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Inflation Targeting: The UK Experience

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1. Introduction

Eleven years ago, in the wake of sterling's ignominious exit from the Exchange Rate Mechanism in September 1992, it would have been inconceivable that a British central banker might be invited to address the German Economic Association on British monetary policy – except if it was to be an example of how not to do it! As Figure 1 shows, the UK's inflationary record up until 1992 was pretty dire. But since the adoption of an inflation target in October 1992, inflation has been both low and remarkably stable. Moreover, that has not come at the expense of growth, which has been close to trend (Figure 2), or unemployment which has fallen almost continuously (Figure 3). Few commentators back in 1992 would have predicted that the UK's economic performance would be as good.

Of course this should not be attributed entirely to the adoption of an inflation target. Major structural reforms to labour and product markets were enacted in the 1980s and consolidated in the 1990s. But the adoption of an inflation target has made a real contribution to keeping inflation low and stable and helped provide the right environment in which to reap the benefit of those structural reforms.

2. The historical context

During the two decades prior to the adoption of an inflation target, the government's monetary policy strategy passed through three stages: what is best described as neglect after the demise of Bretton Woods; monetary targeting from 1977 until the mid-1980s and deemed to have been a failure because of large and unpredictable shifts in the velocity of circulation; and exchange rate targeting thereafter. Interest rate decisions were frequently taken

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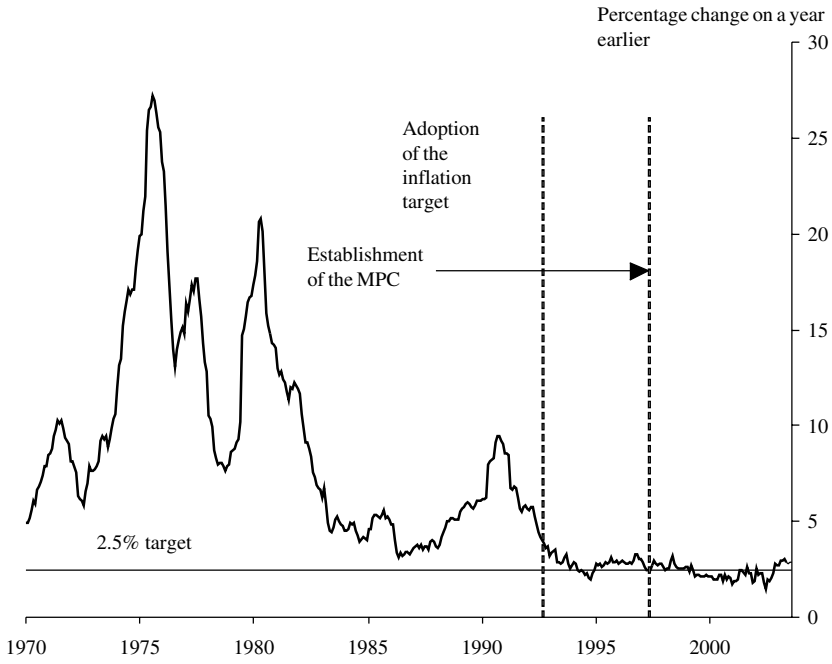

Figure 1 Annual RPIX inflation (RPI pre 1976)
Sources: Office for National Statistics and Bank of England.

with an eye on political, rather than economic, considerations or else at the last minute in response to a crisis. In the aftermath of the exit from the ERM in 1992 there was an urgent need to find a viable monetary framework that focussed on domestic needs and offered a degree of counter-inflationary credibility. Prompted by the experience of the Reserve Bank of New Zealand, which had adopted one in 1989, the government decided to adopt an inflation target. This had the virtue of defining the framework in terms of its ends rather than its means. That was helpful for communication, as well as facilitating the development of the strategy for its implementation as the economy evolved. The chosen target was the Retail Prices Index excluding mortgage interest payments (RPIX), with a target range of 1%–4% and the stated intention that it should be in the lower half of that range by the end of that Parliament (scheduled to be in 1997).

