a rigid target, but that it “will help to inform and present interest rate decisions aimed at maintaining price stability over the medium term.”⁸ While a money-growth target is attractive because it emulates the approach of the highly regarded German Bundesbank, the stability of the relationship between money and inflation in the nascent euro zone is uncertain. The second (and possibly more important) pillar of the ECB’s strategy is a forward-looking inflation assessment underpinned by an explicit inflation objective that is discussed below.

Inflation targeting

Almeida and Goodhart (1998) emphasize that the widely held objective of price stability implies that virtually all central banks have an inflation target, although it may not be explicitly defined. In the first half of the 1990s, however, a number of central banks adopted explicit targets for inflation over a specified time horizon.⁹ Clearly defined inflation targets have

8. ECB (1999a, p. 49). This article contains a detailed description of the ECB’s monetary policy strategy.

9. The industrialized countries most commonly cited in this respect include New Zealand (in 1990), Canada (1991), the United Kingdom (1992), Finland and Sweden (both 1993), and Australia and Spain (both 1994). For an extensive discussion of performance under inflation targets, see Bernanke et al. (1999).

the advantage of focusing policy efforts on the variable that is directly associated with price stability. However, since monetary policy affects inflation only with long and variable lags (of at least several quarters), there is a delay before policy-makers are able to evaluate the success of their policy actions. As a result, this approach places heavy emphasis on inflation forecasts, so that policy-makers can act in a timely manner before inflation pressures become unacceptably high. Svensson (1999) argues that, if properly implemented, an inflation-targeting approach is essentially an application of inflation-forecast targeting.

Inflation targets, while a seemingly obvious approach today, were quite revolutionary. Dissatisfaction with both exchange rate and money-growth targets fuelled the search for alternatives, but the analysis of inflation targeting available in the early part of the decade was relatively limited. Indeed, much of the extensive literature now available on inflation targets followed, rather than preceded, their introduction. Inflation targets, however, proved to be well-suited to the needs of the central banks involved. As a group, the countries that adopted inflation targets had suffered from relatively high rates of inflation (Chart 1). In addition, the United Kingdom, Sweden, and Finland urgently needed to introduce a replacement for the exchange rate approach that had been abandoned in 1992.¹⁰

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Explicit government participation has been a key element of inflation targeting. It is viewed as essential for reassuring economic agents that government authorities are committed to the stated objective. In both Canada and New Zealand, joint public statements by the central banks and governments involved emphasized the high level of co-operation and agreement. In Australia, the Reserve Bank announced an inflation target in 1994 that was later recognized by the government in a joint statement in 1996. It was the government that originally set the inflation target in the United

10. For an informative “behind-the-scenes” account of the process that led to the adoption of inflation targets in New Zealand, where they first appeared, see Reddell (1999).

Chart 1
Consumer Prices
 12-month percentage change



* Australia, Canada, Finland, New Zealand, Spain, Sweden, and the United Kingdom
 ** Austria, Belgium, Denmark, France, Germany, Ireland, Italy, Japan, Netherlands, Norway, Portugal, Switzerland, and the United States

Kingdom (of 1 to 4 per cent, with the goal of being in the lower half of this range by the end of the then-current parliament). This approach was superseded by the 1998 Bank of England Act, which directed the Bank to pursue price stability, initially defined by the government as a rate of inflation of 2 1/2 per cent. The British government retains the right to revise the definition of price stability.

The ECB has defined its legislated mandate of pursuing price stability as one of maintaining inflation below 2 per cent. In selecting this definition, the ECB argued that it “is in line with the definitions used by most NCBs [National Central Banks] in the euro area prior to the transition to Monetary Union” (ECB 1999a, p. 46). In fact, one of the convergence criteria used by countries to qualify for EMU led many euro-area economies to effectively target inflation. The inflation criterion stipulated that prospective members must record an inflation rate that was no more than 1.5 percentage points higher than the average of the inflation rates in the three countries with the lowest levels of inflation.¹¹ At the beginning of 2000, the Swiss National

11. Over the 12-month reference period to January 1998, these three countries proved to be Austria (1.1 per cent), France (1.2 per cent), and Ireland (1.2 per cent), leading to a reference inflation rate of 2.7 per cent. All 15 EU member countries, except Greece, satisfied this criterion.

