IV. Monetary policy in the advanced industrial countries

Highlights

Last year marked a turning point in the interest rate cycle, with many central banks initiating a process of tightening in the light of emerging price pressures. In the three major economies monetary policymakers faced different sources of uncertainty. Moreover, central banks felt it increasingly important to recognise explicitly the constraints arising from such uncertainty in designing policy and in communicating with the public. One advantage of being transparent about the difficulties that confront those conducting monetary policy is that it may help policymakers maintain credibility even in the face of policy reversals.

In the United States, there was uncertainty in particular with respect to the rate of potential growth as well as the state of financial markets. Further evidence accumulated that long-run productivity growth might be increasing, complicating the assessment of inflationary pressures, and employment continued to grow at rates previously thought unsustainable. While increases in the federal funds rate target in mid-1999 largely reflected an unwinding of the rate cuts undertaken following the turmoil in global financial markets in 1998, increases later in the period under review reflected a growing concern that excess demand might exacerbate inflationary pressures. As in recent years, the Federal Reserve continued to face the question of how best to incorporate asset prices into policy deliberations. In particular, equity markets continued to post strong gains, with uncertain implications for consumption. The need for monetary policy to take account of potential reactions in financial markets was further highlighted when the Federal Open Market Committee (FOMC) began announcing the bias in its policy stance immediately after its meetings.

Uncertainty was also a prominent theme in Japan. The principal question was whether the policy measures already taken would be sufficient to prevent a severe recession from developing deflationary tendencies; and, if not, what further steps could be taken to stimulate activity given that nominal policy rates were effectively zero. With real GDP having fallen for five consecutive quarters from the fourth quarter of 1997 onwards and with consumer prices in the latter half of 1998 declining for the first time in three years, the Japanese economy faced considerable downward momentum at the beginning of 1999. In the event, economic and financial conditions improved somewhat, although there was little evidence that the economic recovery had become self-sustaining.

The experiences of the Eurosystem last year bore witness to the policy problems that arise when a new and rapidly changing economic and financial landscape affects both the transmission mechanisms of monetary policy and

exchange rate perceptions. The Eurosystem conducted policy much in the pragmatic way it had announced it would, eschewing attempts at fine-tuning given uncertainty about the transmission mechanism, and relying on M3 growth as a policy indicator only in situations in which its information content was deemed unaffected by temporary factors. While the Eurosystem's interest rate decisions were generally well received by the public, criticism was directed at its policies regarding the public disclosure of information. These were seen by some observers as providing an insufficient degree of transparency, despite the great emphasis placed on clarity and openness by the Eurosystem from the outset.

As in the United States and the euro area, a tightening of monetary policy occurred in all of the inflation targeting countries as the year progressed. In general, the combination of greatly increased domestic demand, higher world growth and rising oil prices initiated more generalised price increases and generated upward revisions in medium-term forecasts of inflation, thus justifying the raising of short-term interest rates.

United States

Uncertainty about productivity growth and asset prices

Two sets of issues figured prominently in decision-making by the Federal Reserve last year. The first involved the behaviour of productivity growth and tightness in labour markets, and an assessment of their impact on the outlook for inflation. The second concerned the state of financial markets, specifically the interaction between monetary policy and asset prices. Both issues were a source of uncertainty for policymakers. Productivity growth has at times in recent years been above rates seen in the 1970s and 1980s, suggesting that the productive capacity of the economy may have permanently increased. However, identifying with certainty a break in trend productivity growth at a mature stage of an expansion remains difficult. Equally challenging and closely related is isolating the effects of monetary policy on asset prices, and their effects in turn on consumption, economic growth and measured productivity.

Similarities and differences compared to earlier Japanese experience

In this regard, it may be instructive to consider the experience of Japan in the 1980s. At that time, Japan enjoyed low inflation and strong growth for several years, which made it difficult for policymakers to separate trend from cycle. Moreover, these developments occurred against a backdrop of an appreciating yen, high rates of investment and accelerating productivity growth, as well as large increases in stock and real estate prices. The question faced by the Bank of Japan was whether it needed to tighten monetary policy and, if so, how to garner public support with inflation benign and productivity growth remaining at an elevated level. Furthermore, little was known then, as now, about how rapidly rising asset prices might respond to a tightening of monetary policy. These conditions seem similar to the recent US experience. In significant respects, the US situation appears more stable since the increase in real estate prices has been considerably smaller and the banking system seems much stronger. However, unlike Japan before, the United States is an external debtor with a large current account deficit. Thus, the balance of risks remains difficult to assess.

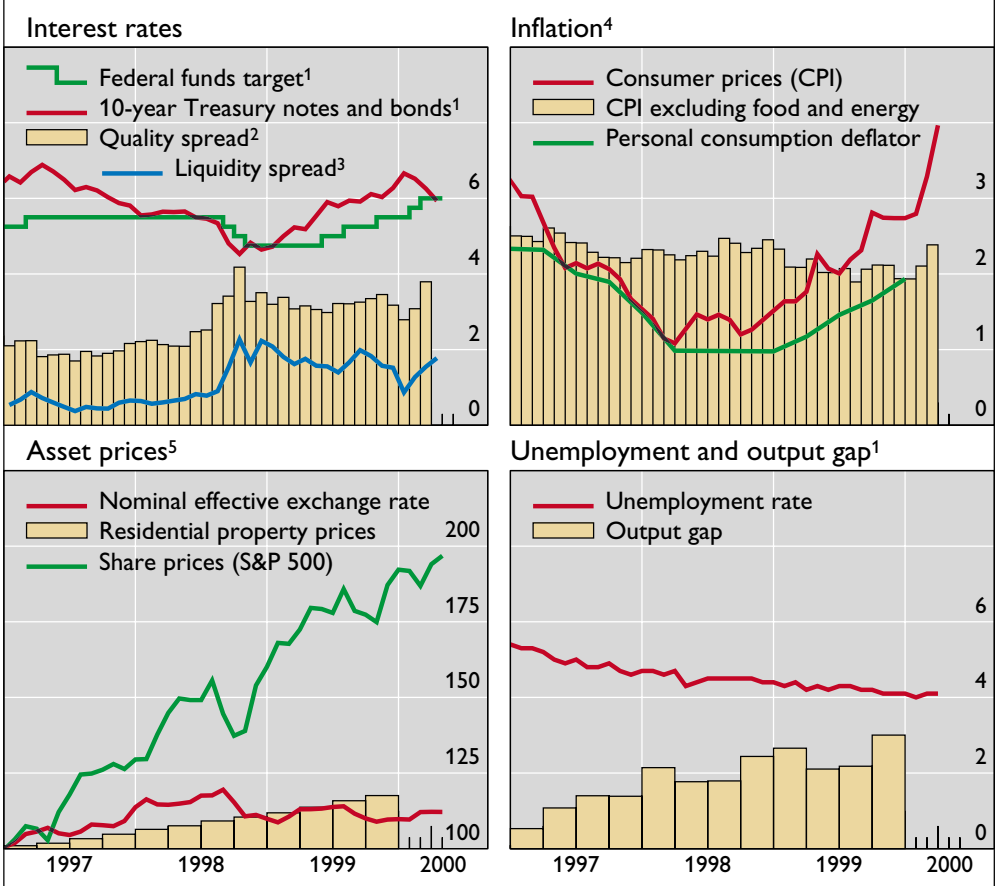
Debt markets stabilise …

In the early part of the period under review, financial market considerations played a predominant role in policy deliberations. To understand their impact, it is useful to recall the events of late 1998. At that time, a series of international financial crises with implications for the US economy induced the Federal Reserve to lower interest rates three times. It was feared that widespread retrenchment of credit could lead to financial markets seizing up, resulting in a recession. Symptomatic of the turbulence in financial markets were sharp increases in the spread between twice off-the-run and on-the-run 30-year Treasury bonds and between lower grade corporate debt and 10-year Treasury bonds. By the middle of 1999, however, these fears had been allayed somewhat, as it appeared financial markets were functioning more normally again. The focus of policy then became the timely unwinding of cuts in the target federal funds rate commensurate with more stable financial market conditions.

