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The UK's Search for a Monetary Policy In and Out of the ERM

DAVID COBHAM

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Abstract

The UK entered the ERM in October 1990 in search of an alternative policy framework and nominal discipline to monetary targets, but entry was dominated by short term considerations and the constraints implied may not have been properly understood. The UK left the ERM in September 1992 after the failure of an extremely high-risk strategy determined by the authorities' refusal to accept the constraints imposed by the ERM in that period. The new post-1992 framework includes an inflation target, greater openness and some limited increase in the power of the Bank of England. However the way the new arrangements operate leaves too much potential room for discretion and political manipulation, and does not solve the problem of the UK's external relationships. The problem of time-inconsistency could be better addressed by the adoption of central bank independence, which would also provide an answer to the external problem.

JEL classification: E52, E58, F33, F41

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Preliminary version, not to be quoted without author's permission

Over the last five years there have been major changes in UK monetary policy. In October 1990, after many years of discussion and dispute,[1] the UK finally entered the Exchange Rate Mechanism (ERM) of the European Monetary System. In September 1992 it left the ERM under the pressure of a massive speculative attack on sterling. And since then the authorities have tried to restore their damaged credibility by putting together an alternative framework for monetary policy which involves a new intermediate target and a greater degree of autonomy for the Bank of England. This paper is intended to assess the new monetary policy framework by examining the problems which the authorities were trying to address in their previous decisions and asking if the new framework represents a solution to those problems.[2]

Section 1 gives a brief outline of the development of monetary policy over the 1980s, in terms of both the framework of policy and the conjunctural policymaking. Section 2 discusses the entry into the ERM in 1990, examining what the authorities thought they would gain by entering and why they entered in the way they did. Section 3 discusses the internal policy decisions (and external events) that culminated in the UK's exit from the ERM in 1992. Section 4 explains the new framework for policy constructed in the aftermath of the sterling crisis. Section 5 offers an evaluation of that framework. Section 6 presents the conclusions. Table 1 provides some basic statistics to accompany the analysis.

1 The background[3]

In the UK as in many other countries, monetary policy became more important during the course of the 1970s, after the Bretton Woods system had broken down and inflation had become a more pressing issue for economic policymakers. The UK first adopted a monetary target (for the broad aggregate M3) in 1976 as an attempt to calm the foreign exchange markets during the prolonged sterling crisis of that year. These targets were given more importance by the government of Margaret Thatcher which came to power in May 1979, and the Medium Term Financial Strategy (MTFS) whose first version was announced in the March 1980 Budget set out targets for £M3 for four (sometimes three) consecutive financial years accompanied by projections for the Public Sector Borrowing Requirement (PSBR) as a percentage of GDP.

The first two years of the MTFS (and the year immediately preceding it) saw large overshoots of the £M3 targets, which were permitted by the authorities on the grounds that the deflationary pressure on the economy was already very severe, largely because of the enormous appreciation of sterling between mid-1979 and early 1981, and that velocity seemed to be falling. Subsequently the target range was adjusted and targets for other (narrower and broader) aggregates were added, but, partly because of financial innovation and

liberalisation and the resulting strong growth of credit and partly because of the way in which the authorities chose the target ranges, overshoots recurred and monetary targeting continued to appear unsatisfactory.[4] In addition, the limited success in hitting the targets was due largely to the technique of overfunding, which itself had undesirable side-effects.[5] In October 1985 the Chancellor suspended the £M3 target for 1985/86 (at a time of substantial overshoot) and declared that overfunding would no longer be undertaken; these decisions meant that monetary policy had lost both its overall framework and one of its key instruments.[6]

At the same time the first half of the 1980s saw a gradual shift from the benign neglect of the exchange rate which characterised the early years of the MTFS to a much keener awareness of its importance. This shift was due both to the serious misalignment of sterling in the early years (which was only gradually unwound) and to the recurring episodes of exchange rate crisis, notably in January 1985 when the pound nearly reached parity with the (very strong) dollar and the crisis was brought under control only by increases totalling 4.5% in interest rates.

Thus monetary policy in this period was dominated on the one hand by problems in monetary targeting and on the other by unwanted exchange rate movements. Policy makers in general, but above all Nigel Lawson who became Chancellor of the Exchequer (Minister of Finance) after the 1983 election, became convinced of the desirability of exchange rate stability and began to favour entry into the ERM, as providing a more credible framework for policy together with an alternative monetary discipline to that of monetary targets. However, ERM entry was vetoed by Thatcher in November 1985.