Bank also introduced an explicit inflation target of less than 2 per cent.

Clearly defined targets, whether they are inflation targets or something else, do not in themselves indicate how central bankers arrive at their policy decisions. A growing body of literature that had its start in the first half of the 1990s has addressed the issue of “rules” that would lead to the attainment of quantifiable objectives (see Box, p. 8). Such rules, however, are viewed as too limited to be followed closely by the monetary authorities.

Supporting Institutional Structures

Another component of a successful monetary framework is an institutional structure designed to facilitate the achievement of the policy objectives. Significant changes have occurred in this area as well.

Independence

To help ensure that central banks are free to carry out their mandates, increased emphasis has been placed on their independence from government authorities (and indirectly from other vested interests). This reduces the likelihood, for example, that political expediency will influence monetary policy decisions and lead to higher inflation.

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The emphasis on independence does not mean that central banks have generally been left to determine their objectives in isolation from governments (i.e., central banks have not been given “goal independence”). As noted in the earlier discussion on inflation targets, a number of countries have embedded the goal of price stability in government legislation or referred to it explicitly in joint government/central bank statements. However, central banks have been provided with greater operational independence (often referred to as “instrument independence”), i.e., the freedom to take whatever action is needed to

Reaction Functions and Policy Rules

Interest in evaluating the determinants behind policy decisions received a considerable boost when Taylor (1993) showed that the policy actions of the U.S. monetary authorities over the 1987–92 period could be closely replicated using a simple reaction function based on a small number of variables. Taylor's equation, and the many similar versions subsequently examined, are generally described as "Taylor rules." Gerlach and Schnabel (1999), for example, showed that the aggregate (weighted) interest rate for 1990–97 in the countries that eventually formed EMU could also be easily replicated on the basis of a Taylor-type rule.

The success of Taylor rules in replicating past behaviour suggests that it may be possible to define reaction functions that the authorities could follow in order to achieve their targets. In addition to providing a potential policy guide for the authorities (to help maintain low inflation), such a reaction function could also contribute to policy transparency if it were made public. There has since been

considerable research examining alternative quantitative "rules." Some recent studies have focused on rules based on inflation forecasts. With this approach, the change in the policy instrument is a function of the deviation of a conditional forecast of inflation in some period from the target rate of inflation.¹

Despite the recent attention accorded to reaction functions, it is unlikely that any central bank implements policy on the basis of an explicit reaction function for their policy instruments. It is not clear that such rules can incorporate all the information relevant to the policy process, or that they are robust across different models of how the world works. At best, policy rules based on reaction functions are being used as guides around which discretion is used.

1. For recent developments with respect to various "feedback" rules, including inflation-forecast-based rules, see Armour and Côté (1999–2000).

achieve the stated objective. The issue of independence can also arise in other areas. For example, longer tenures for policy-makers, or financial independence from the fiscal authority, may reduce susceptibility to external influences.

Through a number of legislative steps, the authority to make decisions on interest rates has been placed more firmly with central banks. For example, the ECB's mandate requires that "neither the ECB nor any member of its decision-making bodies shall seek or take instructions from [European] Community institutions or bodies" (ECB 1999b, p. 57). The national central banks participating in EMU are also required to have a similar degree of independence from government. The Swedish Riksbank and the Bank of Japan have both recently had their legislation revised to prevent the government from dictating the conduct of mone-

tary policy. The revised legislation governing the Bank of England also provides for operational independence through an "independent committee of experts," that will determine monetary policy actions. Previously, in both Britain and Japan, policy decisions had been overseen by Treasury officials.