Now it is worth emphasising that the adoption of an inflation target was also accompanied by important institutional changes. For the achievement of a measure of macroeconomic stability in the subsequent decade has probably had less to do with the adoption of an inflation target *per se*, and more to do with the associated institutional changes. By instituting a regular monthly meeting between the Chancellor and the Governor of the Bank of England and their respective advisory teams, there was a greater chance that policy decisions might be made in a forward-looking, rather than purely reactive,

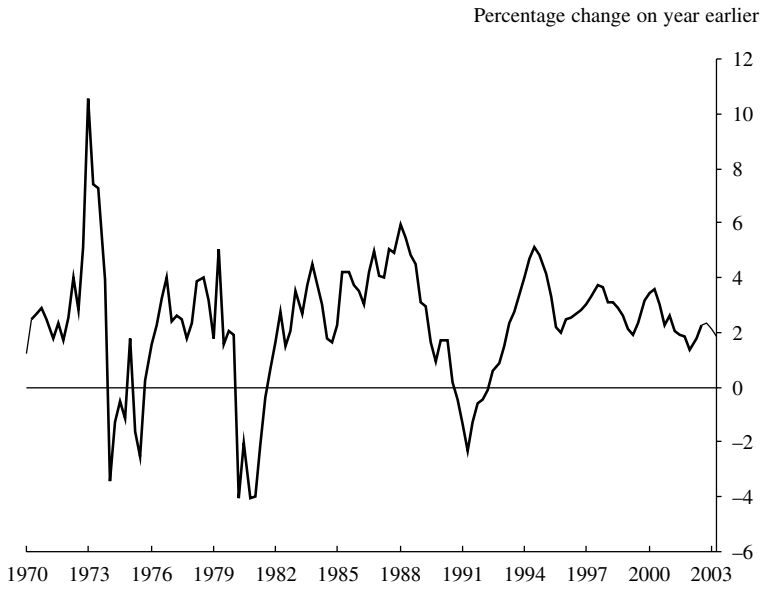

Figure 2 GDP at market prices
Source: Office for National Statistics.

fashion. More importantly, the decision to publish the minutes of those meetings (dubbed the "Ken and Eddie show" by the press) exposed the thinking behind decisions and thereby allowed the Governor to register disapproval if he thought the Chancellor's decisions inappropriate (the actual decision was still in the hands of the Chancellor). This provided a highly visible public check on the monetary decisions of the executive, and was reinforced through the publication by the Bank of a quarterly *Inflation Report* containing analysis of the inflationary trends in the economy, including conditional forecasts of inflation over a two-year horizon complete with estimates of margins of error.

3. Bank of England independence

Though the post-1992 institutional changes placed some constraints on the ability of the Chancellor to base interest rate decisions on political rather than economic considerations, that discipline was inevitably only partial given the scope for differences in view about the prospects for inflation. Thus a Chancellor could judge that interest rates should be lower than the Governor could either because of genuine differences in view about economic prospects or because of political considerations. As an outside observer could never be sure that it was the former rather than the latter, the new arrangements lacked full credibility. That lack of full credibility is evident in ten-year inflation expectations implied from a comparison of the yields on nominal and indexed

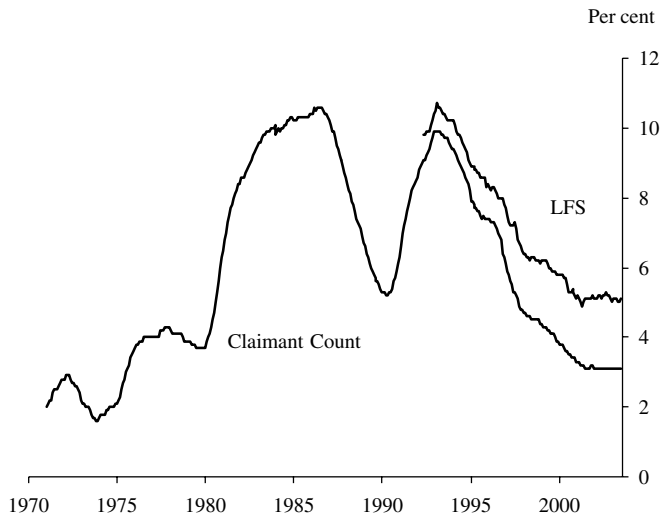

Figure 3 Unemployment Rate
Source: Office for National Statistics.

government debt (Figure 4); inflation expectations in 1996 were close to 5%, and moreover had been tending to edge up as the date of the election drew nearer.

A lack of counter-inflationary credibility in monetary policy was potentially even more of an issue for the incoming Labour government that took power on 1 May 1997. The economic record of the previous Labour government over the 1974–9 period had not proved a success and part of Labour's objective while in opposition had been to show they could be trusted with the economy. To help to substantiate that, Chancellor Gordon Brown's first act was to hand over operational responsibility for achieving the inflation target to the Bank of England, or more precisely a Monetary Policy Committee (MPC) that comprised five Bank officials and four external experts. But unlike some other central banks, responsibility for setting the inflation target remained with the Chancellor. This act generated an immediate credibility gain as long-term inflation expectations fell by more than half a percentage point (see Figure 4). That was followed by further gains over subsequent months as inflation expectations converged on the target of 2.5%.

