IV. Monetary policy in the advanced industrial economies

Highlights

The policy cycle turned last year as central banks in the advanced industrial economies reduced interest rates in response to the global downturn. Another influence was the terrorist attacks in the United States, after which policy was eased further worldwide to help restore consumer and business confidence. Growth prospects became more favourable in the early part of 2002, which prompted central banks in some countries to tighten policy to pre-empt inflationary pressures.

The slowdown in activity last year was first apparent in the United States. As a consequence, the Federal Reserve took the lead in easing policy in January 2001, and subsequently cut rates repeatedly when confronted with the unexpected severity of the slowdown. During the first quarter of 2002, signs appeared that a turnaround in economic activity was under way. This halted any further easing of policy and led to a more balanced assessment regarding the risks to growth and inflation.

Compared to the United States, a downturn in real activity appeared later in the euro area. Since inflationary pressures remained a concern, the ECB cut interest rates only once in the first half of 2001. As evidence of the downturn mounted, and in response to the events of 11 September, the ECB eased policy further in the second half of the year. Rates were held steady in the early part of the current year as prospects of recovery emerged but inflationary pressures stayed dormant.

In Japan, very weak economic conditions persisted. The Bank of Japan increased reserves in the banking system several times during the period under review. As an additional stimulus measure, the Bank also stepped up its outright purchases of Japanese government bonds. However, crucial structural reforms remained stalled and the economy accordingly continued to falter.

Interest rates were also reduced over the last 12 months in countries with explicit inflation targets, although the timing and magnitude of policy changes varied. While the Bank of Canada cut rates aggressively, growth remained more robust in the United Kingdom, Australia and New Zealand, limiting the need for interest rate cuts. Sweden and New Zealand, fearing a rise in inflation, were the first industrial countries to tighten policy in early 2002.

The situation of low inflation and low nominal interest rates in the period under review was unusual by the standards of the past few decades. This new environment has, in many respects, increased the room for manoeuvre for central banks. At the same time, as the experience of recent years suggests, it may also have altered in a subtle way the characteristics of the challenges that they face. The second part of this chapter explores these issues in some detail.

United States

Sharp economic downturn led to aggressive policy easing

The sharp reversal in economic activity in the United States in late 2000 and early last year prompted strong monetary stimulus. In the early part of 2001, the Federal Reserve cut interest rates by 50 basis points five times in succession, on two occasions between scheduled meetings of the Federal Open Market Committee (FOMC). Nevertheless, real GDP growth flattened in the second quarter of 2001 and concerns mounted about the prospect of further declines in capital expenditures and a continued liquidation of inventories. Against the backdrop of low and stable inflation, the FOMC voted twice more to reduce its target for the federal funds rate, at its meetings in June and August. However, the size of both rate cuts was 25 basis points instead of the previous 50, perhaps a signal from the Committee that the period of easing might soon end. Indeed, by late summer signs were emerging that some sectors had stabilised, leading to a more optimistic view that an extended period of below par growth could be avoided.

Further easing measures in the wake of the terrorist attacks ...

The tragic events of 11 September dashed any hopes that growth might pick up in the short term. The response by the monetary authorities to the terrorist attacks was multifaceted. First, the Federal Reserve provided ample liquidity through the discount window. Under these emergency measures, borrowing at the discount window increased significantly during the week of the attacks, returning to more normal levels by late September. Second, the Federal Reserve arranged or extended swap lines with certain foreign central banks to ease global liquidity concerns; only in the case of the ECB were these lines utilised. Third, the FOMC reduced its target rate by 50 basis points in the new environment of heightened uncertainty and fragile consumer and investor confidence. The rate cut was timed to coincide with the reopening of the stock markets in New York on 17 September (see Chapter VI). The combination of earlier interest rate reductions and the ample provision of liquidity in the wake of the terrorist attacks helped maintain the previously strong growth rate of broad monetary aggregates.

... and later in 2001, as the economy remained weak

At its meeting in early October, the FOMC reinforced its previous actions by trimming another ½ percentage point off its target rate, as concerns mounted that a global slowdown would feed back in turn on the US economy. With inflationary pressures receding and many indicators suggesting that the overall economy remained weak, the FOMC lowered interest rates twice more before year-end.

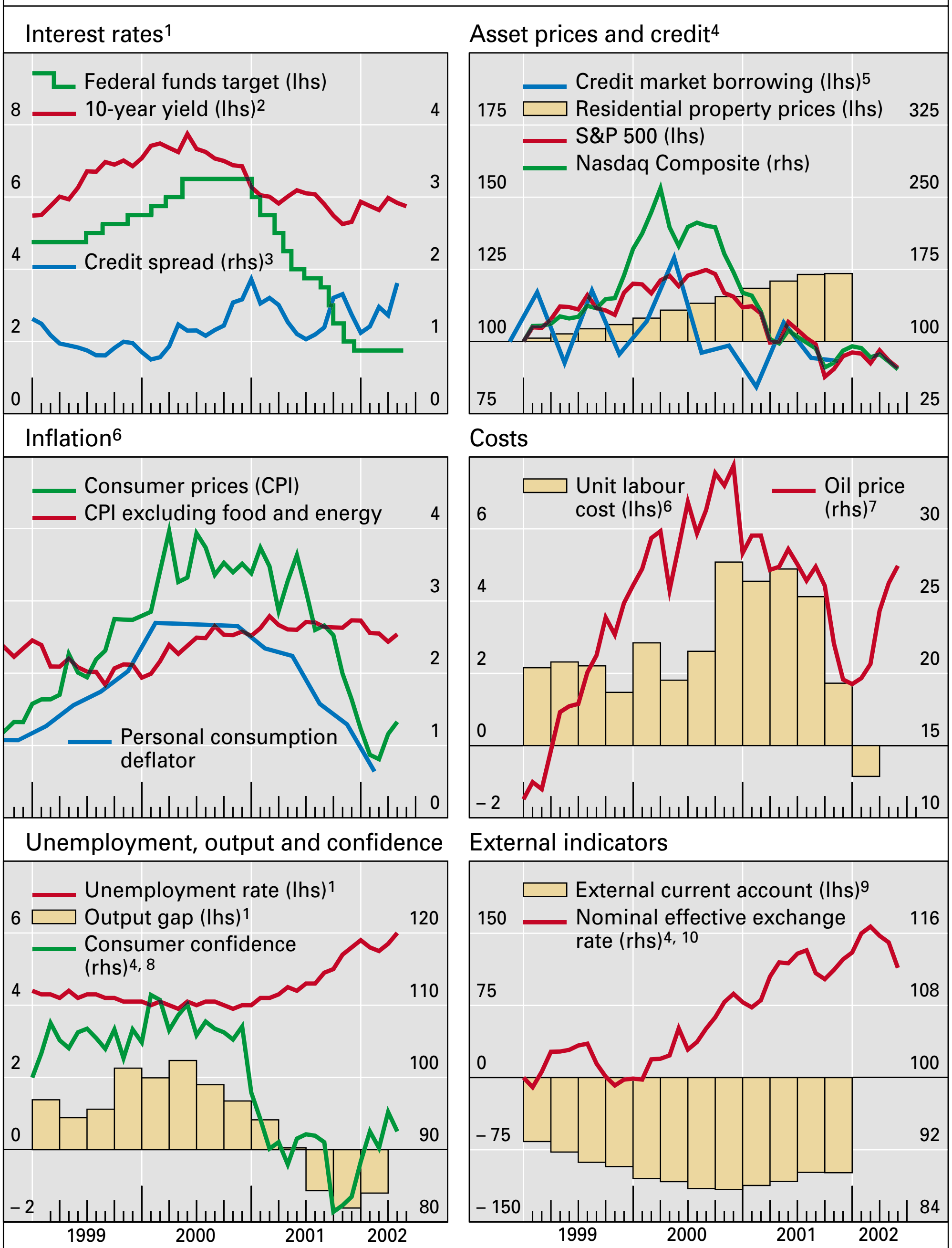
Despite significant rate cuts ...