… and policy begins to tighten

With this unwinding already under way, emphasis shifted during the year to avoiding an inflationary outburst and an untimely end to the expansion. Whether the wealth gains from equity markets were to prove permanent or temporary, the Federal Reserve felt that their effects would be inflationary by

Economic indicators for the United States



[1] In percentages. [2] Secondary market corporate bond yield (BB) less 10-year Treasury bond yield, in percentage points. [3] Of 30-year bonds, twice off-the-run less on-the-run, in tens of basis points. [4] Measured as annual percentage changes. [5] End-1996 = 100.

Sources: OECD; national data. Graph IV.1

pushing current domestic demand above current supply. The combination of a declining personal savings rate and high stock prices implied that capital gains were indeed fuelling consumption, which became the main engine of growth well into the expansion. The Federal Reserve thus faced a situation in which inflation was expected to increase if left unchecked, but a hard landing could ensue if monetary policy moved too aggressively and stock prices were significantly affected. The likelihood of a large stock market decline would presumably depend in part upon whether or not increases in stock prices reflected a bubble or were justified by a permanent upward shift in productivity growth. In the latter case, the Federal Reserve could be less concerned about a steep fall in asset prices and tighten policy more vigorously in the face of inflationary pressures.

Productivity growth remains high, but labour markets tighten

Standard economic indicators also provided conflicting signals throughout the year, complicating the conduct of monetary policy. Nine years into the expansion, with real GDP growth of over 4%, the level of real GDP more than 2% above traditional estimates of potential output and unemployment reaching a 30-year low, there was increasing concern that underlying inflationary pressures were building up in the US economy. The rising current account deficit clearly indicated that domestic demand was outstripping domestic supply. In addition, two key elements which had contributed to the benign inflation performance of recent years, an appreciating US dollar and declining world oil prices, subsided. In contrast, productivity growth continued to exceed expectations and unit labour costs remained low, even falling in the latter part of 1999. The possibility that a trend break in productivity had occurred became more plausible. Moreover, the expansion had been supported in no small measure by substantial investment in restructuring and advanced technologies, which lent added credence to the "new economy" view. Nevertheless, overall, even though the main economic indicators provided conflicting signals about future inflation developments, it became increasingly likely that further tightening would be required. With the federal funds rate target back at 5.5% by November 1999, the FOMC continued to raise policy rates through the early part of 2000.

Asset prices, financial stability and monetary policy

Assessing the role of asset prices in the conduct of monetary policy raises a range of issues. A strategic question is whether asset prices should represent an independent objective of monetary policy. In many countries, central banks are charged with promoting financial stability. Since asset price cycles can trigger systemic banking failures and, along with credit cycles, often precede sharp economic downturns, some contend that it might be provident to target financial variables directly. However, unlike a target for inflation, it is difficult to quantify financial stability, and therefore it is not easy to know when asset prices threaten that stability. Moreover, there is the obvious difficulty of determining exactly what asset price should be targeted among the many potential candidates and, once chosen, what its target level should be. Still more fundamentally, such a policy would logically imply pursuing less vigorously the more traditional objective of consumer price stability.

Role of asset prices not well understood

Regardless of the extent to which asset prices might sometimes be allowed to constrain the pursuit of the traditional objectives of monetary policy, the effect of asset prices on those objectives is clearly of interest to policymakers. However, there remain many unresolved practical issues concerning how policy should react to asset price movements. For instance, it is not clear that policymakers can respond to changes in asset prices without at least taking a stand on whether they are too high or too low relative to an appropriate level. Second, there is considerable uncertainty about the role of asset prices in the monetary transmission mechanism, which limits their usefulness in policy assessments. For example, neither the timing nor the magnitude of the effects of changes in monetary policy on asset prices are well understood.

Potential dangers in responding to asset prices

The uncertain effects of monetary policy on asset prices are a feature of both monetary easing and monetary tightening. As to the former, liquidity infusions in times of apparent financial distress could contribute to moral hazard and promote future situations in which markets are under even greater stress. Indeed, such actions could inadvertently validate current high prices in other strongly performing asset markets. The Federal Reserve's rate cuts in late 1998, needed to stabilise fixed income markets, may have encouraged the stock market to rally at the same time. As for the latter, it might seem clear against the backdrop of the Japanese experience in the 1980s that an early tightening of policy would restrain asset prices and stem an expanding bubble. However, in practice, slightly tighter monetary policy might instead instil further market confidence in the sustainability of the expansion by signalling the central bank's anti-inflationary resolve. This could nullify the intended consequences of policy actions. It may therefore be difficult to deflate asset price bubbles gently. In fact, policymakers can arguably only eliminate perceived bubbles by tightening policy aggressively. Aside from other considerations pertaining to the targeting of asset prices, policymakers will have a natural aversion to such policies in the absence of certainty that a bubble exists. Since such certainty may only emerge well into the cycle, at that point it may be too late for policymakers to insulate the economy from the consequences of an asset price adjustment.

Announcement of the bias

The need to consider the interaction between financial market perceptions and monetary policy was also highlighted last year by the Federal Reserve's decision to announce the bias in its policy stance immediately following FOMC meetings. Before May 1999, the bias was revealed to the public only when minutes of FOMC meetings were published. The new procedure reflects a still greater willingness by the Federal Reserve to be open about its operations.

Meaning of the bias unclear

From its inception, the meaning of the bias had never been fully clear to the public. One interpretation is that it helped to achieve a consensus among members of the FOMC on the adopted rate target by providing an outlet for dissenting views. A second is that it gave the Chairman authority to initiate discretionary changes in policy between meetings. A third is that it signalled the direction in which future federal funds rate changes were actually expected

to occur. In spite of this lack of clarity, it appears from the examination of movements in federal funds futures rates around FOMC meetings since May 1999 that the markets were neither surprised by nor reacted strongly to the bias when it was announced simultaneously with the policy stance. Nonetheless, while bond market behaviour did not appear to change either, the announcement of the bias seemed to cause short-lived reactions in equity markets. In order to dispel any possible confusion, the Federal Reserve revised its disclosure procedure again in February 2000, making clear that the bias is meant to convey the FOMC's consensus view of the uncertainties surrounding future economic growth and inflation, over a horizon that extends beyond the next FOMC meeting.

Japan

With consumer prices constant or declining somewhat, and the output gap large and growing, monetary policy in Japan focused last year on preventing the economy from developing further deflationary tendencies.

Zero interest rate policy …

Since overnight interest rates had already been reduced effectively to zero in March 1999, further relaxation of policy through the traditional interest rate channel was not feasible. With long-term interest rates rising sharply in late 1998 and early 1999, in response to announced fiscal measures to support economic activity amid perceptions of reduced public sector demand for long-term government bonds, the Bank of Japan announced in April its intention to maintain short-term interest rates at zero until deflationary concerns subsided. This measure, which was designed to put downward pressure on bond yields, led to a decline in 10-year yields during the spring. Evidence of an improving economic outlook as the year progressed led in the summer to speculation that the zero rate policy might be abandoned, and triggered a rise in long-term bond yields to just below 2%. Moreover, and more worryingly, the yen started to appreciate abruptly, which exerted a contractionary effect on activity. Only as perceptions shifted near year-end towards the economy being weaker than earlier believed was the appreciation partially reversed.