Despite these credibility gains, it is worth noting that giving the Bank operational independence was nevertheless seen as a revolutionary step and did not immediately gain the wholehearted support of all sections of the parliamentary Labour party. This is significant, as aspects of the UK model stem from the context of its creation. In particular, it would have been a step too far to allow the Bank to set the target as well. It also explains the considerable stress placed on the accountability of the MPC, both to Parliament and to the public.

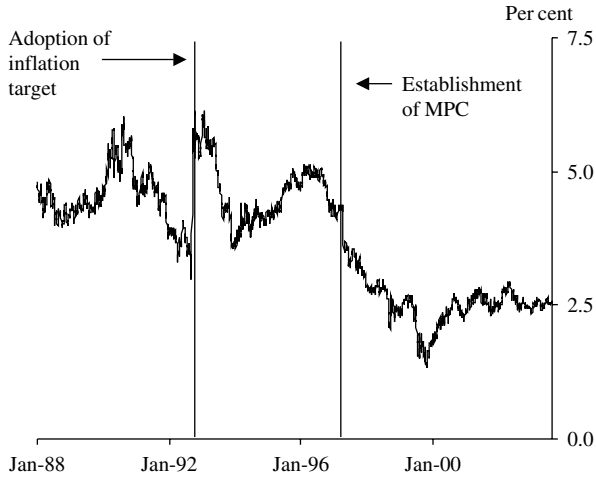

Figure 4 UK 10-year inflation expectations

Source: Bank of England.

Note: This chart shows the 10-year ahead 1-year inflation forward rate, defined as the difference between the 10-year ahead 1-year nominal rate and the 10-year ahead 1-year forward rate, as calculated from nominal and index-linked government bonds.

The new regime required legislative changes and these are embodied in the *Bank of England Act* (1998). The Act charges the Bank "to maintain price stability, and subject to that to support the economic policy of (the) government, including the objectives for growth and employment". The lexicographic structure of this general objective imitates the wording in Article 105 of the Maastricht Treaty laying out the statutory objectives of the European Central Bank (ECB). But, in contrast to the ECB which is free to choose exactly how it interprets its general objective, the MPC is each year provided with a *Remit* by the Chancellor which defines "price stability" more precisely. So as to maintain continuity with the pre-1997 regime, that was chosen to be an annual rate of inflation of 2.5% for RPIX[1] "at all times". The *Remit* also fleshes out the "economic policy of the government", namely the maintenance of high and stable levels of growth and employment.

From time to time this framework has been criticised for paying insufficient attention to economic objectives other than inflation (though the critics usually believe that the statement of objectives makes no reference whatsoever to growth, employment, etc, which is not the case). It is also sometimes

1. The *Remit* remained the same until December 2003 when it was altered to a target of 2% for the Consumer Prices Index – the inflation measure corresponding to that used by the ECB. The average rate of inflation of CPI is around $^1/_2$–$^3/_4$ percentage points below that of RPIX, reflecting differences in construction and the inclusion of a housing cost component in the latter. For further details, see Bank of England (2003).

suggested that the statement of objectives should put equal weight on inflation and activity, as is the case in the United States with the Federal Reserve.

Are there grounds for thinking the objective is overly focussed on inflation? My own view is No. The Chancellor's original letter to the Governor at the time of independence made clear that, although the target was for 2.5% "at all times", we were not expected to achieve it continuously. Inevitably from time to time there will be shocks that drive inflation away from target. Given the lags inherent in the transmission mechanism of monetary policy, it may be difficult to offset such shocks if they are temporary and will have faded by the time the effect of any change in interest rates is starting to be felt. And even if some shocks could be offset in principle, there may nevertheless be a good case for allowing temporary slippage relative to target in order to avoid undue volatility in activity; that is particularly the case with some sorts of supply shock. In essence, the MPC has a degree of "constrained discretion" in deciding exactly how to deal with shocks and how quickly to plan to bring inflation back to target when it has moved away (see King, 1997).