The actions taken by the FOMC through this easing phase were unprecedented. The target federal funds rate was lowered 11 times during 2001, by a total of 4.75 percentage points, and has been maintained during the early part of 2002 at the unusually low level of 1.75%. While the changes in circumstances alluded to above were enough to warrant a significant easing of policy, the US economy had entered 2001 with relatively high short-term

... financial conditions remained tight

real interest rates, measured ex post. In addition, as the year progressed, it became increasingly clear that financial conditions overall were not easing as might normally have been expected. Despite the significant reduction in short-term interest rates, the dollar, in nominal effective terms, appreciated by 5.4% in 2001 (Graph IV.1); bank lending standards tightened somewhat; and equity prices fell further, although the aggressive easing of policy probably prevented a much larger decline. In contrast, housing prices continued to

Economic indicators for the United States



[1] In percentages and percentage points. [2] Swap rate. [3] Corporate BBB minus swap rate. [4] End-1998 = 100. [5] Borrowing by private domestic non-financial sectors (seasonally adjusted). [6] Annual percentage changes. [7] West Texas Intermediate, in US dollars per barrel. [8] University of Michigan survey. [9] In billions of US dollars. [10] An increase indicates a dollar appreciation.

Sources: OECD; national data; BIS estimates. Graph IV.1

rise markedly and consumers used their option to refinance mortgage contracts to withdraw record levels of funds to support additional spending (see Chapter II).

Policy rates held steady in early 2002

In early 2002, a broad set of indicators began to show signs of reversing course. Nonetheless, great uncertainties remained. Consequently, the Federal Reserve left its target rate unchanged in the first three months of the year, and altered its assessment of risks to a balanced stance in March. In favour of continued low rates was the fact that financial conditions were still tight and oil price increases were adversely affecting disposable incomes. In addition, some of the imbalances that had prevailed prior to the downturn still appeared to be present, the presumption being that they would act to slow any incipient recovery. In particular, high household debt levels and richly valued stocks, especially given the uncertain outlook for profits and possible fallout from Enron's failure, had the potential to slow consumer spending. Similarly, depressed corporate profits, high debt levels and excessive production capacity might restrain investment spending. In contrast, a number of arguments supported a more rapid return of policy rates to more normal levels: the liquidation of inventories appeared to be decelerating; the full effects of the interest rate and tax cuts were perhaps still to be felt; and there remained the prospect of higher productivity growth, which had helped to fuel the long boom of the 1990s.

Due consideration also needed to be given to the speed at which policy would be reversed. On the one hand, the quick succession of rate cuts in response to deteriorating conditions would seem to call for an equally rapid, pre-emptive response in tightening policy should inflationary pressures begin to build. On the other hand, any unexpectedly sharp reversal in policy could lead to an overreaction in financial markets. In this regard, the FOMC could be seen to have been preparing markets for interest rate hikes by adopting a balanced stance at its meeting in March.

Euro area

Inflationary pressures in the euro area remained a concern till mid-2001

Growth was relatively robust in the euro area in the early part of 2001 and the ECB remained concerned about underlying inflationary pressures. However, as the medium-term outlook for inflation began to improve, owing in part to reduced demand pressure associated with the global slowdown, the ECB decided to cut its key policy rate in May from 4.75% to 4.5%. Rates were kept steady at 4.5% through the summer as headline inflation remained stubbornly above the upper limit of the ECB's price stability range. This reflected in part earlier increases in oil prices and the decline in the value of the euro.

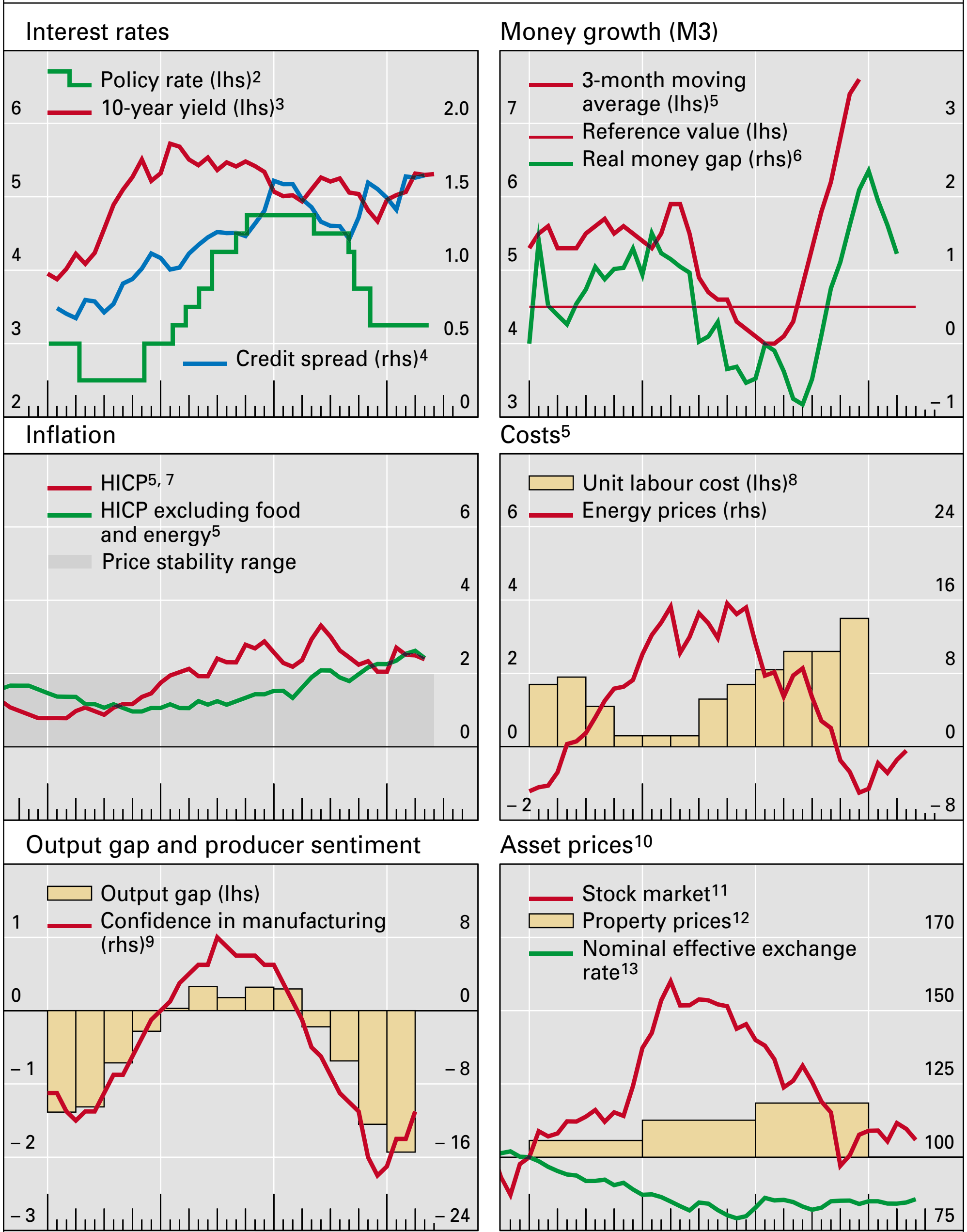
As growth slowed ...