… is maintained

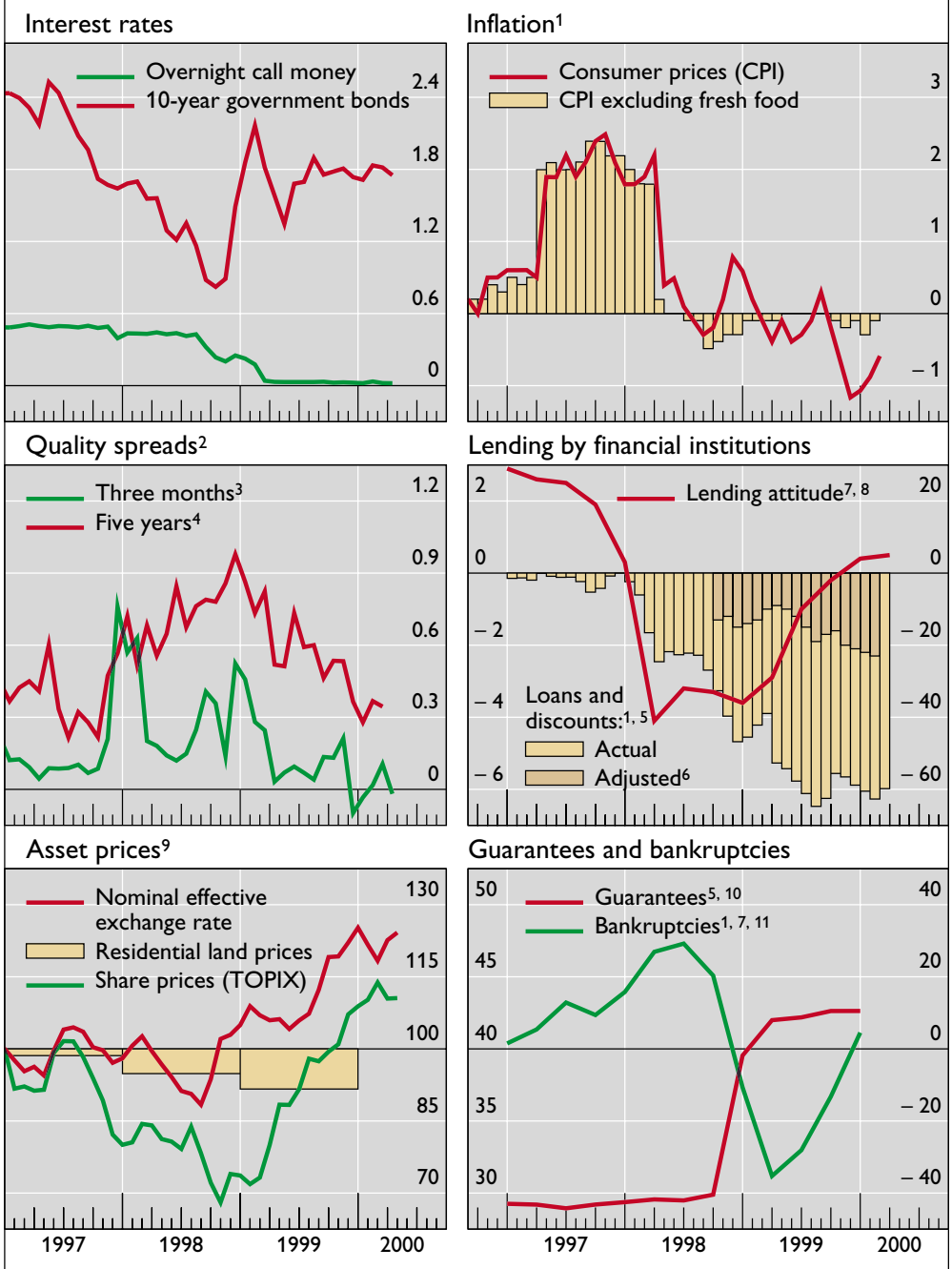
Anxiety about financial institutions reduced

While fiscal policy remained crucial in underpinning activity, evidence also accumulated suggesting that the steps taken in the preceding year to stabilise the financial system had begun to bear fruit. The adoption of credit guarantees, the expansion of lending through public financial institutions, the closure of insolvent financial institutions and the recapitalisation of several major banks were all intended to support credit growth and public confidence. The reduction of credit risk premia in the banking system, the gain in lending attitudes and higher equity prices provided welcome indications that perceptions of the health of the financial system were indeed improving. Despite this change in sentiment, however, there was little firm evidence that underlying financial conditions had significantly strengthened. Bank lending, for instance, continued to fall, reflecting a combination of weak credit demand by larger borrowers and creditor concerns regarding the financial position of smaller borrowers in particular.

By reducing call money rates to zero, the Bank of Japan fully committed its main policy instrument to supporting the economy. The extent to which

additional and exceptional policy measures could be used to further ease monetary conditions remained highly uncertain. Some observers, including the Bank of Japan itself, argued that further efforts to expand the monetary base, whether through money market operations or unsterilised foreign exchange intervention, would be ineffective because financial institutions would

Economic indicators for Japan



[1] Measured as annual percentage changes. [2] In percentage points. [3] Call money (uncollateralised) less treasury bills. [4] Bank debentures less government bonds. [5] Left-hand scale. [6] For, inter alia, securitisation, loan write-offs and exchange rate changes. [7] Right-hand scale. [8] Percentage balance of positive and negative answers as perceived by non-financial firms. [9] End-1996 = 100. [10] Guarantee obligations outstanding (in trillions of yen). [11] Corporate bankruptcies, number of cases.

Sources: Bank of Japan, *Tankan*; Tokyo Shoko Research Ltd; national data. Graph IV.2

redeposit any additional liquidity with the central bank. Indeed, it was suggested that such measures could be counterproductive if they compromised the independence of the Bank of Japan and led to a rise in long-term interest rates. However, other commentators felt that increases in the monetary base might lead financial institutions to purchase higher-yielding assets, including corporate debt obligations and longer-term government bonds, which could possibly lower their yields and stimulate activity. It has also been argued that the Bank of Japan could expand the range of its operations along the term structure and could even engage directly in operations in a broader range of instruments. However, this would raise important issues regarding asset quality and the appropriate degree of interest rate risk, with potential effects on the independence of the Bank of Japan if large losses were sustained.

Inflation targeting considered

Whether the declaration of an explicit inflation objective would be helpful in raising inflation expectations in Japan and pushing expected real interest rates below zero was also the subject of public debate last year. The Bank of Japan noted that proposals to introduce inflation targeting in Japan had come in two forms. Some observers had suggested setting a numerical objective well in excess of the price stability range. Given the costs of inflation, the difficulties of controlling an inflationary outburst, and the fact that the economy already showed some signs of recovering, the Bank did not favour this option. Other commentators had suggested the Bank should adopt a more standard inflation targeting strategy. The Bank took the view that this proposal also raised broader issues of how to enhance the transparency and accountability of monetary policy, and announced that it would consider these issues in detail. No country has yet adopted inflation targeting in an attempt to raise inflation, so the Japanese situation differs in a crucial way from that faced by other countries. Moreover, the adoption of inflation targeting in the current setting could raise credibility problems since it might be difficult to persuade the public that the central bank had sufficient tools to raise inflation to the targeted band if prices actually started falling.

"Zero lower bound"

The recent experiences of Japan provide a rare opportunity to assess the importance of the fact that nominal interest rates cannot fall below zero, the so-called "zero lower bound" (ZLB). Some observers have argued that the constraint imposed by the ZLB implies that it would be inappropriate to gear monetary policy to achieving a level of inflation as low as zero. In such circumstances, it would be very difficult to engineer negative real interest rates if these were required for conjunctural purposes. The historical record suggests, however, that this conclusion can be questioned. One reason is that short-term real interest rates have only rarely been negative, indicating that central banks have not frequently felt the need for negative rates to stimulate the economy. Similarly, there have been virtually no occasions on which central banks have felt compelled to cut nominal interest rates to the vicinity of zero. Indeed, historical episodes of zero nominal interest rates have been limited essentially to the United States in the late 1930s and Japan last year, both of which occurred in situations where massive dislocation in the financial sector exerted sharp contractionary pressures on the economy.