The lexicographic structure of the objective is a practical solution to the problem of how to instruct an agent (the central bank) to minimise (the expected value of) a discounted loss function of the general form

$$L_t = \sum_{k=0}^{k=\infty} \beta^k L\left(\pi_{t+k} - \pi^*, y_{t+k} - y^*_{t+k}\right), \tag{1}$$

where L(.) is concave in both its arguments (e.g. quadratic), π_t is inflation, π^* is the optimum inflation rate, y_t is output, y^*_t is the natural rate of output (note that this is time-varying, unlike π^*) and β is the discount factor. It is not a practical option to legislate such an objective function into law, but the lexicographic structure in effect first describes the "high-level" inflation objective and the associated bliss point, π^*, before going on to recognise the presence of activity in the loss function under the heading of supporting the general economic policy of the government with respect to growth and employment.

One might be tempted to suggest that the principal ought to specify a "high-level" target for output, y^*_t as well. However, unlike π^* the natural rate of output is not known with any certainty. Given the absence of any long-run trade-off between inflation and activity under the natural rate hypothesis – a common feature of most macroeconomic models – and the consequent inability of monetary policy to influence anything other than inflation in the long run, nothing is lost by this omission as output must gravitate to the natural rate in the long run as expectations adjust and nominal rigidities work their way out.[2] Moreover, if the government were

2. Of course there is a large literature, stemming from Kydland and Prescott (1977) and Barro and Gordon (1983), which assumes the policy maker targets a level of output above the natural rate. For the reasons explained in Bean (1998), I do not think this is an accurate description of what central banks are trying to do. See Blinder (1997) for a similar view.

to set a "high-level" target for output, it would reintroduce scope for the manipulation of interest rates for political ends. The lexicographic structure also helps to insulate the central bank from pressures to pursue a more accommodative monetary policy in the short run if that conflicts with keeping inflation close to target.

Of course, the *Remit* does not specify the relative weight we are supposed to place on deviations of inflation from target and output from potential. So the "contract" between the government and the Bank is incomplete. Svensson (2003a) has argued that, in the interests of transparency, the members of the MPC ought to reveal their individual or collective objective function – and in particular the relative weight placed on deviations of inflation from target and output from potential. Though this might be of interest to academics and technicians, it would be unlikely to be revealing to the public at large, and quite possibly could be actively confusing. Moreover, in practice it would make little difference. Empirical evidence suggests that the "Taylor frontier", which traces out the minimum feasible inflation variance for a given output variance, may be quite sharply curved. In that case a wide range of plausible loss functions lead to rather similar policy choices (Bean, 1998). Moreover, if inflation deviates by more than 1% either side of the target, the Governor must write an Open Letter to the Chancellor explaining why the deviation has occurred and how quickly the MPC expects to bring inflation back to target.[3] The Chancellor's (open) response to that letter would allow him to indicate whether that was too rapid, or not rapid enough, if he so wished.

A notable feature of the current regime is the choice of a point target rather than a target band. That has provided simplicity and clarity, and helped to anchor private sector inflation expectations. A wide[4] target band, by contrast, has the potential to create ambiguity about what the central bank is trying to achieve.

4. Process: the Committee

All independent central banks – whether they are inflation targetters or not – have broadly similar processes, involving regular briefing of the policy board (or policy maker if it is a singleton) by the bank's staff, and usually involving the periodic production of a forecast to help guide the decision maker(s) (for more details on the specifics of the Bank and MPC's processes, see Bean and Jenkinson, 2001). As far as the actual process of setting rates goes, ours is broadly similar to that of most independent central banks. But some aspects

3. It is worth stressing that the Open Letter is part of the arrangements for public accountability, *not* an elaboration of the target into a *de facto* band. The triggering of an Open Letter is not meant to be indicative of "failure" on the part of the MPC, rather it is a prompt for a public explanation as to why the deviation has occurred.
4. This is obviously not so much of a problem when the band is narrow. Thus the Reserve Bank of Australia targets a "thick point" of 2–3% inflation.

are distinctive and are related to the make-up of the MPC, which as noted earlier comprises five Bank staff and four external members appointed by the Chancellor. The role of these external members is to keep the Bank on its toes and inject fresh thinking. Importantly, the Chancellor decided that they should be experts, rather than captains of industry or ex-politicians. Given that the internal members are also expert, the result is a Committee that is economically highly literate. Indeed of the 20 past and present members of the Committee, no fewer than nine have held academic positions in economics at some time and the remainder have either been professional economists or else acquired considerable economic expertise in former occupations.

The creation of the MPC has thus not only taken politics out of monetary policy, but it has also put economics firmly into it. There is no guarantee that such a committee will always make the right decision, but a group of economists probably has a better chance of doing so than those untutored in the dismal science.