Shortly after that oil prices fell sharply, enabling the authorities to allow a substantial stimulus to the (still rather sluggish) domestic economy via the associated fall in sterling (in its capacity as a 'petro-currency') without immediate inflationary implications. The depreciation was almost certainly permitted to go too far towards the end of 1986, and then was locked in by the policy of shadowing the DM on which Lawson embarked in March 1987 in his quest for greater exchange rate stability and perhaps eventual entry into the ERM. Together with the wide range of measures of financial liberalisation that had been implemented since 1979, this depreciation provided the context for the boom of 1986-88.[7]

The response to the overheating that developed was delayed, partly because of the commitment to shadowing the DM and partly because policy makers underestimated the growth of demand and overestimated the responsiveness of supply. They then found themselves having to rely almost entirely on rises in interest rates, which amounted to 5.5% between May and

November 1988 and another 2% by October 1989, in order to bring the boom and the associated rise in inflation under control.

By mid-1990 the rise in economic activity had come to a halt, inflation was rising more slowly (it peaked at 10.4% in 1990 Q3) and unemployment was falling more slowly (it reached a trough of 5.6% in 1990 Q2). Meanwhile, the UK monetary authorities - that is, the Treasury and the Bank of England - seem to have decided on entry into the ERM, and sterling appreciated by some 6% against the DM over the spring and summer of 1990 in anticipation of entry. In September the Chancellor (John Major) revised the 'Madrid conditions' for sterling's entry enunciated by Thatcher in June 1989, which required a reduction of UK inflation into line with that in ERM member countries, so that only a reduction in prospective inflation was now required, and on 8 October 1990 sterling entered the ERM.

2 Into the ERM

The discussion of the previous section makes clear a large part of the motivation for entry into the ERM: monetary targeting had encountered serious problems, largely technical in nature, and policy makers had become increasingly concerned about the level of and changes in the exchange rate. In a lecture to the Institute of Economic Affairs in July 1989, for example, the Governor of the Bank of England referred to two potential economic benefits from membership of the ERM: it could provide a reduction in intra-EC exchange rate volatility and "an additional anchor for prices". On the other hand, he expressed doubt about any automatic gain in the credibility of counter-inflationary policy that would result in lower wage settlements, and stressed the need for policy to be "continuously directed to the counter-inflationary discipline needed to sustain" the exchange rate commitment.[8]

In the immediate aftermath of the Lawson boom the authorities' attention was focused on the control and reduction of inflation, and they regarded entry to the ERM in those circumstances as inappropriate,[9] but the episode must have given added impetus to the desire to enter, as a way of avoiding another loss of control. In the Governor's Durham lecture on monetary policy in the second half of the 1980s, the Bank's main statement on the Lawson boom, he argued the need to prevent another resurgence of inflation and therefore "not [to] allow the lessons of the second half of the 1980s to be forgotten", and suggested that - unlike four other measures put forward by critics of the high interest-rate policies of that period - ERM membership "could play an important part", presumably in controlling aggregate demand and hence inflation, and thereby allowing lower interest rates in some situations.[10]

On the other hand, while the authorities regarded ERM membership as conferring benefits in the form of greater exchange rate stability and a

contribution to counter-inflationary policy, there is no recognition in the official statements of what academics would recognise as the time-inconsistency problem: the authorities did not see membership as a way of tying their own hands in order to convince the financial markets of their rectitude, which they did not see as being open to question. Moreover, they did not consider ERM entry as the prelude to the UK's acceptance of EMU.[11]

Official statements at the time of entry, notably by the Chancellor of the Exchequer in his statement to the House of Commons, put the emphasis more on the immediate reduction of inflation.[12] In part at least this emphasis was probably a reflection of conflicts over ERM entry within the government; in particular Thatcher's opposition to the ERM, which was longstanding and deeply felt, could have been swayed more easily by appealing to the counterinflationary properties of the move rather than the implied constraint on future policy, the likely increase in exchange rate stability or, indeed, the credibility effects. In addition, Thatcher was very keen to see a fall in interest rates, which had been at 15% (base rate) for over a year. According to the account she gave later in her memoirs,