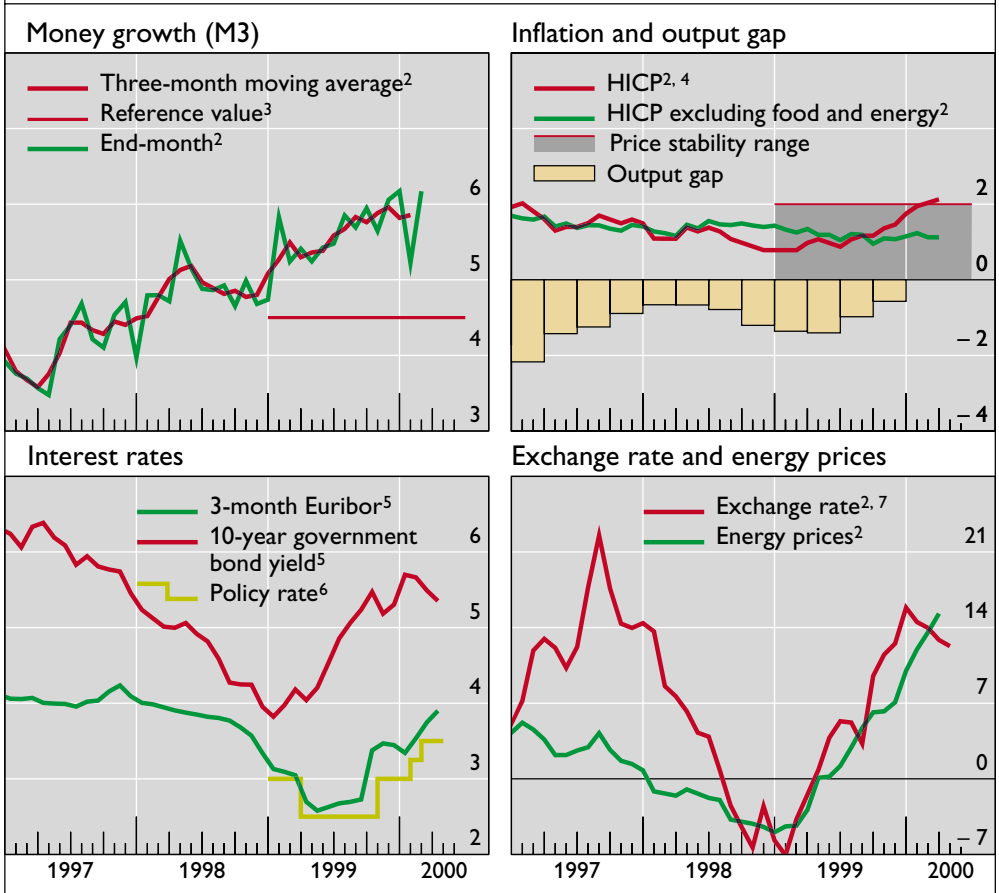
These episodes are therefore arguably better interpreted as highlighting the importance of maintaining a sound financial system, rather than as clear evidence that aiming for zero inflation would necessarily be associated with poor macroeconomic performance.

Euro area

Uncertain environment

The Eurosystem faced an uncertain environment during the euro's first year of existence. Following the weakness of global demand in the aftermath of economic crises in many emerging market countries, the economic momentum in the euro zone had slowed sharply in 1998. With confidence deteriorating, real growth decreasing, consumer price inflation declining and industrial producer prices falling, conditions in early 1999 were weak, leading to concern that deflationary pressures could emerge. While economic conditions suggested a need for monetary easing, political pressure on the Eurosystem to reduce interest rates led to a situation in which doing so might have had detrimental effects on its credibility. In the event, the Eurosystem took action in April 1999

Economic indicators for the euro area[1]



[1] In percentages. [2] Annual changes. [3] For three-month moving average. [4] Harmonised index of consumer prices. [5] Prior to 1999, GDP-weighted average of national rates. [6] Tender rate. [7] Euros per US dollar; prior to 1999, calculated as the trade-weighted average of dollar exchange rates of the legacy currencies and adjusted at the value of the ECU rate of 31 December 1998. Positive values indicate a euro depreciation.

Sources: ECB; OECD; national data; BIS. Graph IV.3

and reduced its policy rate by 50 basis points to 2.5% in an effort to promote recovery.

Different signals from the two pillars

This decision was taken in the context of conflicting signals from the two "pillars" used by the Eurosystem in setting policy, the first being M3 growth and the second a broad-based assessment of the outlook for inflation. In presenting its policy strategy, the Eurosystem had indicated that it would not react automatically to deviations of money growth from the reference value. Rather, such deviations would prompt further analysis to determine whether price stability was at risk. Thus, although M3 growth exceeded the reference value of 4.5% in early 1999, the overall analysis of monetary developments did not signal rising inflationary pressures, and more importance was therefore attached to the second pillar in setting policy.

Following the improvement in the external environment and with the euro depreciating, economic activity gradually strengthened during the year. Reflecting these developments and a sharp increase in commodity prices, headline measures of inflation, as captured by the harmonised index of consumer prices (HICP), increased from about 1% in the first quarter of 1999 to 2% in early 2000. While the Eurosystem has defined price stability as inflation below the 2% threshold, it has emphasised that temporary price rises above this level should not be seen as incompatible with price stability. Moreover, core inflation, calculated by excluding food and energy prices from the HICP, continued to decline during the year. However, given that the balance of risks to the inflation outlook had shifted during the autumn, the Eurosystem raised its policy rate repeatedly between November 1999 and April 2000 by 125 basis points in total to 3.75%, which reduced the degree of accommodation of monetary policy. These decisions were taken on the basis of the information stemming from both pillars, and in the light of the continued depreciation of the euro, which signalled risks to price stability through its effect on import prices.

Credibility and transparency

Arguably the greatest test the Eurosystem faced last year was to demonstrate its commitment to, and ability to achieve, price stability in an environment characterised by change. Although the clarity of its mandate and the degree of independence given to it by the Maastricht Treaty were designed to facilitate this process, the conduct of policy in pursuit of this objective nevertheless proved complicated. One problem was that there was little historical precedent for a central bank suddenly being mandated to conduct monetary policy in a large, rapidly evolving and economically diverse area. Moreover, the introduction of the euro brought about a marked change in the economic environment in individual member countries and triggered structural changes of unknown import. It was therefore inevitable that the monetary transmission mechanism in the euro zone would remain poorly understood for some time.

Monetary transmission mechanism changing

Framework of policy complicated as a result

A further source of uncertainty was related to the framework of monetary policy. There is little question that the core components of the framework – the clear statement that price stability is the overriding objective of policy, together with a numerical definition thereof to render it operational – were

well understood and enjoyed firm public support. Nevertheless, the use of two pillars appears to have been more difficult to explain. With one of the pillars being a numerical reference value for M3 growth, the framework was in some circles misunderstood as being tantamount to monetary targeting despite the Eurosystem's clarifications to the contrary. While the indications provided by the two pillars should normally have the same implications for policy, at various times they were contradictory, which rendered monetary policy decisions more opaque. Moreover, the pronounced movements in the exchange rate raised further credibility issues, despite repeated statements by the Eurosystem that the exchange rate enters the policy framework only through its impact on the broad-based inflation outlook. Further clarification of the relative importance of the two pillars will be an ongoing task whose importance will diminish only once the Eurosystem has built up a strong record of price stability.

Potentially conflicting information

Public scrutiny intensified

As a new central bank, the Eurosystem attracted an understandable, but at times perhaps excessive, degree of public scrutiny. The adoption of practices, including those regarding transparency and open methods of communication with financial markets, that in some respects even go beyond those of other respected central banks has gone unnoticed or sparked a surprising degree of controversy. For instance, it was not always appreciated that, while many central banks publish a thorough analysis of economic developments on a quarterly basis, through the release of a bulletin, the Eurosystem does so monthly. Similarly, little attention was paid to the fact that, in contrast to the Federal Reserve and the Bank of Japan, the Eurosystem has publicly adopted a numerical definition of price stability.