It is also worth noting that the MPC does not take decisions by seeking consensus, but rather by majority vote, the outcome of which is revealed in the minutes that are published two weeks later. Moreover, neither the old nor the new Governor seek to impose their will on the Committee. This is a necessary consequence of our individual accountability under the legislation, but is reinforced by the presence of strong-minded individuals on the Committee who are willing to debate and disagree. Now it should be said that our willingness to reveal these disagreements in the minutes – often amplified through members' speeches – might have backfired in that it could have led to confusing messages. But once market participants and commentators had grasped that the Committee comprised nine independent individuals, this willingness to disagree has turned out to be a strength in that it reinforces the point that the future – not to mention the past – is uncertain and it is therefore reasonable for there to be differences in interpretation.

This naturally raises the question of whether having a Committee also leads to better decisions. My personal view is Yes – I certainly find the discussion with my colleagues on the MPC invaluable in forming my own view. And while it is not easy to test the proposition that having a Committee has improved the quality of decision making, some of our staff have recently conducted an experiment that indeed suggests that having a committee make the decision adds value (Lombardelli, Talbot and Proudman, 2002).

5. Process: the forecast

The other aspect of our process warranting discussion is the role played by the quarterly forecast. In many central banks the staff produce a forecast as an input into the policy decision, along with a range of other data and indicators. But those forecasts often remain the property of the staff; that is the case in both the ECB and the Federal Reserve, for instance. By contrast, the MPC

has ownership of the forecasts published in our quarterly *Inflation Report*, and their production involves a considerable input by the Committee.

Each forecast round starts with the preparation of a "benchmark forecast", incorporating new data, etc. That is followed by a series of meetings between the staff and the Committee on the key issues in the forecast, with the discussion intermediated through one or more of the Bank's "suite" of economic models. The Committee then arrives at its best collective judgement on each key issue. A revised set of projections are then compared with those of outside bodies and forecasts produced from other models in the Bank's suite, and if necessary further amended so that the final published projection embodies the overall best collective judgement of the Committee. In all there are six or seven such meetings during each forecast round.

It should be clear that this approach to the forecast would not be possible without, first, a high degree of economic literacy on the part of members of the Committee; and, second, Committee members who spend a substantial amount of time in the Bank – it would be very much more difficult to operate in this way in federal systems like the Federal Reserve or the European System of Central Banks.

The forecast plays a dual role in the MPC's processes. First, it is a means of advancing the Committee's understanding of the key economic issues, within an explicitly quantitative framework. Consequently we need models that embody a recognisable structure so that they can be used to construct "stories". Our main tool for this purpose is a dynamic stochastic general equilibrium model that incorporates real and nominal rigidities, augmented with some additional *ad hoc* terms to improve its coherence with the data. But we also use a range of purely data-based techniques such as VARs, factor analytic models, and the like for cross-checking the projections.

The second function of the forecast is to help communicate the rationale for our interest rate decisions. Lags in the transmission mechanism mean that all central bankers, and especially those with explicit inflation targets, need to be forward-looking, focussing not so much on the current rate of inflation which may be subject to all sort of transient influences which the central bank is powerless to affect, but rather on inflationary prospects in the medium and longer term. Our forecasts for growth and inflation, over a two-year horizon and presented as explicit probability distributions ("fan charts") rather than as point forecasts,[5] thus set the context for the explanation of our interest rate decision.

The publication of forecasts, and the linking of interest rate decisions to those forecasts, has certainly helped outside commentators understand that we aim to be forward-looking and pre-emptive, rather than simply responding

5. It is worth noting that these are not true unconditional forecasts, but rather forecasts conditioned on an assumed path for official interest rate rates – either unchanged rates or the path implied by the profile of market interest rates. For that reason we often refer to them as "projections" to emphasise their hypothetical nature.

to the current rate of inflation. However, an unfortunate by-product has been that some commentators have come to believe that in setting interest rates we follow a rather mechanistic approach, namely adjusting the current official interest rate until the central projection (mode) for inflation at the forecast horizon is on target. That is true not only of some financial commentators, but also of some academic writers (see e.g. Giannoni and Woodford, 2002), and in a number of academic studies inflation targeting is characterised by an instrument rule relating the nominal interest rate, i_t, to expected inflation at a fixed horizon in the future and (possibly) a Taylor-style output gap term:

$$i_t = i_t^* + \gamma(E_t\pi_{t+k} - \pi^*) + \delta(y_t - y_t^*), \tag{2}$$

where γ and δ are positive constants, with $\gamma \to \infty$ giving "strict" inflation targeting of the sort the MPC is said to follow. This view of what inflation targeting is about has also led some people to argue that it leaves insufficient room for discretion.