At its meeting in late August, the Governing Council felt that price pressures were finally abating; further pass-through of past price increases into inflation was thought increasingly unlikely. Moreover, economic activity had begun to slow surprisingly sharply in a large part of the euro area. The contributing factors were economic weakness in the United States and Japan, and a moderation of both domestic consumption and investment. This led the ECB to reduce its key policy rate by 25 basis points. The Bank cut interest rates

... policy rates were reduced

yet again soon after the terrorist attacks in the United States, as the prospects for an upturn in global growth were diminished by this significant blow to confidence. Like the monetary authorities in the United States and many other countries, the ECB announced that it would provide liquidity to support the

Economic indicators for the euro area[1]



[1] In percentages and percentage points. [2] Tender rate (minimum). [3] Government bonds. [4] Corporate BBB minus government bonds. [5] Annual percentage changes. [6] Percentage deviation of the actual real stock of M3 from the level of real balances consistent with (i) M3 growth at the reference value (4.5% per annum) and (ii) price stability (price inflation equal to 1.5% per annum). Series adjusted for non-euro area residents' holdings of negotiable instruments and for breaks. The base period is December 1998. [7] Harmonised index of consumer prices. [8] Whole economy. [9] Percentage balance, seasonally adjusted. [10] End-1998 = 100. [11] Dow Jones EURO STOXX, overall index. [12] Weighted average (GDP) of residential property prices in euro area countries (except Austria, Greece and Luxembourg). [13] An increase indicates a euro appreciation.

Sources: ECB; European Commission; OECD; Bloomberg; Merrill Lynch; national data; BIS. Graph IV.2

normal functioning of financial markets in the aftermath of the attacks. This included the provision of tenders at a fixed rate in unspecified amounts on 12 September. In November, the ECB reduced interest rates for a fourth and final time during the period under review. This move reflected the Bank's assessment that inflationary pressures were subsiding at a satisfactory pace despite continued high M3 growth (Graph IV.2), which was attributed mainly to portfolio shifts.

In early 2002, policy remained unchanged ...

The ECB held rates steady in the early part of 2002 in the face of conflicting signals about potential inflationary pressures. While signs of a recovery in economic activity had begun to emerge, including increases in business confidence and the purchasing managers' index for manufacturing, firm evidence of a sustainable pickup in growth was yet to appear. The introduction of euro notes and coins at the start of the year seemingly had only a moderate effect on overall inflation, with price increases in part of the service sector being attributed to it. The rise in year-on-year headline inflation recorded in January and February was thought to be temporary (stemming from base effects) and therefore elicited no policy response.

... as inflation worries resurfaced

By April, evidence of a reversal in inventory investment and improved conditions in financial markets gave further positive signals for a recovery of growth. At the same time, oil price increases and ongoing wage negotiations revived concerns about the build-up of inflationary pressures. In the event, the ECB again elected to keep rates unchanged, waiting to see how conditions would develop.

Japan

As economic prospects worsened in Japan ...

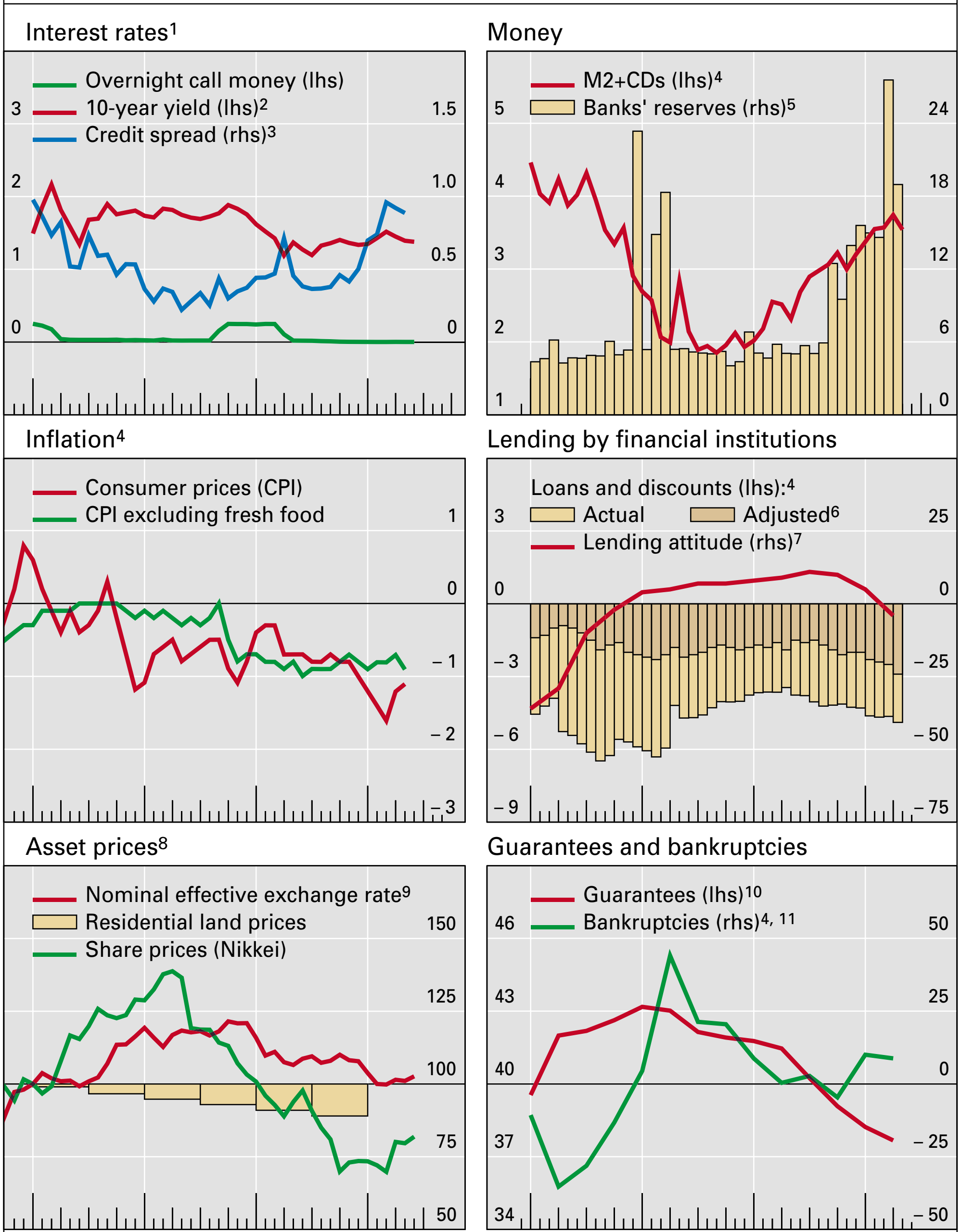
The Japanese economy slowed once again in early 2001, entering its third and deepest recession of the past 10 years. In response, the Bank of Japan changed its operating procedures and introduced a quantitative target for outstanding current account balances (¥5 trillion) that would provide significantly more liquidity to the system. The growth rate of the monetary base rose sharply; the overnight call rate remained basically at zero; and rates further along the yield curve were pushed close to zero. Nevertheless, the economy continued to deteriorate as the year progressed. Share prices dropped sharply around mid-year and the global slowdown started to weigh heavily on Japanese exports. The Bank of Japan's Policy Board became increasingly alert to the possible need for further easing, and eventually raised its quantitative target in August to ¥6 trillion. In addition, the Bank also stepped up its outright purchases of domestic government bonds.

... monetary conditions were eased on numerous occasions

A further easing of policy was effectively undertaken in September after the terrorist attacks in the United States. The Bank's Policy Board feared that disruptions in financial markets could jeopardise the positive effects of previous policy actions. The new policy did not specify a higher target level for current account balances; instead, the Bank of Japan announced that it was willing to supply ample liquidity to the market even in excess of its previous target. Concomitantly, the Bank reduced its discount rate and increased access to its lombard-type lending facility. Although the monetary base did subsequently expand at an accelerating rate, broad money growth continued to be modest (Graph IV.3). While easier monetary conditions may have been partly behind the depreciation of the yen in the latter part of the year, the extent of the depreciation was quite limited. By December, the nominal effective exchange rate remained 20% higher than its value in mid-1998. Nonetheless, the depreciation of the yen had some positive effects,

Depreciation of the yen brought some relief ...