> I insisted against the Treasury and the Bank on a simultaneous announcement of a 1 per cent cut in interest rates. They had not disputed that the monetary and other figures warranted this; but they had wanted to delay. But I for my part was determined to demonstrate that we would be looking more to monetary conditions than to the exchange rate in setting interest rates. So on Friday 5 October we announced that we were seeking entry into the ERM, and I placed heavy emphasis on the interest rate cut and the reasons for it in presenting that day's decision.[13]

That cut was widely criticised, at the time and since, as being premature and giving the wrong signal.[14] The Governor was obliged to defend it shortly afterwards, referring to evidence that "the conditions necessary to reduce inflation are now coming into place", arguing that at 14% interest rates remained high and their restraining influence had been reinforced by ERM entry, and insisting that no significant easing of the policy stance had been or was intended.[15]

Another aspect of entry which was criticised more heavily was the exchange rate at which it was effected. The UK entered the ERM with a central rate defined on the basis of £1 = DM2.95, just above the rate at which the market closed on Friday 5 October. It seems certain that the German authorities were unhappy at the time about this rate, which was presented to them as a fait accompli rather than a basis for discussion:

> Major... telephoned Karl Otto Pöhl, the Bundesbank President, to tell him the news shortly before the official announcement at 4 p.m. The phone call was designed to

impart glad tidings, but Pöhl's reaction was less than enthusiastic. The exchange went along the following lines:

> Major: We are coming in at DM2.95.
> Pöhl: That is unrealistic. That is not possible.
> Major: But it has been decided by the prime minister.
> Pöhl: I don't care about your prime minister.[16]

In addition, studies such as Wren-Lewis et al. (1991) which use Williamson's (1983) concept of the fundamental equilibrium exchange rate (FEER) have found that sterling was overvalued by around 10% at the time of entry, a view put forward by the National Institute for Economic and Social Research at the time and later upheld in a retrospective on the UK's ERM experience by Barrell et al. (1994). On the other hand, research based on purchasing power comparisons, for example by the OECD and the UK Treasury, suggested that sterling was not overvalued at the time of entry.[17] At the time the authorities responded by rejecting the view that the DM2.95 parity was too high - indeed they claimed that the real exchange rate this represented was below the average of the previous decade.[18] Moreover, the Chancellor (now Norman Lamont) stated in December 1991 and again in July 1992 that the UK's move to the narrow band in the ERM, when it came, would be at an unchanged central parity of DM2.95.

However, the interest rate cut and the exchange rate parity issues should be seen as connected. The longstanding critique of the EMS by Alan Walters (1986), which must have been well-known to policy-makers not least because Walters was Thatcher's personal adviser on economic matters between 1981 and 1984 and again in 1989, argued that under the ERM nominal interest rates of member countries would converge, with the result that the pattern of real interest rates would be perverse: those with lower inflation rates would have higher real interest rates, and vice versa, so that inflation rates would tend to diverge rather than converge. The implication of this argument for the UK's putative entry into the ERM in the conditions of 1989-90 was that it might find itself having to accept a large cut in interest rates that was inappropriate for domestic reasons, a pssibility which was made explicit in a speech by the Governor in July 1989:

> It would be a mistake to enter the mechanism in circumstances where our anti-inflationary policy might be compromised or undermined. This could happen if we wished to keep interest rates high for domestic reasons but, by for example committing ourselves to too low a parity, we were pushed towards lowering interest rates to keep sterling within its band.[19]

The authorities also welcomed the appreciation of the spring and summer of 1990 as a useful counterinflationary tightening of policy.[20] They may therefore have calculated that an interest rate fall soon after entry was unavoidable for

Walters-critique reasons, but would be accceptable in terms of the stance of monetary policy if preceded by an appreciation;[21] moreover, under those conditions the intra-governmental politics of entry would be easier since Thatcher could be allowed the interest rate cut she wanted.

But if this explanation of the way in which the UK entered the ERM is correct it implies that policy-makers were concentrating heavily on the short term impact of entry on inflation and interest rates, without thinking, in particular, of competitiveness in the longer run (the revision of the Madrid conditions so that entry occurred before substantial inflation convergence meant that over the period of UK membership UK prices rose by 7.0%, as against 6.9% for Germany and 4.7% for France[22]). They may have thought that the important thing was to enter, and the problems could be sorted out later. Lawson has argued that had the UK entered in 1985 the pound would almost certainly have devalued with the French franc (by 6% against the DM) in April 1986.[23] However, by 1990 the ERM was in the 'new EMS' phase in which realignments became all but unacceptable.