Svensson (2002, 2003b) has argued persuasively that this approach to implementing inflation targets is seriously flawed and offers an alternative view that characterises "flexible" inflation targeting as the policy that implements the first-order condition obtained from a suitable optimisation problem (see also Svensson and Woodford, 1999; and Giannoni and Woodford, 2002). Specifically, to take a simple example, suppose that the loss function is quadratic:

$$L_t = E_t\left[\sum_{k=0}^{k=\infty} \beta^k \left\{(\pi_{t+k} - \pi^*)^2 + \lambda\left(y_{t+k} - y_{t+k}^*\right)^2\right\}/2\right], \tag{3}$$

and the supply side is given by a New Keynesian Phillips curve:

$$\pi_t = \beta E_t\pi_{t+1} + k(y_t - y_t^*) + u_t, \tag{4}$$

where u_t is a supply shock. Then the optimum policy (under commitment from the "timeless perspective") satisfies the first-order conditions (for all $k \geq 0$):

$$E_t[\pi_{t+k} - \pi^*] = -(\lambda/k)E_t\left[(y_{t+k} - y_{t+k}^*) - (y_{t+k-1} - y_{t+k-1}^*)\right]. \tag{5}$$

The optimal plan thus equates the marginal rate of transformation between output and inflation that is embodied in the supply schedule with the marginal rate of substitution that is embodied in the loss function. It ensures that inflation will be brought back to target, but at a rate that recognises the consequences for activity.

So which is the better characterisation of how the MPC behaves? On the face of it, the sequence of published fan charts since independence, in which

the central projection has almost always been quite close to target at the two-year horizon, might appear to support the instrument-rule characterisation of our behaviour. However, as indicated above, inflation targeting is really a statement about the *objectives* of the monetary policy maker, rather than a detailed description of how it is achieved. The *Remit* itself says nothing about a two-year horizon – it enjoins us to target 2.5% inflation at all times, but to take on board the implications for growth and employment in deciding how we pursue our primary objective. As most of the impact of a change in interest rates will have worked its way through the economy after two years, the two-year point makes a convenient reference point for the purposes of communication. But, as the Committee has explained on numerous occasions, there is no mechanical link between the central projection at the forecast horizon and the policy decision. The latter may also be affected by "the balance of risks", i.e. the skewness of the probability distribution, what is happening to inflation both before and beyond the two-year horizon and what is happening to activity (see e.g. Bank of England, 2000).

The fact that the central projection for inflation two years out has usually been quite close to 2.5% is a straightforward consequence of the fact that inflation has rarely strayed very far from target – an Open Letter has so far not been required despite expectations in 1997 that they might be triggered nearly half the time – and output has been quite close to potential with growth close to trend. But if inflation had strayed far from target, then the Committee would surely have needed to consider how quickly to bring it back, and might well have chosen to do so over a longer time horizon than two years. So really we are closer to Svensson's concept of a flexible inflation targetter than to the naïve characterisation.

6. Performance

As noted at the outset, macroeconomic performance since the inception of inflation targeting in October 1992 has probably exceeded the expectations of most commentators. RPIX inflation has averaged 2.6%, and GDP growth has averaged 2.8%; since Bank independence the corresponding figures are 2.4% and 2.5%. Given previous experience, both growth and inflation have also been remarkably stable, as a glance at Figure 1 and Figure 2 reveals.

Should any significance be attached to the slight tendency for inflation to undershoot the target since independence? First, it should be said that this was not the result of a conscious decision by the Committee because, as already noted, the published forecasts usually showed the central projection close to target by the end of the forecast horizon. Rather it was the consequence of forecast error. Table 1 provides information on the average forecast error (relative to the mean of the fan chart probability distribution), the average absolute forecast error and the dispersion of forecast outturns relative to the fan chart probability distributions. These indeed show a slight bias in

Table 1 MPC's Forecasting Record

	Mean error	Mean absolute error	Fraction* in central 30%	Fraction* in central 50%
RPIX inflation				
One year ahead	0.0	0.3	8/18	11/18
Two years ahead	−0.3	0.4	6/14	11/14
GDP growth				
One year ahead	0.3	0.7	4/18	11/18
Two years ahead	−0.3	0.5	4/14	10/14

*Denominator is sample size. Based on *Inflation Reports* from February 1998 to May 2002.

the forecasts of inflation two years ahead, though the average error is not large.[6] It turns out that there are two main factors behind the tendency to over-forecast inflation during the 1998–2002 period. The first is the sharp appreciation of sterling that occurred in 1996, which both the Committee and outside commentators thought likely to be temporary but ultimately proved to be more permanent. Consequently externally driven inflationary pressures were over-estimated. Second, the UK's supply-side performance turned out to be rather better than expected – in particular falling unemployment did not lead to any marked pickup in wage inflation.