Economic indicators for Japan



[1] In percentages and percentage points. [2] Benchmark government bond. [3] Five-year bank debentures minus government bonds. [4] Annual percentage changes. [5] Current account balances with the Bank of Japan (in trillions of yen). [6] For, inter alia, securitisation, loan write-offs and exchange rate changes. [7] Percentage balance of positive and negative answers as perceived by non-financial firms. [8] End-1998 = 100. [9] An increase indicates a yen appreciation. [10] Guarantee obligations outstanding (in trillions of yen). [11] Corporate, number of cases.

Sources: Bank of Japan, *Tankan*; Datastream; Tokyo Shoko Research Ltd; national data. Graph IV.3

as reflected in increases in exports, corporate profits in selected sectors and the yen value of foreign investments.

... but financial conditions overall deteriorated

A worsening of financial conditions towards year-end indicated that the economy could contract further. The bankruptcy rate increased, corporate bond spreads widened and, while overall stock prices were flat, the prices of bank stocks fell considerably in the wake of a build-up of non-performing loans. Moreover, the rate of decline in bank lending accelerated, although this also reflected weaker loan demand as business fixed investment dropped and firms attempted to reduce leverage. These developments led the Bank of Japan to adopt an explicit and much higher target for current account balances of ¥10–15 trillion, although the actual level of balances had already reached ¥9 trillion by the time of this policy change. In addition, the Bank expanded the list of eligible collateral for its operations with the aim of improving market functioning and intermediation.

Deflation accelerated ...

In the new year, the rate of deflation of consumer prices gathered pace and economic prospects remained uncertain. This was so despite year-on-year growth of the monetary base reaching nearly 30%. As the fiscal year-end approached, the Bank of Japan foresaw the potential need to provide still more liquidity to the markets. As a consequence, it undertook a number of further easing measures in late February, including another increase in its target for the level of current account balances.

... leading to further easing measures ...

... but structural reforms remain essential

While the Bank of Japan was easing monetary conditions last year, it continued to insist that a prerequisite for raising demand, achieving growth and stopping deflation was to make significant progress on structural reforms. In particular, it emphasised the need for progress in resolving the mounting problem of non-performing loans, even if this risked the failure of some firms. Should system-wide problems arise, the Bank of Japan said it stood ready to act as lender of last resort. The alternative option of using fiscal spending to stimulate demand was seen to have limitations owing to the growing level of national debt. Other policy options also had drawbacks (see below).

Inflation targeting countries

Effects of global slowdown on other industrial countries

The experiences of the various countries with explicit targets for inflation were similar during the period under review, although by no means identical. In general, these countries witnessed a slowdown in economic activity that was mainly driven by weakness in the larger economies. This allowed an easing of policy in the first half of last year given that inflation stayed close to target (Graph IV.4). However, clear differences were visible across countries in the extent of the downturn and in the prospects for inflation. Growth fell sharply in Canada, which led the Bank of Canada, in a fashion similar to the Federal Reserve, to cut interest rates rapidly. In other countries, such as the United Kingdom, Australia and New Zealand, growth remained fairly robust, sustained by stronger domestic demand. Nonetheless, interest rate cuts were undertaken as the prospect surfaced of a fall in growth to below potential. The Bank of England seemed to be in a particularly favourable position to take out insurance against a sharp downturn, given that inflation was below target and

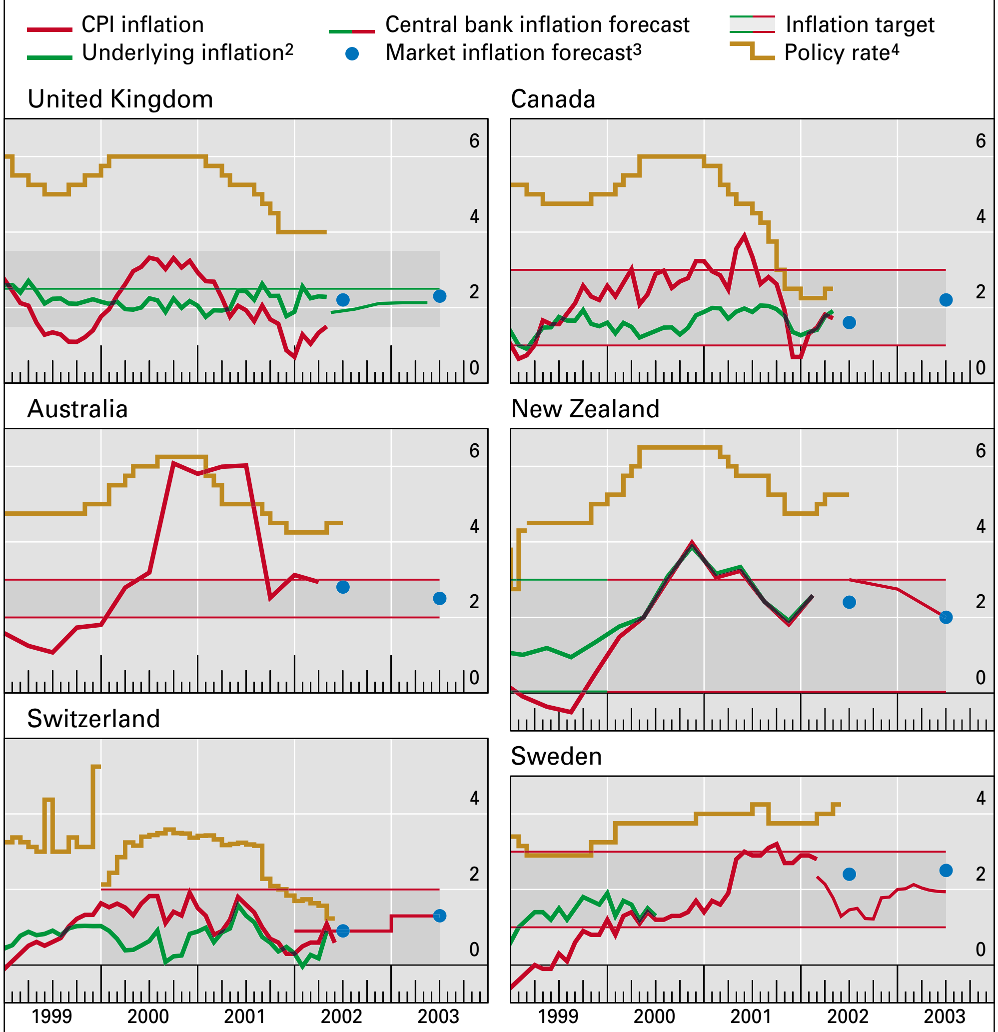
Canada was hit hardest ...

... but the United Kingdom and Australia remained strong that sterling had been persistently strong. Sweden was an outlier, as inflation increased throughout last year, prompting the Riksbank to tighten policy as late as last July.

Widespread rate cuts following the events of 11 September

A further widespread easing of monetary policy occurred in the immediate wake of the terrorist attacks in the United States. The main concern of the authorities, as in the larger economies, was to avoid a collapse in consumer and business confidence at a time of already great uncertainty. Policy actions, which included interest rate cuts as well as special liquidity

Inflation and policy rates in countries with explicit 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, Australia, New Zealand (since 2000) and Sweden, while underlying inflation is targeted by the United Kingdom (and previously also by New Zealand). [2] For the United Kingdom, retail price index excluding mortgage interest payments; for Canada and Switzerland, CPI excluding food and energy prices (for Canada also excluding indirect taxes); for New Zealand, CPI excluding credit services; for Sweden, CPI excluding indirect taxes, subsidies and house mortgage interest expenditure. [3] Of annual CPI or, for the United Kingdom, underlying inflation; surveys conducted in May 2002. [4] For the United Kingdom and Sweden, repo rate; for Canada, ceiling of the operating band; for Australia, cash rate; for New Zealand, cash rate (prior to March 1999, call rate). For Switzerland, actual three-month Libor (the target band is set 50 basis points above/below Libor); prior to 2000, lombard rate.