In entering the ERM, then, the UK monetary authorities were hoping to find a more credible framework for policy and an alternative nominal discipline to that of monetary targets which were seen to have failed. But the way they entered the ERM was influenced too much by short term considerations,[24] and it is doubtful whether the politicians, in particular, had really understood the constraints involved.

3 Out of the ERM

The basic story of the UK's membership of the ERM is easily told. Although the immediate honeymoon effect in the financial markets was short-lived,[25] the pound remained (until the summer of 1992) reasonably stable and inflation fell sharply, from its peak of 10.4% in the quarter before entry to 3.6% in 1992 Q3.[26] Although the initial interest rate cut had unsettled the financial markets the authorities were able to make substantial cuts amounting to 3.5% between mid-February and early September 1991.[27]

On the other hand GDP fell by 2.1% in 1991 and 0.5% in 1992, unemployment rose continuously from its trough of 5.6% in mid-1990 to 9.6% in 1992 (and 10.3% in 1993), house prices (especially in the south-east of England) fell sharply, and mortgage foreclosures and repossessions rose dramatically. Economic recovery always seemed to be around the next corner, and the authorities' confident assertions in early 1991 that the recession would be shorter and less severe than that of 1980-81 gave way by mid-1992 to the recognition that it was the longest recession since the 1940s.[28]

The UK left the ERM in a speculative crisis on 16 September 1992, commonly referred to as Black Wednesday. There is now a considerable

literature on the causes of the EMS crises of September 1992 to July 1993, and it would not be appropriate to rehearse the various alternative explanations available here.[29] However an examination of the UK authorities' actions and statements over the months leading up to Black Wednesday may cast some light on the UK's particular case.

First, the UK monetary authorities resisted upwards pressure on UK interest rates, starting in the period after the Bundesbank raised its key rates by 0.5% in mid-December 1991 (just after the Maastricht conference).[30] During the following quarter the Bank of England did not discourage downward pressure on rates[31] although there was no actual cut - partly because of the general election campaign - until early May. Then the cut of 0.5% in official rates was not entirely reflected in interbank rates because of "unease over the reaction of the foreign exchange market and some expectation that German rates might be raised again, perhaps at the Bundesbank Council meeting on 21 May"; however sterling strengthened and rates generally fell.[32] The rise in German interest rates in fact came on 16 July in the form of a 0.75% rise in the discount rate but no change in the Lombard rate: however, the UK "did not need to follow the rise in rates in some other ERM countries," although sterling weakened.[33] For the next two months, but particularly from late August, the authorities continued to resist upward pressure on UK interest rates, via a range of money market and gilts market tactics,[34] and cuts in interest rates on National Savings products on 20 July and 5 August in order to avoid competitive pressure leading to a rise in building society deposit and mortgage rates.[35]

Second, the UK authorities allowed sterling to fall towards the bottom of its wide band in the ERM after the German interest rate rise in July 1992 in order to bring about a slight easing of monetary conditions.[36] The pound had reached its lower limit against the escudo by the end of July; in early August it fell below DM2.83 (as against the wide band limit of DM2.778) and had to be supported at the margin against the peseta and the escudo, and it went below DM2.795 on 22 August. Intervention in the foreign exchange market became increasingly frequent and heavy from around that time, but sterling remained below DM2.80 for most of the rest of the period up to Black Wednesday.

Third, the authorities made clear their unwillingness to countenance devaluation. In early July, for example, the Chancellor repeated his earlier statement that the UK would "move to the narrow bands in due course at our current central rate of DM2.95", and went on to reject devaluation out of hand on the grounds that it would raise rather than lower interest rates.[37] On 3 September the government announced an ECU 10 billion borrowing programme (which would make possible more extensive foreign exchange market intervention), and this provided a temporary lift to sterling. Official opposition

to devaluation was repeated more and more strongly over the next two months, culminating in Major's statement to the Scottish CBI in Glasgow on 10 September in which he "insisted that the Exchange Rate Mechanism had delivered the low inflation and the relative exchange rate stability demanded by the business community. Maintaining sterling's parity was essential to ensure that Britain preserved and improved on those gains. 'As the Chancellor has made clear, there is going to be no devaluation, no realignment.'...'The soft option, the devaluer's option, the inflationary option would be a betrayal of our future; and it is not the government's policy.'"[38]