The high degree of stability in inflation is more interesting and is reflected in the fact that outturns have tended to be closer to the centre of the forecast probability distributions than the Committee would have expected – for instance, three-quarters of the outturns have been within the central 50% of their respective two-year-ahead distributions. This stability is not unique to the United Kingdom and most other industrialised countries – some, but not all, of whom are inflation targetters – have experienced a similar phenomenon during the 1990s. And it is also true that growth rates have tended to exhibit greater stability than in previous decades.

There are at least three possible explanations for this greater stability. First, the shocks may have been smaller or their sequence particularly benign. Second, structural changes – possibly associated with the IT revolution and the advent of just-in-time production processes – may have attenuated the amplification and propagation induced by the inventory cycle. And, third, improved macroeconomic policies may have led to reduced cyclical variability and better anchoring of inflation expectations. All three are likely to have played a part, though the relative importance of individual factors is still a matter for debate. For instance, Cecchetti, Flores-Lagunes and Krause (2001) argue that better monetary policy should take the lion's share of the credit,

6. The fact that these forecast errors were serially correlated has also attracted attention, though Pagan (2003) points out that, since inflation is highly serially correlated and that the observations are overlapping, this is to be expected.

whereas Stock and Watson (2003) argue that the role of policy is negligible. This is an area where further research would be useful.

7. Asset prices, debt and inflation targets

To conclude, I want to turn to an issue that is a matter of current debate amongst central bankers and monetary economists, namely the appropriate response of monetary policy to asset price bubbles and any associated rapid expansion of credit. In the aftermath of the collapse of the dot-com bubble and the more recent wider correction to international share values, a number of commentators have argued that the achievement of price stability by central banks may be associated with heightened risks of financial instability. They argue that central banks should not focus solely on inflation prospects, but also take account of developments in asset prices, debt and other indicators that may be symptomatic of incipient financial imbalances. That view is neatly summarised by Crockett (2003; italics in original):

> "(I)n a monetary regime in which the central bank's operational objective is expressed *exclusively* in terms of short-term inflation, there may be insufficient protection against the build up of financial imbalances that lies at the root of much of the financial instability we observe. This could be so if the focus on short-term inflation control meant that the authorities did not tighten monetary policy sufficiently pre-emptively to lean against excessive credit expansion and asset price increases. In jargon, if the monetary policy reaction function does not incorporate financial imbalances, the monetary anchor may fail to deliver financial stability."

According to this view, policy should be tightened if the policy maker believes that an asset price bubble is developing, or if balance sheets show signs of becoming stretched through excessive debt accumulation, even though inflation may be well under control. Failing to do this may raise the likelihood of financial instability further down the road.

This argument is developed at greater length by Borio and Lowe (2002) who emphasise that it is not asset price bubbles *per se* that central bankers should be concerned about, but rather the broader set of symptoms that usually accompany asset price booms, namely a build-up of debt and a high rate of capital accumulation. During the asset price boom – which may initially be prompted by an improvement in economic fundamentals, such as an increase in total factor productivity growth occasioned by a new technology – balance sheets may look healthy as the appreciation in asset values offsets the build-up of debt. But when optimism turns to pessimism, the correction in asset values results in a sharp deterioration in net worth, stretched balance sheets, retrenchment and possible financial instability. This process may be further aggravated if banks respond to the deterioration in balance sheets by restricting lending, i.e. a credit crunch.

But others are more sceptical about the usefulness of using monetary policy in this way. Raising interest rates to "prick" an apparent bubble may simply produce the sort of economic collapse one wants to avoid. The best that one can do is deal with the consequences as the bubble bursts or financial imbalances unwind. This more orthodox view is well summarised by Greenspan (2002):

> "Such data suggest that nothing short of a sharp increase in short-term rates that engenders a significant economic retrenchment is sufficient to check a nascent bubble. The notion that a well-timed incremental tightening could have been calibrated to prevent the late 1990s bubble is almost surely an illusion. Instead, we . . . need to focus on policies to mitigate the fallout when it occurs and, hopefully, ease the transition to the next expansion."