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

provisions and swap arrangements with the Federal Reserve (as described above), were taken between regularly scheduled meetings. The only exception was the Reserve Bank of Australia, which waited until early October to reduce rates. Thereafter, with domestic demand generally showing signs of weakening and core inflation remaining near target, policy rates in most inflation targeting countries were further reduced in late 2001.

Sectoral imbalances exacerbated

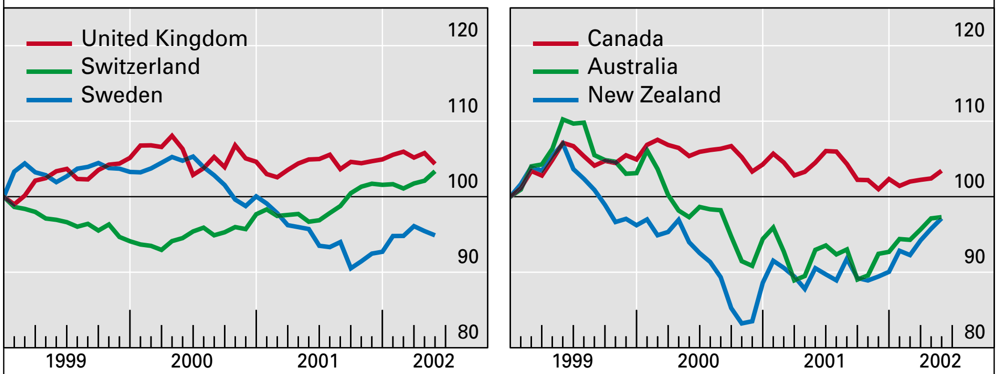
The easing of policy to stimulate domestic demand in the face of poor external opportunities had the potential to create or worsen sectoral imbalances, especially because there was no guarantee that reducing interest rates would cause a depreciation of the currency. This was particularly true in the United Kingdom, where, due to the persistent strength of the pound (Graph IV.5), large growth differentials had existed for some time between sectors serving the domestic economy and those in exporting and import-competing industries. Indeed, in reducing interest rates by 1.75 percentage points, and thereby in allowing the housing boom to continue, the Bank of England implicitly took the view that unbalanced growth was better than no growth at all.

Reversal in the policy rate cycle

Policy rates were held steady in all but one of the inflation targeting countries during the first two months of 2002. Only the Bank of Canada reduced its target rate once more. By March, evidence was accumulating that the slowdown in these countries and elsewhere was nearing an end, and attention began to turn to a possible reversal in the policy cycle. In late March, the Riksbank and the Reserve Bank of New Zealand became the first to increase rates again. In both countries inflationary pressures were already building, and in the case of Sweden the level of inflation was actually above the official target. The Bank of Canada and Reserve Bank of Australia also tightened policy in April and May, respectively, both raising policy rates in the light of unexpectedly strong growth. By contrast, the Swiss National Bank reduced its interest rate target by ½ percentage point in early May, fearing that the franc's appreciation might hold back economic recovery.

The beginning of a phase of general tightening of policy raised questions about the monetary transmission mechanism given prevailing balance sheet

Exchange rates in countries with explicit inflation targets[1]



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

[1] Nominal effective rates, December 1998 = 100. An increase indicates an appreciation.

Source: BIS. Graph IV.5

conditions. Household and corporate debt levels, particularly in the United Kingdom, were abnormally high; residential housing prices appeared to be richly valued in many countries (see Chapter VII); and, in the United Kingdom, the current account deficit had widened. A large increase in interest rates would exacerbate the debt service burden on consumers and firms, and could possibly lead to a reversal in real estate prices.

Subtler challenges for monetary policy?

Changes in the economy ...

During the last decade the world has entered a phase of low and comparatively stable inflation. Central banks' strong anti-inflation commitment and increased credibility have arguably played a key role in this development. Policies designed to improve the productive potential of the economy, in industrial and emerging market economies alike, have also played a part.

While sometimes taken for granted nowadays, the benefits of this new environment cannot be overemphasised. In particular, foundations have been laid for higher long-run growth and a more stable world economy. The new environment has helped to relieve the allocative distortions associated with high and variable inflation. In addition, it has considerably increased the room for manoeuvre of central banks; for example, greater credibility has reduced the likelihood of costly wage-push pressures developing. It has also meant that economic expansions need not be prematurely halted by central banks' efforts to quell rapidly rising inflation.

At the same time, as the previous sections of this chapter have illustrated, the period has not been free of challenges for central banks. In the wake of financial liberalisation, one widespread challenge has been how to factor into the monetary policy framework boom and bust cycles in asset prices, often occurring alongside similar fluctuations in credit. The consequences of such cycles have been especially severe in Japan and other East Asian countries. A second, not unrelated, challenge has been to deal with the uncertainty surrounding potential supply side improvements, not least those associated with the introduction of new information technologies, a development that has made itself felt very unevenly across countries. More recently, central banks have had to come to grips with an unexpected and abrupt slowdown in economic activity, uncharacteristically triggered by the unwinding of an investment boom.

... pose some subtle challenges

Against this background, what follows seeks to draw lessons from the recent experience to assess the specific challenges that central banks may face in the current environment characterised by low inflation, apparently high credibility of the anti-inflation commitment and liberalised financial markets. In particular, it explores how the dynamics of the economy might have changed, potentially altering the properties of various indicators of inflationary and deflationary pressures and influencing, in possibly unexpected ways, the setting of monetary policy. A key theme is that, with expectations better anchored at low levels of inflation, underlying misalignments between demand and supply may now take longer to become evident in headline inflation. As a consequence, determining when and by how much to tighten during booms may have become somewhat more uncertain and, in some respects, harder. Similar issues arise when deciding to ease policy. Finally, the zero lower bound on nominal interest rates potentially creates specific difficulties for monetary policy.

Identifying inflationary and deflationary pressures

Misalignments may take longer to be revealed ...

Underlying misalignments between demand and supply may now take longer to show up in headline inflation owing to structural changes in the wage and price formation process. First, central banks' stated desire to control inflation and concomitant increase in credibility seem to have better anchored expectations around explicit or implicit inflation targets. A second, related factor is that the pass-through of exchange rate changes into inflation appears to have been dampened (see Chapter II). Third, low and stable inflation weakens the incentive for firms and workers to change prices and wages as frequently as in the past and encourages long-term contracts. Finally, globalisation has led to an increase in competitive pressures and a reduction in the market power of firms. Each of these factors suggests that inflation is now more stable at a low level and that its sensitivity to excess demand may be more muted in the short run.

... particularly during investment booms ...

Assessing such underlying misalignments can, somewhat paradoxically, be more difficult in the context of productivity gains and investment booms since, for a time at least, virtuous cycles can develop. Productivity improvements contribute to low inflation, which enhances the credibility of policy and anchors inflation expectations, helping to keep inflation low. Superior inflation performance may, in turn, allow interest rates and the cost of capital to remain low, boosting profits and asset prices, which may then promote a further rise in credit growth and investment leading to additional gains in productivity. Elements of this virtuous interaction were evident in many countries during the latest expansion. The key issue is to distinguish sustainable productivity gains from those that are associated with unsustainable investment rates and unrealistic profit expectations.