Fourth, the authorities allowed it to become clear to the markets that they were desperate to see interest rates come down. While the full story of the Bath conference of ministers of finance and central bankers on 4-5 September 1992 came out only later, it was clear enough at the time that extraordinary (but unsuccessful) pressure had been exerted on Helmut Schlesinger, the Bundesbank President, to cut interest rates, notably by the UK Chancellor, Norman Lamont, who was in the chair. The joint statement, which said that ministers had reaffirmed their faith in the existing exchange rate parities and that the Bundesbank had no current intention to increase its interest rates, was not enough to calm speculation in the forex markets. Matters were not helped by Lamont's proclamation of victory over the Bundesbank, or by an interview shortly after in which Schlesinger appeared to cast doubt on the Bundesbank's own commitment to the existing parities.[39]

What these actions and statements added up to was an extremely high risk strategy. The authorities were trying to get through a limited period of turbulence expected to end with the French referendum on the Maastricht Treaty (on 20 September 1992), but to do so they were successively playing all the cards in their hand and exhausting their strategic options. There was certainly a possibility that they might have succeeded - the general turbulence might not have reached such a pitch, and/or something positive might have turned up to reduce the pressure on the pound and on UK interest rates - and in that case the brinkmanship involved in the government's strategy would have paid off. But the failure of concerted foreign exchange market intervention in favour of the dollar and against the DM in July and August[40] should have indicated that the strength of the DM was well-established and unlikely to be unwound in the near future. In addition, there was never any serious probability that the Bundesbank, which guards its independence so jealously, could be pressurised by foreign governments into lowering its interest rates. Thus the strategy followed by the UK authorities stood a good chance of failing, but they had no contingency plan for that situation, no alternative policy that could be implemented in a controlled and orderly way if what they saw as external pressures became too strong.

How does this account fit into the alternative explanations explored in the literature on the EMS crises? Competitiveness and German unification are clearly part of the background in the above account, not the driving forces of the sterling crisis. The standard speculative attack models on the other hand require that the monetary authorities are optimising, that is they are continuously counting the costs and benefits of alternative strategies and they switch between them when the relative net benefits change, but the UK authorities had painted themselves into a corner where they had no thought out alternative strategy at all. To convince the markets of the seriousness of their intentions they refused to consider publicly any alternative, but they were also refusing to take actions such as raising interest rates in good time which would have been consistent with that rhetoric. And the fact that it all ended in a crisis which was clearly perceived to be a disaster and a humiliation for the government shows that they had not developed any alternative strategy in private either.

Thus the above account fits most closely the explanation given by Mélitz (1994) of the French franc crisis of July 1993: the authorities wanted lower interest rates without depreciation, and these two elements were not consistent with each other or with equilibrium in financial markets. The 1992 UK case differs from the 1993 French case insofar as German interest rates were at their peak in September 1992 but on a declining trend in July 1993, and insofar as the UK authorities might just have avoided disaster if external events (the French referendum and the associated opinion polls, the turmoil hitting other ERM and non-ERM currencies, even the interviews given by the Bundesbank President) had been different - whereas the French authorities were making a more frontal challenge to the German authorities and could have avoided disaster only in the highly unlikely eventuality that the Bundesbank gave in to pressure at its Council meeting on 29 July 1993. Nevertheless the UK case resembles the French in that the crisis can be seen as having been provoked essentially by the attempts of the national (non-German) monetary authorities to obtain lower interest rates without depreciation. It should go without saying that this does not imply that 'the Germans were right'; all it implies is that the actions of the Bundesbank were highly predictable (in the short term if not in the very short term), and that the UK monetary authorities should therefore have prepared an appropriate contingency plan, which might have involved a depreciation of the pound but would have made that orderly and controlled, and would have preserved at least part of the authorities' face and credibility.