Need for a single voice

Public understanding of the Eurosystem's conduct of policy was not enhanced by seemingly contradictory comments by individual members of the Governing Council and even elected politicians regarding appropriate levels of interest and exchange rates. While it is desirable that those entrusted with the setting of interest rates publicly explain their views of economic conditions and the transmission mechanism, comments that were misunderstood as signalling near-term policy intentions may have added to, rather than reduced, uncertainty.

Minutes and voting records not published …

During the year significant criticism was directed at the Eurosystem's decision not to make public the detailed minutes of the meetings of the Governing Council, including voting records. Although a consensus has emerged that clarity is critical to the effectiveness of policy, there are many dimensions to transparency. While central banks have promoted increased clarity with respect to their objectives, policy instruments, decision-making procedures, policy decisions and the main reasons for taking them, many still refrain from publishing minutes and voting records. One reason for this is a perception that some restrictions on transparency serve to keep monetary policy apart from the political process. This may buttress central bank independence and reduce the potential for political interference in the setting of monetary policy. Public support for monetary policy is also crucial to its effectiveness. By promoting the recognition of monetary policy as a technical matter pursued in an apolitical fashion, such support is more easily achieved.

Such considerations may be particularly important for the Eurosystem, which faces an unusually complex political environment in which revealing the positions of national representatives through the publication of minutes and voting records might leave them exposed to pressure from national interest groups.

… in a complex political environment

Publication of forecasts

The Eurosystem has also been criticised for not publishing its internal inflation forecasts. While it has stated its intention to adopt this practice, how best to do so remains a subject of debate among central banks both inside and outside the euro zone. One issue that arises concerns the "ownership" of forecasts. For these to be seen as representative of their views, it is essential that the members of the policymaking group be actively involved in their preparation. For reasons of geography, this will be difficult in the case of the Eurosystem since most members of the Governing Council reside in their home countries. An alternative would be for the Eurosystem to release staff projections, which policymakers might, or might not, choose to rely on in setting rates. In this case, releasing a forecast would not necessarily enhance transparency about the factors influencing policy decisions. Releasing forecasts could also be problematic if they influenced economic processes in undesirable ways; for example, forecasts of wage growth could become a floor for centralised negotiations.

"Ownership" of forecasts

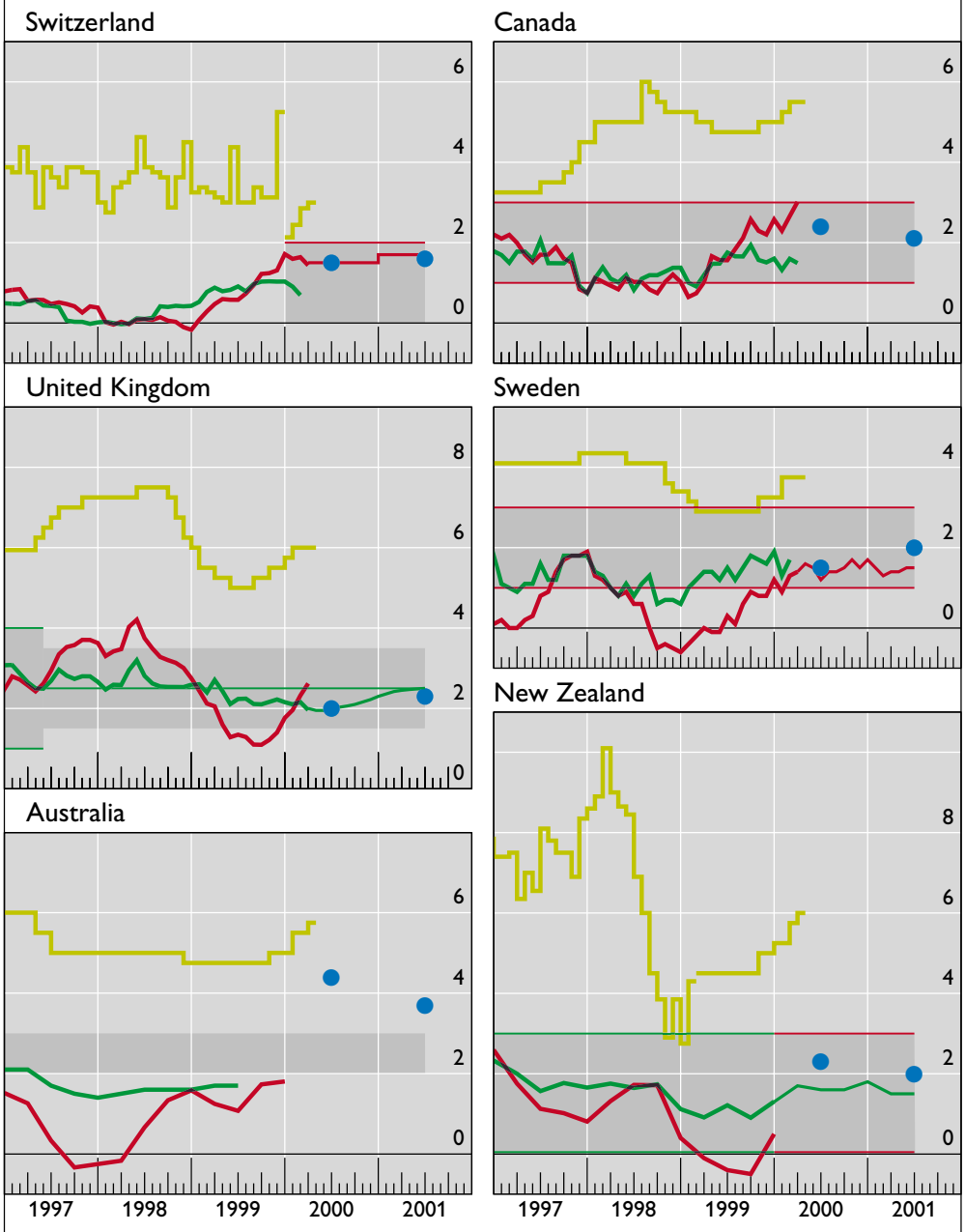
A further issue concerns how best to communicate forecasts to the public. The crux of the problem is that forecasts typically assume constant policy rates over the projection horizon and may predict undesirable paths for inflation and output. They could thus be the basis for future interest rate changes which influence economic conditions, potentially making the forecasts internally inconsistent. While the forecasts could be based on endogenous monetary policy responses, this would make the inflation forecasts themselves irrelevant, since they would always be on target at the horizon over which the central bank acts to achieve its goals. Public interest would therefore shift to the implied sequence of policy rates embedded in the forecasts. However, central banks may not be willing to release projections of future short-term interest rates, since this runs the risk that any deviation of policy rates from the forecast level, even if caused by new information, could be seen as game-playing by the central bank and harm its credibility. Finally, information regarding the expected path of interest rates is not necessarily useful to the public unless it is specified how short-term interest rates are determined in the first place. Knowledge of the authorities' reaction function is essential to determine the implications of new information for policy instruments.

Complications in communication

Inflation targeting countries

In the first half of the 1990s, several industrial countries adopted explicit inflation targets, including New Zealand, Canada, the United Kingdom, Sweden and Australia. Last year, Switzerland adopted a similar broad-based strategy for achieving price stability centred upon inflation forecasts. The trend towards

Inflation and policy rates in countries with inflation targets[1]



Note: Switzerland does not target inflation but instead uses a broad-based inflation forecasting strategy primarily focused on a numerical target for price stability.