... changing the balance of risks for policymakers

Economic expansions of this type can result in a subtle change in the balance of risks that policymakers face. On the one hand, overt inflation might eventually appear, much as in the past. On the other hand, and probably more likely, the expansion could unwind as demand falters and profits are squeezed, before any substantial tightening is needed to contain rising inflation. Given the low starting level of inflation, and depending on the nature and severity of the imbalances built up during the boom, deflation could even become a possibility.

Uncertainty over productivity gains ...

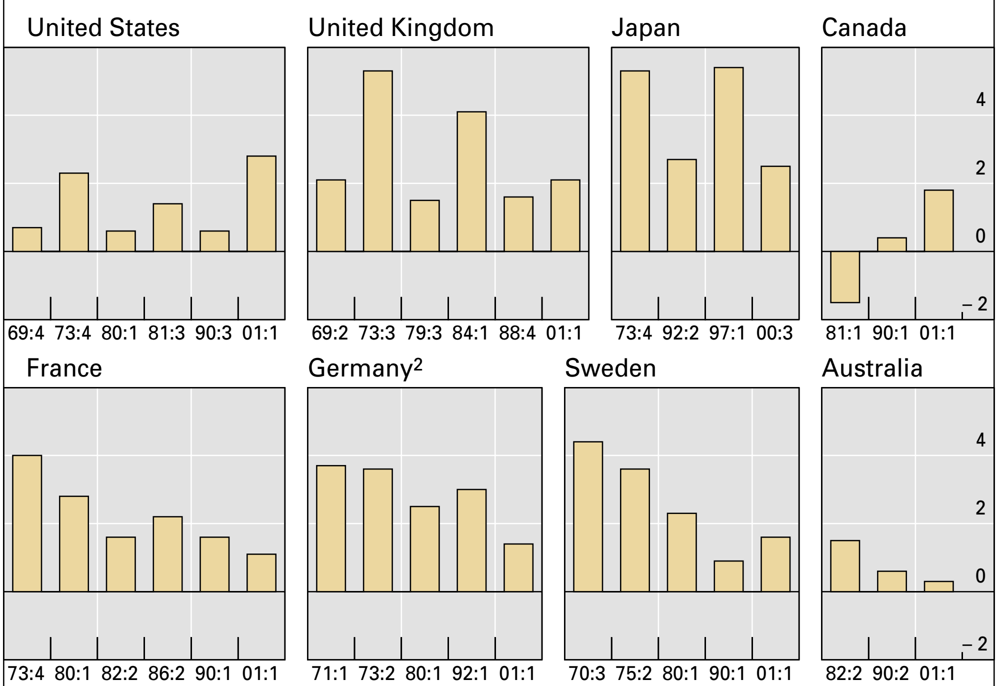
The conjunction of a muted response of inflation to demand pressures and potential supply side improvements can cloud the information content of indicators commonly used to guide policy. In particular, under these conditions, estimates of traditional indicators, such as the output gap, would be subject to greater uncertainty than usual. Likewise, it could take some time to determine with any certainty whether any observed productivity gains are cyclical or structural in character and whether they reflect a one-off rise in the level of productivity or a change in its growth rate.

... clouds estimates of the output gap ...

These challenges for policymakers are vividly illustrated by the debate surrounding the nature and cross-country incidence of productivity gains associated with the introduction of new information technologies. It took considerable time to reach a firm judgment in the United States about the nature and sustainability of such gains, with the high pace of productivity growth at the peak of the expansion and, above all, its resilience during the short-lived slowdown being key pieces of evidence (Graph IV.6). Similar uncertainties in judging developments have been encountered elsewhere. With few exceptions, however, the long-awaited tangible signs of unusual productivity gains have failed to emerge, despite the fact that IT innovations have been widely applied in many countries. Such assessments were, and still are, complicated by methodological and country-specific structural developments. In Europe, for example, differences in statistical measurement methodologies and policies designed to boost employment may partly obscure underlying productivity growth. In addition, the experience of economies suffering severe recessions after prolonged investment-driven booms, such as Japan and other countries in East Asia, suggests that assessments of long-term growth potential may not be robust. In those countries, initially higher estimates during booms were adjusted substantially downwards following the crises.

Productivity growth at business cycle peaks

GDP per employed person[1]



Note: For the sake of comparison, a cyclical peak is assumed to have occurred in the first quarter of 2001 in all countries except Japan.

[1] Percentage change in the calendar year prior to a cyclical peak (indicated on the horizontal axis). When a peak occurs in the first half of the year, the change in the previous year is plotted; the change in the current year is plotted when the peak occurs in the second half of the year. [2] Western Germany except for 2001:1.

Sources: US Bureau of Labor; NBER; Economic Cycle Research Institute; national data; BIS estimates.

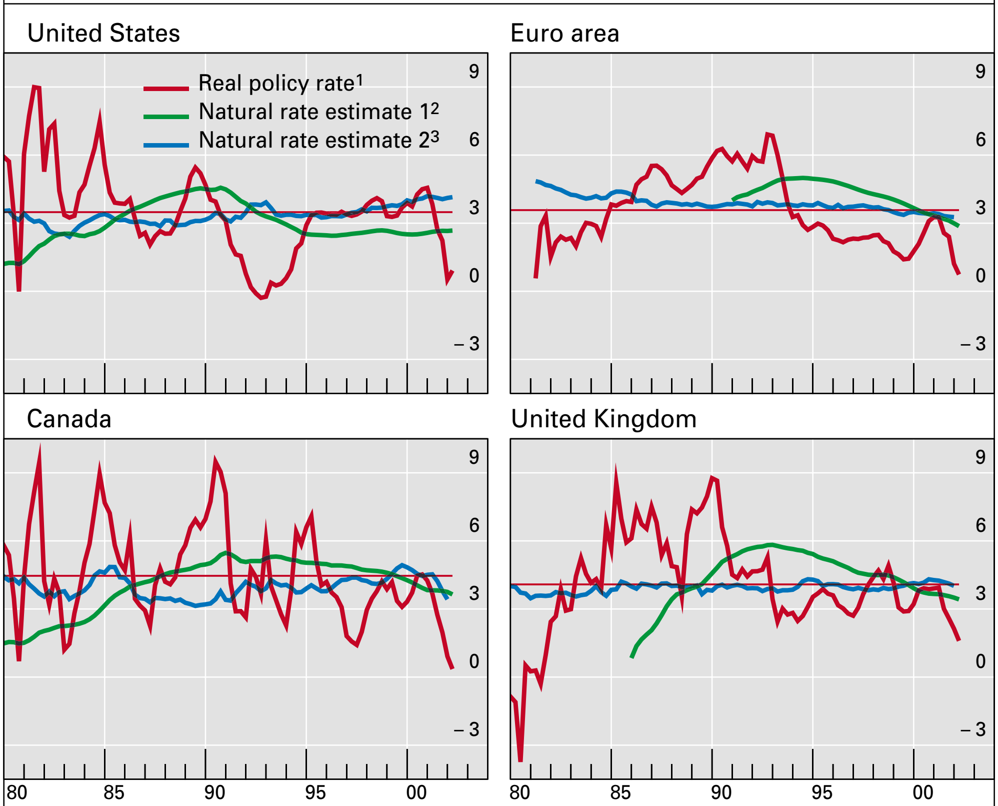
Graph IV.6

... and the natural rate of interest

Similar uncertainties arise in the context of an indicator that is receiving increasing attention – the natural rate of interest. This is commonly defined as the short-term real interest rate consistent with sustainable non-inflationary growth. Thus, if the actual ex ante real interest rate is below (above) the natural rate, then monetary policy is said to be expansionary (contractionary). As the natural rate can fluctuate over the cycle in response to various unexpected developments that may be hard to identify exactly, it may be easier to estimate its mean (long-run value), thereby providing a benchmark for the stance of monetary policy over long horizons. One way to measure the mean is to use data on the real economy, since the long-run natural rate should vary proportionally with changes in long-run productivity growth. For example, estimates based on a moving average of productivity growth suggest that the long-run natural rate increased slightly during the 1990s in the United States, the United Kingdom and Canada, but decreased in the euro area (Graph IV.7). But this method is subject to the same uncertainty as all estimates of trend productivity growth. An alternative approach is to take an

Long-run natural rate of interest

Quarterly data, in percentage points (annualised)



[1] Policy rate minus four-quarter moving average of core inflation (the reference line represents the average over the whole sample period). Policy rate: for the United States, federal funds rate target; for the euro area, tender rate; for Canada, official discount rate; for the United Kingdom, official open market intervention rate. Core inflation: for the United States, core PCE deflator; for the euro area and Canada, CPI excluding food and energy; for the United Kingdom, CPI excluding mortgage interest payments (RPIX). [2] Ten-year moving average of real policy rate. [3] Ten-year moving average of productivity growth (GDP per employed person, whole economy) plus households' rate of time preference (set equal to 2% per annum).