This debate revolves around the desirability and feasibility of pre-emptive monetary policy tightening in order to prevent subsequent financial instability, and there is a growing literature examining this question. Much of this literature focuses on stochastic asset price bubbles (see e.g. Bernanke and Gertler 1999, 2001; Cecchetti, Genberg, Lipsky and Wadhwani, 2000; Cecchetti, Genberg and Wadhwani, 2002; and Gruen, Plumb and Stone, 2003) and analyses the implications in a suitably calibrated macroeconomic model of following either a simple Taylor rule or an inflation-forecast-targeting rule augmented with the asset price. The bottom line of this literature seems to be that the results hinge on the particular stochastic assumptions regarding the asset price (as well as other shocks that might provide a fundamental explanation for the asset price movements) and above all on the information available to the policy maker. Gruen, Plumb and Stone, in particular, argue that the policy maker needs to know rather a lot about the nature of the bubble, and needs to know it early, if a pre-emptive activist policy is to be effective.

Suppose, for the sake of the argument, that policy makers do have the information that Gruen, Plumb and Stone find is required. What does that say about the pursuit of inflation targets? This debate is often couched in language that appears to suggest that inflation targets are not enough, e.g. the quote above from Crockett. And that would indeed be the case if one assumed that the inflation target was implemented through the adoption of an instrument rule in which the interest rate is adjusted in line with the expected deviation of inflation from target (say) two years ahead, as in equation (2). But, as noted above, that is not what inflation targeting is all about, in the United Kingdom at least. Our *Remit* dictates that we should target annual RPIX inflation of 2.5% *at all times*, and that we should be mindful of the implications for growth and employment in achieving that. There is nothing in our *Remit* that tells us to focus on inflation exclusively at the two-year horizon. In fact doing so would actually run counter to the *Remit*!

Now Borio and Lowe, Crockett, and Cecchetti et al. are concerned about asset price booms and the associated credit expansion because of the instability that may result when the boom later turns to bust, balance sheets become stretched and agents then seek to rebuild them by cutting back on expenditure.

Financial instability in the shape of failures of financial intermediaries may or may not be the result, but there is certain to be a fall in aggregate demand, resulting in a reduction in inflationary pressures unless there is an appropriate policy response. In other words asset price booms and debt accumulation based on over-optimism about the future are likely to lead to future macroeconomic instability when expectations adjust and an increased likelihood of deviating from the inflation target in the future. Accordingly a tighter policy to moderate an asset boom that led to a near-term undershoot of the inflation target would nevertheless be in accordance with our *Remit*, if it also sufficiently increased the likelihood of staying close to target further down the road.

I therefore do not see any difficulty *in principle* in taking on board the implications of concerns about asset price bubbles, incipient financial imbalances, etc., within an inflation targeting framework. And indeed Cecchetti et al., who do advocate an activist response to asset price movements, stress that their recommendations are entirely consistent with a framework of inflation targets. But taking on board the sort of concerns that are raised by Borio and Lowe, Crockett and Cecchetti et al., would require a change in rhetoric to emphasise that current interest rate decisions were motivated by considerations that impacted beyond the normal two-year horizon for which forecasts are published. For further discussion of this general issue, see Bean (2003).

8. Concluding remarks

Britain's monetary policy regime seems to have been in a state of perpetual revolution for much of the post-war period. However, learning from the experience of other countries, we now seem to have found a set of institutional arrangements and a monetary policy framework that have served to bring a degree of macroeconomic stability to the United Kingdom that could never have been envisaged in 1992. Of the two ingredients – the operational independence of the Bank and an inflation target – the former is perhaps more fundamental. But the latter has also been important in helping cement low and stable inflation and in anchoring inflation expectations. No doubt the world will continue to throw up new challenges to monetary policy makers, in the United Kingdom and elsewhere. Our application of inflation targets will need to evolve to meet those challenges, but the current structure does, I believe, offer a robust and flexible apparatus in which to address them.

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Abstract: *I first review the background to the adoption of an inflation target in 1992 and the subsequent development of the regime, in particular the delegation of operational responsibility for monetary policy to the Bank of England in 1997 and the associated institutional framework. I then go on to explain some aspects of the way the MPC formulates and conducts policy at the Bank, relating it to some of the burgeoning literature on inflation targeting. I next review some aspects of performance since the Bank's independence. I conclude with a discussion of the topical question of how monetary policy should respond to asset price booms and high rates of debt accumulation.*