Operational independence need not be explicitly legislated in order to exist in practice. Nevertheless, even in central banks where it has been present for some time, such as the Bank of Canada, operational independence was further entrenched in the 1990s through the increased recognition of its importance and by the strengthening consensus around price stability as the appropriate goal. The operational independence of the Australian central bank was facilitated by the 1996 statement by the Treasurer and the Governor of the Reserve Bank, which recognized "the independence of

the Bank and its responsibility for monetary policy matters.”

Accountability

According greater independence to central banks has raised the standards for accountability. Accountability helps to ensure that the actions of the monetary authorities remain focused on the appropriate objectives. This can build public confidence in the commitment to price stability.

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Explicit targets can facilitate such accountability since they provide a clear measure against which to assess the performance of the monetary authorities. Nevertheless, unexpected developments may lead to deviations from the targets. In some instances, there are explicit procedures to deal with such situations. In New Zealand, the Policy Targets Agreement requires that the Reserve Bank explain why inflation has moved outside the specified range and what measures it will take to ensure that it moves back inside. Bank of England legislation requires that the Governor write an open letter to the Chancellor of the Exchequer explaining deviations of greater than 1 per cent in either direction from the target and what actions will be taken to bring inflation back in line. Subsequent letters are required every three months while the deviation persists.

Regular appearances by senior bank officials before legislative bodies have also become a key component of accountability. While existing for many years in some countries (e.g., the semi-annual Humphrey Hawkins testimony by the Chair of the U.S. Federal Reserve Board), it has now become much more prevalent elsewhere. Reporting to parliament is sometimes stipulated in legislation, as in the revised Bank of England Act and in the legislation governing the ECB. In other cases, it has simply become a de facto standard (e.g., in Canada, where the Governor appears before a parliamentary committee following the release of the semi-annual *Monetary Policy Report*).

At the same time that central banks have been accorded greater authority to make policy decisions, there has been a trend towards having these decisions made by a committee. This approach can be formally recognized in legislation, as was the case for the ECB (with a 17-member Governing Council), the Bank of England (9-member Monetary Policy Committee), the Bank of Japan (9-member Policy Board) and the Riksbank (6-member Executive Board). It can also be achieved informally, as it is in Canada, where the authority for monetary policy decisions has been delegated by the Governor to a 7-member internal Governing Council.¹²

Transparency

Accountability is also related to the overall transparency of the central bank and its communications activities. Central banks have been giving increased emphasis to broader and more frequent explanations of what they are doing and why. This has not simply been for the purpose of accountability, but also because the banks view openness as a way to avoid misunderstandings or confusion regarding their policy actions, and as a way to gather support for policy initiatives. Central banks have noticeably increased the number of press conferences, press releases, speeches, and other forms of public communication. In addition, many central banks now maintain comprehensive Web sites to disseminate a wide variety of information. In some cases, the banks maintain regional offices that have an important, two-way communications role.¹³

A comprehensive report, prepared by the monetary authorities, on economic developments and the forces affecting inflation has become a key communications tool. Thus, a number of central banks have recently introduced regular inflation reports (sometimes required under legislation). Semi-annual or quarterly reports are produced by the central banks of Australia, Canada, New Zealand, Norway, Sweden, and the United Kingdom. Although similar publications are not produced by the ECB or the Bank of

12. See Courtis and Weller (1999–2000) for a survey of decision-making structures at 88 central banks. Berg and Lindberg (2000) examine the early functioning of the Riksbank's new Executive Board.

13. The Bank of Canada reorganized its regional offices in 1996–97, largely with this purpose in mind. For a broader discussion of changes affecting accountability in Canada, see Freedman (2000) and Thiessen (2000). For a discussion of similar developments in the United States, see Ferguson (1999).

Japan, both institutions place considerable emphasis on the policy statements that appear in their (relatively new) monthly bulletins.

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Central banks have also worked to provide greater operational transparency by improving the clarity of their policy signals in financial markets and providing additional related information. This process reflects the steady trend away from the secretive manner in which central banks once implemented monetary policy. Given the international nature of financial markets, central banks now find themselves interacting with a much larger and broader audience consisting of participants in both domestic and foreign markets. Reducing uncertainty can, in many situations, bring benefits in the form of lower risk premiums on interest rates and smoother implementation of monetary policy.