Sources: National data; BIS estimates. Graph IV.7

average of observed ex post short-term real rates. This method, however, could become unreliable if persistent deviations existed between expected inflation and actual inflation over the relevant sample period.

A role for indicators of financial imbalances?

These arguments suggest that it may be helpful to attach somewhat greater weight to other potential indicators of underlying misalignments between demand and supply. Measures of the build-up of financial imbalances are natural candidates. In particular, experience over the past decade shows that the conjunction of unusually rapid increases in credit and asset prices can herald unsustainable expansions as they tend to go hand in hand with muted risk perceptions and excessive capital accumulation (see Chapter VII). The resulting distortions in balance sheets and investment decisions can, in turn, make the economy more vulnerable to a slowdown in economic activity and lead to financial distress. Large capital inflows and upward pressure on the exchange rate are often accompanying symptoms, as in the case of East Asian countries. Rapid growth in other quantitative aggregates, such as measures of broad money, can play a complementary role too.

At the same time, caution needs to be exercised when arriving at an overall assessment of financial imbalances (see Chapter VII). One reason is that determining whether credit growth and asset price increases are "excessive" also requires forming a judgment about their sustainable paths. Past experience may be helpful but, ultimately, gauging sustainability implies a judgment about long-run productivity growth. A second reason is that reaching firm judgments about financial imbalances calls for a careful analysis of a broad range of factors. These include the constellation of asset prices (equity, commercial and residential real estate), the sectoral composition of credit and, ultimately, the strength of financial institutions. Finally, the behaviour of individual elements can also be driven by factors unrelated to underlying excess demand. For example, while the large increase in the real money gap in the euro area last year (see Graph IV.2) could, in principle, signal a significant cumulative build-up of monetary imbalances, this particular rise can be largely attributed to special factors, including a flight into liquid assets following the terrorist attacks in the United States.

Deciding when to tighten policy

Issues include ...

A lack of overt evidence of inflationary pressures raises the question of how monetary policy can be sufficiently pre-emptive during a period of rapid growth. This would be less of an issue, however, if stable inflation increased the room for manoeuvre and if the lags in the transmission mechanism were shorter in the new environment. Consider each point in turn.

... responding to supply side improvements ...

Supply side improvements give rise to some subtle issues for policy. If there is a permanent increase in productivity growth, then the long-run natural rate of interest increases (see Graph IV.7). All else equal, this would suggest that the central bank will eventually have to raise nominal interest rates. The failure to do so could feed an unsustainable boom. However, if the increase in potential output initially puts considerable downward pressure on prices, it may be desirable to lower interest rates in the short term. In such a situation, it may not be easy to ascertain the appropriate timing and magnitude of interest rate changes over time, particularly if there is uncertainty about whether the change in productivity growth is permanent or temporary.

... dealing with political economy pressures ...

Even if central banks are able to properly identify a build-up of underlying excess demand, in the absence of any actual increase in headline inflation they may find it difficult to tighten policy owing to political economy considerations. In spite of the greater degree of independence now enjoyed by many central banks, it can be hard to raise rates if it appears that the stated objective of monetary policy – low and stable inflation – has in fact been attained.

... and balancing sectoral discrepancies

In addition, decisions to tighten policy may be complicated, as in the past, by large differences in sectoral developments combined with differential sensitivity across sectors to changes in monetary policy. Under these conditions, a single policy stance would not be able to satisfy divergent sectoral needs. One recent example has been the comparatively rapid growth of the high-technology sector. This sector has arguably been much more sensitive to changes in equity prices than to long-term interest rates, owing to a financing structure heavily weighted towards equity. And lagging sectors can be expected to put pressure on the authorities not to tighten, as in the United Kingdom in recent years.

Some similarities in situations faced by the Bank of Japan and the Federal Reserve ...

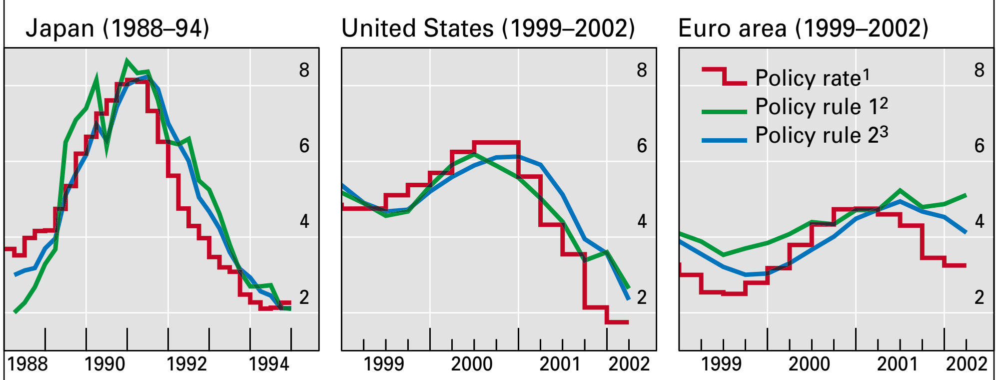
The nature of the issues faced in tightening policy is aptly illustrated by the experience of Japan in the late 1980s. The Bank of Japan found that a constellation of strong productivity growth, sharp increases in asset prices and low inflation made it objectively very hard to tighten policy as imbalances were building up. Indeed, the Bank came under considerable pressure, including from the international community, to keep interest rates low. Despite some important contrasting background features, the Federal Reserve was confronted with a similar situation during the recent cycle. In this instance, the authorities took the view that long-term growth prospects had become more favourable and that the financial system was fundamentally sound. They therefore initially held off tightening policy significantly, raising interest rates by more later when the pace of expansion was judged to have become unsustainable. But the apparent need for tightening was attenuated by the fact that actual inflation had remained comparatively subdued.

... led to similar policy responses ...

With the benefit of hindsight, some have argued that a tighter monetary policy early on in Japan might have limited the build-up of unprofitable capital, left banks less exposed and softened the subsequent downturn. But identifying and implementing the right course of action in real time is a much harder task. In fact, popular policy rules based on output gaps and inflation performance, commonly used to describe central bank policies, suggest that the policy pursued in Japan was not obviously out of line with previous experience (Graph IV.8). Measures of the increase in financial imbalances, and the accompanying distortions in investment decisions, might have aided policy formulation. But the complexity of the judgments involved in assessing and addressing financial imbalances is underlined by the much more benign experience to date in the United States (see the graph). There, despite broadly similar policies and similarities in some of the background

Policy rates and rules

Quarterly data, in percentage points (annualised)



[1] For Japan, uncollateralised overnight money market rate; for the United States, federal funds rate target; for the euro area, tender rate. [2] Rule 1 = $r + \pi_t + 0.5\,(\pi_t - \pi^*) + 0.5\,Y_t$, where π_t is core inflation, Y_t is the output gap, r = 3% and π^* = 2%. [3] Rule 2 = 0.4 (rule 1) + 0.6 $R_{t\text{-}1}$, where $R_{t\text{-}1}$ is the policy rate lagged one quarter.