[1] Inflation rates are measured as annual percentage changes. CPI inflation is targeted by Canada, Sweden, Australia (since October 1998) and New Zealand (since 2000), while underlying inflation is targeted by the United Kingdom (and previously also by Australia and New Zealand). [2] For Switzerland and Canada, CPI excl food and energy prices (for Canada also excl indirect taxes); for the United Kingdom, retail price index excl mortgage interest payments; for Sweden, CPI excl indirect taxes, subsidies and house mortgage interest expenditure; for Australia, CPI excl seasonal food, petrol, mortgage interest payments, public sector charges and other volatile prices (publication suspended in June 1999); for New Zealand, CPI excl credit services. [3] Of annual CPI or, for the United Kingdom and New Zealand, underlying inflation; surveys conducted in April 2000. [4] For Switzerland, actual three-month Libor (the target band is set 50 basis points above/below Libor); prior to 2000, lombard rate. For Canada, ceiling of the operating band; for the United Kingdom and Sweden, repo rate; for Australia, cash rate; for New Zealand, cash rate (prior to March 1999, call rate).

Sources: © Consensus Economics; national data. Graph IV.4

strategies focused upon explicit inflation targets is also evident in emerging market economies; witness Brazil, Poland, the Czech Republic and South Africa, all of which recently announced such targets.

In the industrial countries which target inflation, policy rates generally eased in 1998 and early 1999, mainly in response to inflation falling close to the lower end of target ranges owing to slower world growth and sharp declines in commodity prices. In contrast, as the past year unfolded, world growth picked up, oil prices rose sharply, other commodity prices levelled off or rose slightly, and policy in these countries was tightened accordingly.

Widespread tightening

In the light of sharp increases in recorded productivity growth in the United States, one issue faced by the industrial countries targeting inflation was whether they might soon achieve similar gains, hence reducing the need to raise policy rates as much as might otherwise seem warranted. In each of these economies, price/earnings ratios reached record highs, consistent with higher productivity gains being expected. However, while labour productivity growth was variable across the countries that target inflation, as a whole they did not experience a prolonged period of elevated gains. Indeed, productivity increases were generally no more than slightly above average. The capital deepening in the United States, which may have contributed to measured productivity gains, occurred at a much faster rate than elsewhere.

Large productivity gains yet to be realised

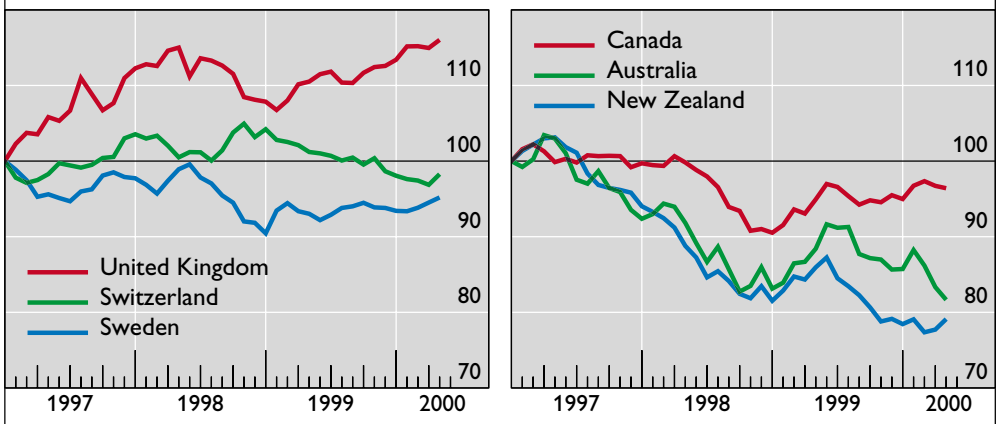
The Bank of Canada raised its key policy rate three times during the period under review, after a series of easings which ended in May 1999. Although these rate changes in November 1999 and the early part of this year followed rate increases in the United States, a negative Canadian/US interest rate differential remained. Even so, the Canadian dollar was stable, reflecting in part higher commodity prices, which allowed the Bank of Canada to focus on other forces driving inflation. In particular, the economy was thought to have reached potential, as evidenced in a wide range of indicators including domestic demand and the unemployment rate. Consistent with this judgment, both headline and underlying inflation increased, the latter rising to just below the 2% midpoint of the Bank's target range. This slight uptick in inflation, combined with strong demand and potential inflationary spillovers from the United States, led the Bank of Canada to raise rates.

Canada

In the United Kingdom, the real economy was weak in the early part of 1999 and underlying inflation remained below the point target. This motivated the Bank of England to continue its easing into June. However, by September 1999, a sharp economic turnaround was apparent. Output growth rose above its long-run average of about 2.5% and one headline measure of unemployment fell to its lowest level in 20 years, indicative of the increasing pressure on the economy's capacity. Sterling gradually appreciated during the year, however, providing some relief through lower import prices. On balance, underlying inflation remained below the target of 2.5%, although the Bank forecast in late summer 1999 that inflation would increase in 2000 and 2001. These considerations led to a rate reversal in September 1999, with the repo rate subsequently being increased in steps to 6%. Conditional on this higher rate, inflation was then forecast to return to target gradually by 2001.

United Kingdom

Exchange rates in countries with inflation targets[1]



Note: Switzerland uses a broad-based inflation forecasting strategy (see Graph IV.4).

[1] Nominal effective rates, December 1996 = 100. An increase indicates an appreciation.

Source: BIS. Graph IV.5

A further explanation of the repo rate increases might have been concern in the Monetary Policy Committee (MPC) about asset prices. The price/dividend ratio reached a historical high, and real estate prices increased sharply throughout 1999. For example, the Halifax housing survey indicated that prices were already rising at an annual rate of nearly 10% by late summer. Unlike in the United States, policymakers in the United Kingdom were not comforted by accumulating evidence that unexpected productivity growth would reduce future inflationary pressures.

Two main sources of uncertainty in the UK inflation outlook were the likely course of future exchange rate movements and possible increases in the degree of domestic competition. Forecasts which assumed that the exchange rate would evolve according to interest rate differentials led to a prediction that inflation two years hence would be more than ½ percentage point higher than forecasts based on an unchanged exchange rate (ie a random walk model). While both of these forecasting models have their justification, neither is very reliable. A second source of uncertainty was whether there had recently been a marked increase in the degree of domestic competition that firms face. If so, then the UK economy might have been benefiting from a one-time reduction in inflationary pressures.

Sweden

In Sweden, inflation also picked up in the latter part of 1999, prompting a rise in the repo rate, the first change in policy since the series of easings ended in March 1999. In fact, forecasts for 2001 had inflation rising above the target of 2% due to strong domestic demand and increases in import prices. Despite the repo rate increases and a stable krona, faster world growth led to upward revisions in the outlook for domestic growth, which was expected to raise output above potential into the next year.

Australia

The Australian and New Zealand dollars were relatively stable in 1999, in contrast to the previous year when declines in commodity prices led to sharp depreciations of both currencies. This meant that policymakers in the two countries directed their attention primarily to other factors affecting inflation,

which for most of the period were judged benign. Nevertheless, the Reserve Bank of Australia felt it necessary to raise rates in November 1999 and again in early 2000. The reasons for the rate increases were similar to those in Canada, the United Kingdom and Sweden: unexpectedly high domestic demand and unexpected world growth. The surge in domestic demand was supported in part by wealth effects resulting particularly from large increases in Australian house prices. Consequently, consumer price inflation was expected to be in the upper half of the target range by the middle of 2000.

New Zealand

In New Zealand, the Reserve Bank left the official cash rate unchanged for most of 1999. Policy was deemed to be consistent with forecasts of inflation remaining on target, while still allowing demand growth of about 3%, such that output could converge upwards towards potential. In November, the Reserve Bank raised rates by ½ percentage point in response to robust second half growth and a depreciating dollar, which had eased monetary conditions somewhat. In early 2000, there continued to be signs that the economy was starting to overheat, which prompted further rate increases.