For example, in 1994 the U.S. Federal Open Market Committee (FOMC) began to announce changes in the federal funds rate and to provide a brief rationale for the decision immediately after any meeting in which a policy action occurred. In May 1999, it also began to release more information on the likely future stance of monetary policy (the policy bias).¹⁴ In June 1994, the Bank of Canada introduced an explicit 50-basis-point operating band, with its key policy rate (the Bank Rate) tied to the top of that band (since February 1996). As is now the case with most central banks, a press release accompanies any policy change. There is evidence in both the United States and Canada that the new procedures have reduced uncertainty in financial markets.¹⁵

14. This was soon felt to be open to misinterpretation by market participants, and, in January 2000, the FOMC changed the wording of the "bias" to better reflect "the risks to a satisfactory economic performance," and in particular "how the Committee assesses the risks of heightened inflation pressures or economic weakness in the foreseeable future."

15. See Thornton (1996) and Muller and Zelmer (1999).

Although central banks have substantially increased the extent of their openness over the course of the 1990s, at the end of the decade they were still struggling with the question of the appropriate degree of transparency. As argued by Winkler (1999, p. 19), "clarity also comes at a premium and may, in some circumstances, not be served by the indiscriminate release of all conceivable pieces of information." The concern has been raised, for example, that publishing full transcripts of policy meetings could inhibit a frank exchange of views among decision-makers.¹⁶ The ECB is an interesting case. Although it has come under criticism for not being sufficiently transparent (see Favero et al. 2000), the ECB provides an extensive amount of information in the context of its new policy framework, and considers itself to be an open institution.

Another issue confronting central banks regarding transparency involves the publication of internal projections on which policy decisions are based (an essential component in a forward-looking framework). While no central bank is legally required to release a forecast, many publish a limited amount of information on their near-term expectations for key variables, generally economic growth and inflation. Some institutions, including the Bank of England, the Bank of Norway, and the Reserve Bank of New Zealand, publish future paths for interest rates, although only in the case of New Zealand does this represent the Bank's own expectations (based on various underlying assumptions). One concern is that a projection containing values for policy variables will be misinterpreted as a commitment by the central bank, as opposed to a provisional path where actual outcomes could be quite different. Financial markets might also react by quickly pushing market interest rates to the higher or lower levels envisioned at a later date in the projection.

Conclusion

The direction taken in the recent evolution of the monetary policy framework used in the industrialized economies has been heavily influenced by the perceived role of credibility. A substantial body of literature has emerged arguing that if monetary policy is highly credible (i.e., economic agents believe that

16. Ferguson (1999) notes that many policy-makers at the U.S. FOMC have begun to rely more heavily on prepared notes at policy meetings, owing to the practice that began in the mid-1990s of releasing full transcripts of policy meetings after five years.

policy-makers are strongly committed to price stability and have the means to achieve it), it will facilitate the achievement of a low-inflation objective. The costs associated with reducing inflation from unacceptable levels, and maintaining it at low levels, will be lessened. In short, a credible central bank may be able to achieve its policy goals more easily. Moreover, since the ultimate goal of policy is to provide a healthy economy, good overall economic performance is a decisive factor in achieving policy credibility.¹⁷