Finally, it may be asked how the UK authorities could have believed that there was a possibility of pressurising the Bundesbank. It seems highly unlikely that officials in the Treasury and the Bank of England were so ignorant of the attitudes and behaviour of the Bundesbank, or would have failed to give appropriate advice. An alternative explanation may be that the UK political

authorities (notably the Chancellor, Lamont) were influenced by attitudes towards Germany and the Germans of the kind whose public expression led to Nicholas Ridley's resignation in July 1990,[41] and/or by the longstanding attachment of British politicians (particularly Conservative ones) to a 'Westminster sovereignty' view of the political process in which the government is supposed to have virtually absolute and unconstrained power so long as it can carry its own supporters in the House of Commons. If that explanation is correct, the UK's exit from the ERM can be seen as more of a political, rather than an economic, failure.

4 The new monetary policy framework

Black Wednesday allowed a major 'rebalancing' of economic policy: within a few weeks short term interest rates had been reduced by 3% relative to the day before Black Wednesday, and sterling had depreciated by 10-15%. At the same time the authorities were obliged to put together a new framework for monetary policy to replace that which had collapsed. Some aspects of this new framework were put in place within a few weeks, but some were developed more slowly (over the course of 1993 and early 1994). The new framework can be thought of as consisting of two parts, first a policy target and a related conception of the role of other economic variables, and second a new relationship between the political authorities (the Treasury) and the central bank, and these will be discussed in turn.[42]

The new policy target, to take the place of the exchange rate target under the ERM and the monetary targets of the first half of the 1980s, was an inflation target: policy was to aim for inflation to be within the range of 1-4%, and in the lower half of that range (1-2.5%) by the end of the current Parliament, that is by spring 1977 at the latest. Inflation for this purpose is measured by the 12-month increase in the RPIX, that is in the index of retail prices excluding mortgage interest payments. The target was restated by the Chancellor in June 1995 as a target of 2.5% or less for the longer term beyond the end of the current Parliament.[43] Policy was to focus on the rate of inflation expected in two years' time, two years being thought of as the typical lag between policy measures and their effect on inflation. In pursuing the inflation target the authorities would also operate a target range (later referred to as a monitoring range) for M0, the measure of the monetary base for which targets had been in continuous existence since 1984, and a monitoring range for M4, the broad money aggregate which had replaced M3 and £M3 (it included building society deposits as well as bank deposits, in the light of the blurring of the boundary between these two sets of institutions). The authorities would also have regard to the exchange rate, but no target or monitoring range was specified for it (at least in public).

The new relationship between the Treasury and the Bank of England involved a number of elements. First, the Bank was to produce a quarterly *Inflation Report* which would include its forecast of inflation over the next two years. This report, which has been produced since February 1993 and is published alongside the Bank's *Quarterly Bulletin*, is in principle written by the Bank independently; since the autumn of 1993 it is shown to the Treasury only in its final form, so that no direct censorship is possible.[44] Second, the regular meetings which always took place between the Governor of the Bank and the Chancellor of the Exchequer have been formalised; they are the forum within which interest rate decisions are discussed, although the Chancellor continues to take those decisions himself. Third, from November 1993 the Bank has discretion over the timing of any interest rate change which the Chancellor decides upon; this was introduced to get rid of the perennial suspicion that interest rates were being managed carefully for political purposes, with reductions timed to coincide with Budgets, Conservative Party annual conferences and other such events. Fourth, from April 1994 the Minutes of the Monthly Monetary Meetings are published two weeks after the subsequent meeting, that is, usually about 6 weeks after the meeting itself. The Minutes take the form of an account of monetary and economic developments which is the product of a prior meeting between Treasury and Bank officials, followed by a summary of the discussion which gives first the Governor's views (these are provided in written form for inclusion in the Minutes), then the Chancellor's views, then an account of other points raised in the discussion, and ends with the Chancellor's summing up on the question of whether interest rates should be raised or reduced. Finally, the Treasury also publishes (on the day concerned) a Monthly Monetary Report which gives an account of the main economic and monetary data considered at these meetings, and releases (again on the day concerned) press notices to explain the reasons for any interest rate changes.