While the primary goals in an inflation targeting regime are low and stable inflation, the short-term stabilisation of other economic factors is not precluded. Indeed, in December 1999, the New Zealand Treasury and the Reserve Bank signed a new policy targets agreement that formally sets out ancillary goals of avoiding unnecessary short-term fluctuations in output, interest rates and the exchange rate, but in such a way as to avoid conflicting with the well established longer-term inflation targeting strategy. In principle, the new agreement serves to shift the weight in short-term stabilisation objectives partially away from inflation towards these variables. However, it is difficult to assess what the direct impact of this change will be on the way monetary policy is conducted in practice since there are grounds for believing that the Reserve Bank has tried in the past to avoid "unnecessarily" large movements in these variables.

A new policy strategy in Switzerland

The Swiss National Bank announced during the year the adoption of a new policy strategy centred upon its inflation forecasts. Under the new framework, forecasts of inflation for the subsequent three years are published at each year-end and policy is adjusted accordingly. Historically, the Bank conducted policy using intermediate monetary targets, while under the new regime a whole range of inflation indicators formally condition policy decisions. One element that remains unclear concerns the response of monetary policy to movements in the franc against the euro. It was noticeable that, while the franc underwent sizeable appreciations and depreciations earlier in the 1990s, fluctuations of the currency in 1999 were contained in a narrow band (see Chapter V).

Definition of price stability

Accompanying the new strategy was an explicit definition of price stability as CPI inflation of less than 2%. This definition is comparable to the Eurosystem's interpretation of price stability, and its level is similar to those in countries with explicit inflation targets. In addition, the Swiss National Bank changed the way in which policy is implemented in order to increase the transparency of its operations. Its main instrument is a target range for three-month Swiss franc Libor rather than the rate of growth of base money.

Monetary policy and uncertainty

Increased emphasis on uncertainty

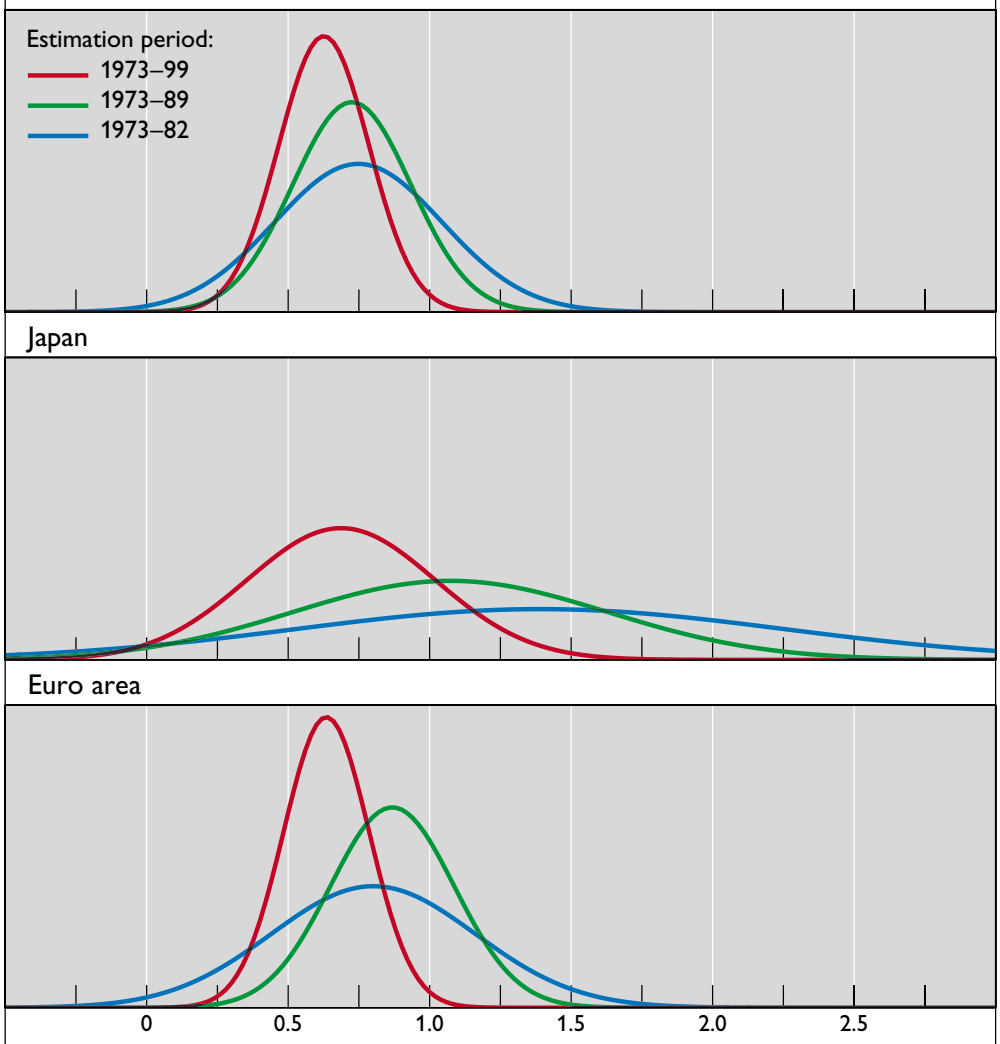
Uncertainty is intrinsic to the economic environment, and central banks have increasingly emphasised the constraints it imposes on the design and conduct of monetary policy. In doing so, they have been mindful of the importance of distinguishing between different sources of uncertainty.

Sources of uncertainty

Uncertainty regarding the structure of the economy …

Uncertainty arises from a variety of sources. Most obviously, there is uncertainty about the structure of the economy. For instance, last year there was a significant degree of uncertainty about the Bank of Japan's ability to influence interest rates beyond the short-term segment of the yield curve. But even when there is broad agreement on the structure of the economy,

Distributions of Phillips curve slope estimates



Note: The graph shows normal approximations of the distributions of the estimators of the slope coefficient β in regressions of the form $\Delta\pi = \beta\, Gap + \varepsilon$, where π is the rate of inflation (CPI), *Gap* is the output gap and ε is an error term. All data are annual.

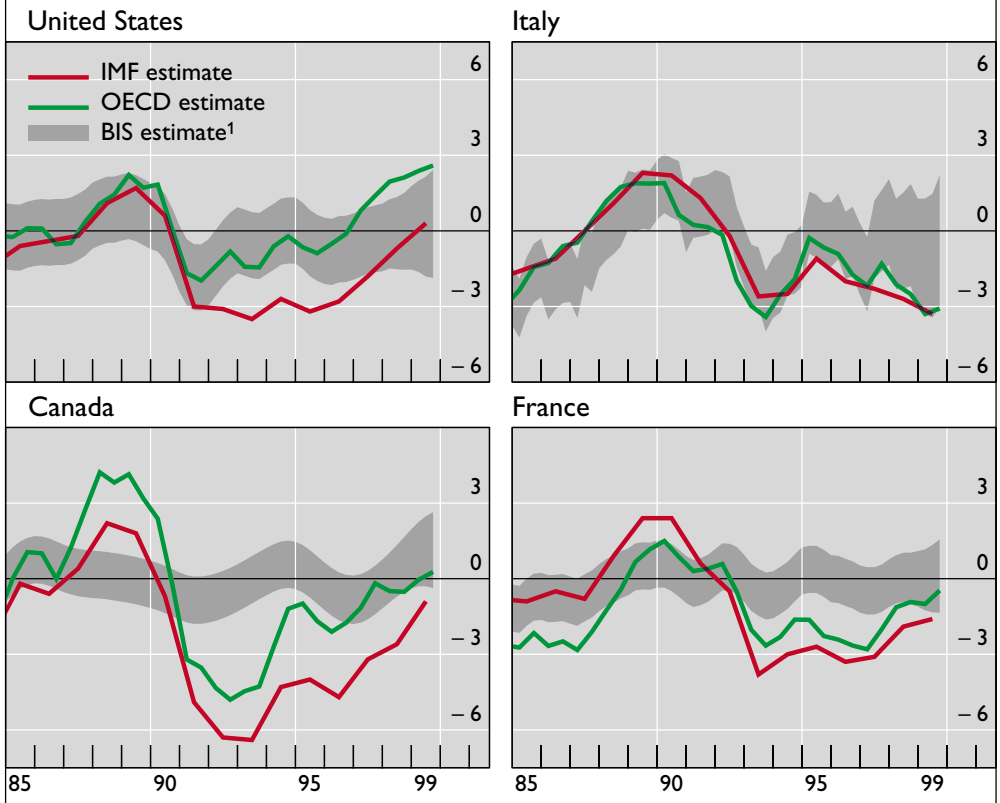
Sources: OECD; national data; BIS calculations. Graph IV.6

considerable uncertainty may remain regarding the exact quantitative strength of individual relationships. For instance, in relatively closed economies, such as the United States or the euro area, assessing the amount of slack in the economy and how it feeds into inflation is a critical part of formulating policy. Yet estimates of this relationship, commonly known as the Phillips curve, are typically imprecise and tend to vary over time.