Sources: National data; BIS calculations. Graph IV.8

… but different outcomes

conditions, the subsequent recession has been much milder. The absence of misalignments in commercial real estate prices, risk dispersion through capital markets and a stronger banking system in the United States have contributed to greater resilience in the face of an abrupt economic slowdown (see Chapter VII).

Being pre-emptive may be less important now

These difficulties in being sufficiently pre-emptive in the new environment would matter less if – as seems plausible – there were less need to be pre-emptive. First, to the extent that inflation expectations are better anchored, central banks have more time to assess economic conditions before taking action without risking a significant increase in inflation. Of course, this greater room for manoeuvre exists insofar as imbalances do not build up, potentially leading to greater costs later on. Second, the lags in the transmission of policy to aggregate demand may have shortened with technological advances and changes in financial markets. Evidence supporting this draws heavily on the US experience. The adoption of "just-in-time" inventory systems is one example of how spending decisions can now react more quickly to changes in economic conditions. Furthermore, significant increases in household participation in equity markets have possibly led to larger wealth effects in consumption (see Chapter II).

Deciding when to ease policy

The implications for tightening of difficulties in measuring misalignments apply equally well to easing. In addition, easing decisions face other challenges resulting from certain asymmetries that may impact on the dynamics of the economy.

"Pushing on a string"

First, the nature of the preceding boom can constrain the effectiveness of policy when easing, depending on the degree and pervasiveness of the imbalances built up during the expansion. As suggested by experience since the early 1990s, capital overhangs and, possibly, financial strains can represent significant headwinds. In these cases, the effectiveness of easier policy is largely limited to those components of demand where the imbalances are not as severe. For example, while rate cuts appeared to have little effect in mitigating sharp declines in investment spending during the downturn last year, consumption growth remained strong as households took advantage of cheaper financing (see above and Chapter II).

Constraints imposed by the zero lower bound

A second issue is the constraint imposed by the zero lower bound (ZLB) on nominal interest rates. In this context, two questions arise. One concerns how policy should be conducted as interest rates decline into a region where the risk of reaching the ZLB becomes a policy consideration. This was potentially relevant last year when short-term interest rates approached historical lows, as in the United States. The second concerns the policies that could be adopted once the ZLB has been reached, as in Japan.

Two views:

keep the powder dry ...

... or act aggressively

There are at least two opposing views on how to ease policy when the ZLB constraint becomes a potential policy concern. One approach is to reduce interest rates slowly (ie smooth interest rate changes). This more cautious approach "keeps the powder dry" in case demand is initially unresponsive. An alternative approach is to lower interest rates aggressively in an effort to stimulate demand quickly. This type of policy reacts strongly to current and expected future developments with little regard for smoothing changes in interest rates. The aim is to avoid a prolonged period of economic weakness and thereby lessen the chance that the ZLB will become binding.

While gradualism may be a desirable feature of a monetary policy strategy in general, a more aggressive policy may have certain advantages as the risk of reaching the ZLB becomes an important consideration. In normal times, inertial behaviour may be effective to the extent that, by imparting more persistence to interest rate changes, it induces the public to expect any change in interest rates to persist for longer. This can exert a greater influence on long-term yields, which seem to be more important for spending decisions in many countries (especially in Europe), and at the same time foster greater financial stability by reducing the variability in short-term rates. However, when policy rates are nearing the ZLB, a more aggressive but controlled response to economic conditions may produce a larger immediate impact on demand, not least through its effect on confidence and by bolstering firms' balance sheets. By the same token, it may arguably limit the risk of reaching the ZLB in the first place.

From this perspective, central banks are commonly seen as exhibiting different preferences. In particular, the Bank of Japan has sometimes been criticised for easing too cautiously following the initial sharp fall in asset prices in the early 1990s. The Federal Reserve, by contrast, has generally been perceived as cutting rates much more aggressively, both recently and in the autumn of 1998 in the midst of financial market turmoil. The ECB is generally regarded as occupying an intermediate position.

Comparing central bank responses

While some differences in strategy no doubt exist, a more formal examination based on benchmark rules suggests that they can be overemphasised (see Graph IV.8). Once the behaviour of output and inflation is taken into account, contrasts in the policies of the three central banks are less apparent, at any rate in the immediate aftermath of the downturns considered. At the same time, differences in background conditions may cloud the comparison. Not least, the need to bolster confidence in the light of the events of 11 September 2001 no doubt played a role in the more recent experience.

Alternative policy options ...

The importance of avoiding the ZLB has been highlighted by the Japanese experience, where the central bank has faced considerable difficulties in reviving the economy. With short-term interest rates basically at zero, policy options have become severely constrained. One option pursued by the Bank is to provide the economy with extra liquidity through quantitative expansion of bank reserves. However, as discussed above, this policy appears to have had limited success so far in raising demand. A second option, also exploited by the Bank more recently, is to increase outright purchases of Japanese government bonds. Such a policy, however, can only be of limited effect if long-term rates are already quite low. The central bank could also purchase other domestic assets, including corporate debt securities, equity or real estate. Each of these alternatives might help to revitalise depressed asset markets. But holding such assets would involve the central bank directly in credit risk intermediation, expose it to financial losses and, ultimately, raise questions about central bank independence.

... include currency depreciation

Another option that has received much public attention is to seek to depreciate the exchange rate to stimulate economic activity. The central bank or government could "talk down" the exchange rate, intervene heavily or even peg the exchange rate at a lower level. Even this alternative, however, has a number of drawbacks. While the recent depreciation of the yen has had some positive effects, not least by improving the profitability of the export sector, the overall benefits in terms of output and prices are dampened by the comparatively closed nature of the economy. Moreover, an initial effective depreciation could be short-lived if other countries responded in kind.

These arguments indicate that once the ZLB is reached, the effectiveness of monetary policy is severely impaired. A precondition for its efficacy is that supportive macro and micro policies be implemented. In the case of Japan in particular, as argued by the central bank, structural reforms, and above all financial and corporate restructuring, are essential.

Specific issues also arise when interest rates eventually need to be raised to more normal levels if they have been kept at zero – or, more generally, at an unusually low level – for a lengthy period. Under these conditions, an unexpected increase in rates could potentially lead to tensions in the financial system. This could occur if, during the period of abnormal configuration of interest rates, market participants had taken leveraged positions based on the expectation of the persistence of those conditions. For instance, the sharp rebound in long-term rates in the United States in 1994 is sometimes partly attributed to a situation of this kind. In such circumstances, central banks may find it beneficial to prepare markets in advance of an initial rate hike (see above).

Summing up

To conclude, bringing inflation under control has been a major achievement. It has laid the foundations for better long-run performance of the world economy, and has given the monetary authorities greater room for manoeuvre. At the same time, the current environment is not free of challenges. Arguably, these are subtler than those faced during the previous fight against high and unstable inflation. Central banks need to remain as vigilant as ever.

A key risk in the new environment is that it may now be somewhat harder to act pre-emptively owing to the changing dynamics of the economy and political economy considerations. In particular, and rather paradoxically, with expectations well anchored around low inflation and underpinned by central banks' credibility, underlying misalignments between demand and supply may take longer to show up in headline inflation. Under these conditions, there may be grounds to believe that in setting policy it might be useful to assign somewhat greater weight to measures of financial imbalances, notably a combination of unusually rapid increases in credit and asset prices, as a signal of such misalignments. Still, much more analysis is needed to understand the dynamics of the economy in this new environment, and to draw firm policy conclusions.