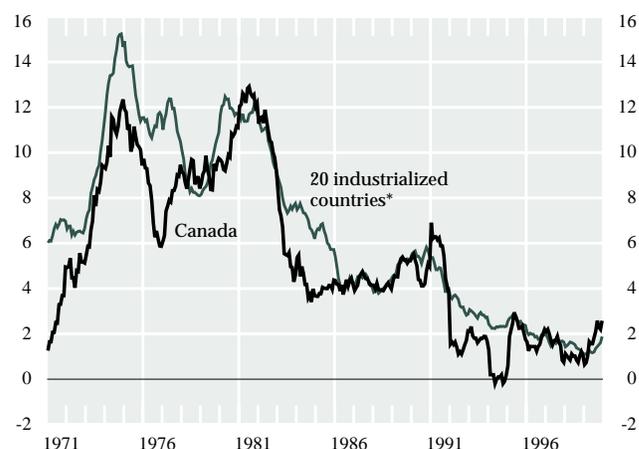
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Many of the changes to the policy framework of central banks in the 1990s have, therefore, moved in the direction of enhancing policy credibility. The commitment to price stability has been clarified not only by central bankers but by government authorities as well. Central banks have been given greater operational independence to pursue price stability, but at the same time they have had to be more accountable to the public. And transparency has been enhanced, not only to facilitate accountability but also to explain and build confidence in the monetary authorities' actions. In financial markets, central banks have increasingly eliminated the aura of mystery that once surrounded the implementation of policy and have taken measures to clarify their policy actions. In sum, central banks have become much more open.

It is difficult to isolate the contribution of the changes introduced in the 1990s to inflation outcomes. Nevertheless, it is encouraging that inflation in the industrialized economies fell to low levels in the 1990s (Chart 2). There was a remarkable convergence in inflation rates across countries, perhaps reflecting the stronger consensus on policy objectives (Chart 3). Longer-term

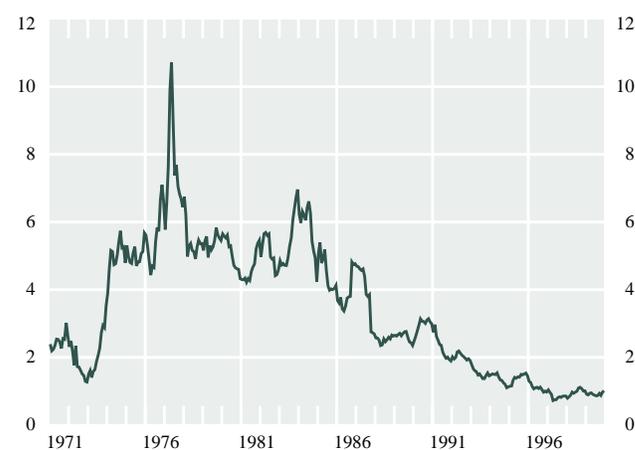
17. For a more detailed discussion, see Amano and Perrier (2000). For an extensive survey of the attitudes of both central bankers (involving 84 central banks) and academic economists towards the issue of credibility, see Blinder (1999).

Chart 2
Consumer Prices
12-month percentage change



* Canada, United States, Japan, Australia, New Zealand, Austria, Belgium, Denmark, Finland, France, Germany, Ireland, Italy, Netherlands, Norway, Spain, Switzerland, United Kingdom, Portugal, and Sweden

Chart 3
Standard Deviation of CPI Inflation in 20 Countries



inflation expectations at the end of the decade also suggested that markets expect the favourable inflation performance to continue (Table 2). Going forward, the key issue for central banks is whether the improved policy framework that has been put in place is sufficiently robust to ensure that price stability is maintained.¹⁸

18. For an early appraisal of the performance of the Bank of England's new framework, see HM Treasury (1999).

Table 2

Actual and Expected Inflation

Per cent

| | Actual inflation 1990–99 | Expected inflation 2006–10* |
|----------------|-----------------------------|--------------------------------|
| Canada | 2.2 | 1.9 |
| Japan | 1.2 | 1.5 |
| Norway | 2.4 | 2.0 |
| Sweden | 3.3 | 2.0 |
| Switzerland | 2.3 | 1.6 |
| United Kingdom | 3.7 | 2.4 |
| United States | 3.0 | 2.6 |
| Euro area: | | |
| France | 1.9 | 1.7 |
| Italy | 4.2 | 1.5 |
| Germany | 2.6 | 1.6 |
| Netherlands | 2.4 | 2.0 |
| Spain | 4.2 | 1.9 |
| Average | 2.8 | 1.9 |

* *Consensus Forecasts*, April 2000

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