… parameter estimates …

Graph IV.6 shows estimated probability distributions for the impact of output gaps on inflation using data for the United States and Japan, and synthetic data for the euro area. Although the graph disregards the important issue of how to estimate output gaps and should only be seen as illustrative, it is nevertheless suggestive of the problems at hand. In particular, the fact that the distributions are wide implies that the impact of output gaps on inflation is uncertain. For instance, while in all three cases GDP 1% higher than potential is associated with a rise in inflation of about 0.6 percentage points (see also Chapter II), the estimates for the United States and the euro area suggest that the impact may range between 0.25 and 1 percentage point. In Japan, the impact is still more uncertain: it could be negligible or considerably larger than in the other two economies. Moreover, the fact that the peak of the distribution shifts as increasingly longer sample periods are considered suggests that the economic relationship is evolving over time in perhaps unpredictable ways.

Uncertainty of output gaps

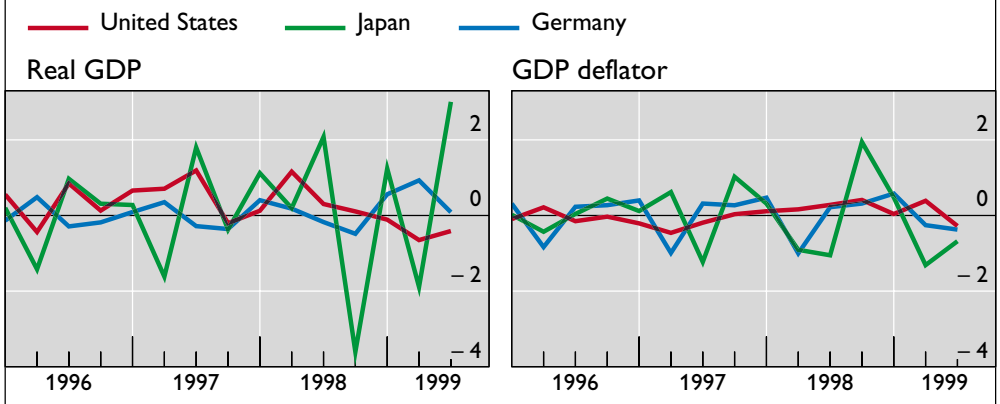


1 Kalman smoothing, 95% confidence band.

Sources: IMF, *World Economic Outlook*, April 2000; OECD, *Economic Outlook*, December 1999; BIS.

Graph IV.7

GDP data revisions[1]



[1] Difference in annualised quarterly percentage changes of data available in February 2000 and August 1999 (United States) and those available in March 2000 and September 1999 (Japan and Germany).

Sources: D Croushore and T Stark, "A real-time data set for macroeconomists", Federal Reserve Bank of Philadelphia, *Working Paper no 99-4*; national data. Graph IV.8

… unobservable variables …

Uncertainty also arises from the fact that many important macroeconomic variables are unobservable, in particular expectations. Such expectations nevertheless play a critical role in the determination of asset prices, including exchange rates and bond yields, and in the setting of goods and services prices. This lack of observability makes it difficult to determine the sources of asset price movements and, more broadly, the impact of policy measures on economic variables of interest.

A further illustration of the difficulties that confront policymakers when dealing with unobservable economic series is provided by comparing measures of the output gap. This variable is unobserved but is commonly assigned an important role in judging inflationary pressures. Graph IV.7 shows three estimates of the output gap for four countries. At times there are large discrepancies between the estimates. The fact that a 95% confidence interval around one estimate often does not encompass alternative point estimates further demonstrates the extent of uncertainty.

… and data

Another source of uncertainty stems from the data. After a preliminary data release, many economic time series are revised, sometimes frequently, in the light of additional incoming source data, shifts in seasonal adjustment factors and redefinitions of variables. The recent adoption in many countries of new methods for constructing the national accounts has, in some cases, led to substantial changes in real GDP and its components.

To illustrate the degree of data revisions that policymakers face, Graph IV.8 shows differences between GDP observations available at a recent point in time and observations for the same historical dates that were available six months earlier. As can be seen, the reported values for quarterly real GDP growth changed by as much as 3.6 percentage points (annualised rate) in the course of this brief period. In these samples, real GDP data in Japan underwent the largest revisions, but the US and German data also changed significantly. Revisions in GDP of this magnitude may complicate, for example, the use of recently reported values for the output gap as a basis for policy decisions.

Implications for the communication of policy decisions

Central banks have in recent years emphasised the degree of uncertainty in the design of policy. For instance, in defining their objectives, they are taking greater account of the constraints arising from uncertainty. The Eurosystem, for example, in defining price stability as inflation below 2%, explicitly recognised the uncertainty arising from measurement errors in the HICP index. Furthermore, many central banks with explicit inflation targets express them in terms of a range, and may specify them in terms of a measure of core inflation, which is less subject to unpredictable movements. Similarly, in communicating their views about the future direction of the economy, some central banks have started to publish estimated probability distributions for expected inflation and real GDP. By de-emphasising, or even not providing, point forecasts, the degree of uncertainty can be communicated to the public. Moreover, some have chosen to release the minutes of policy discussions, notwithstanding other problems noted earlier, in part because they serve as a means to describe the difficulties policymakers have in interpreting current economic conditions and the near-term outlook.

Ranges for targets …

… and forecasts

In communicating with the public about monetary policy issues, several factors have contributed to this heightened focus on the implications of uncertainty. One is the increased emphasis on central bank transparency and accountability. The more open the conduct of policy, the more important it is that central banks acknowledge the limitations they face, since otherwise they could be vulnerable to unwarranted criticism that could damage their credibility. The increasingly common practice of numerically defining price stability and adopting it as the overriding policy goal has made it vital for central banks to be able to explain the reasons for any failure to meet this objective. Second, as central banks have moved away from such intermediate targets as monetary aggregates and exchange rates, policy has taken on a more comprehensive forward-looking orientation, with forecasts playing a pivotal role. Since forecasts are inherently imprecise, with risks to the outlook frequently asymmetric, uncertainty has naturally come to the forefront both in policy discussions and in the communication of policy decisions to the public. Third, as evidenced by the examples given above, there is considerable uncertainty about many elements in key economic relationships such as the Phillips curve. In fact, the measures of uncertainty expressed in these examples understate the true extent of uncertainty that policymakers face because they presume that the structure of the economy is stable. Structural change due, for example, to financial liberalisation or productivity-raising technological innovations in the high-technology sector further contributes to the degree of uncertainty. Finally, given the marked uncertainty regarding the appropriate level of asset prices, their responses to interest rate changes and other policy measures, and their potential impact on broad economic conditions, the degree of unpredictability faced by central banks has arguably increased in recent years.

Emphasis on transparency …

… increased importance of forecasts …

… structural change …

… and the role of asset prices