While the inflation target is an obvious replacement for a no longer viable exchange rate target, given the previous experience with monetary targets,[45] the new relationship between the Bank and the Treasury should be seen as originating in the acute loss of credibility by the government in the speculative crisis of Black Wednesday. The Treasury referred to some of these changes in late 1992 as "steps to improve the credibility of [the government's] anti-inflation strategy", while Mervyn King, Chief Economist at the Bank of England, spoke of "institutional changes designed to bolster the credibility of the commitment to low inflation".[46] While both these sources emphasise openness and transparency, it seems obvious that what was happening was that in order to regain credibility the Treasury was obliged, not merely to undertake to explain its policies and actions more clearly, but also to concede some limited and informal autonomy in monetary policy to the Bank of England, whose reputation

had been less adversely affected by the events of September 1992. Implicitly at least, the authorities were recognising the time-inconsistency problem for the first time, but they were not prepared to tackle it by making the Bank of England independent.[47]

5 Evaluation of the new framework

A first step in evaluating the new framework is to look at the outcome in terms of the rates of inflation experienced since its inception. The 12-month RPIX (the targeted measure of inflation) stood at 4.3% in 1992 Q3 and continued to fall to a trough of 2.2% in 1994 Q3; a year later it had risen to 2.9%. The headline RPI fell from 3.6% in 1992 Q3 to a low of 1.3% in 1993 Q2 but had risen to 3.7% by 1995 Q3. Thus inflation continued to fall for a while despite the depreciation, and the weak short-term pass-through from the exchange rate to prices remains something of a puzzle, but for most of 1995 it was clearly on an upward trend.

Since the time period here is necessarily short, a second step is to look at inflation expectations. These are tracked in some detail in the Bank's *Inflation Report*, which considers surveys of expectations, private sector forecasts and the expectations implied by existing bond yields. Both surveys and private sector forecasts indicate a sharp increase in expected inflation immediately after Black Wednesday, a gradual reduction over 1993, a less clearcut downward trend in 1994, and some rise in 1995. By late 1995, the median private sector forecast was for inflation in 1996 Q4, shortly before the end of the current Parliament for which the government's target is 1-2.5%, to be 3%; two-year forecasts reported in surveys for June 1995 were even further above the target, at between 3.7 and 4.7%. However, surveys and forecasts of this kind are available only for short periods ahead and at discrete intervals (typically of a quarter), and this weakness has provided one motive for the Bank of England's research into the expectations underlying market interest rates.[48]

The Bank's technique involves the construction of zero-coupon yield curves, which give the 'true' yields that would be obtained if all interest payments were made at maturity, for conventional and index-linked government bonds; the derivation of implied forward interest rates; and, from a comparison of the latter for the two types of bonds, of the implied forward inflation rates expected at each date. The Bank's estimates of financial market expectations of inflation in two, five and ten years' time are shown in Figure 1. These show that shorter term expectations continued to fall after Black Wednesday, rose over most of 1994 (when world bond markets were disturbed) and declined over 1995; medium and longer term expectations rose sharply in late 1992, fell in late 1993 but rose again in 1994. As at the end of October 1995, the markets expected inflation to be 3.6% in October 1997, 4.5% in October 2000, and 4.9%

in October 2005.[49] An alternative presentation is given in Figure 2, which shows the complete structure of implied forward inflation rates for a range of dates. At the end of June 1992 the term structure was relatively flat around 4.5%, implying only a small rise in inflation in the longer term, but Black Wednesday led to a sharp increase in all but the shorter expectations. By the end of 1993, however, expectations had adjusted down for the whole of the term structure, to below those for end-June 1992. By end-1994 they were somewhat higher, especially for the shorter and medium term, and by end-October 1995 they were up again to more than those for June 1992 for most maturities.

A simpler but less precise measure of the credibility of policy used in empirical work on exchange rates (e.g. Rose and Svensson, 1994; Masson, 1995) is provided by the interest differential on long term (10 year) government bonds. Figure 3 shows the UK-German and French-German differentials from 1989.[50] While the latter was always lower than the former, the UK-German differential had fallen sharply in the run-up to and during the ERM period, both absolutely and relative to the French-German differential. It rose sharply following Black Wednesday, and then fluctuated through 1994 and 1995 around a level comparable to that of the first few quarters of ERM membership.

What this evidence suggests is that inflation expectations and credibility more widely were badly affected by the exit from the ERM but improved considerably in the first year or so after exit; they then deteriorated for at least part of 1994 and 1995. By late 1995 inflation expectations and credibility were notably weaker than in late 1993, but also than in the later part of ERM membership. However, the post-ERM period is too short for a sound judgment of the outcome of the new framework of monetary policy to be made; in particular the new arrangements had not yet been subjected to strong pressures of the kind experienced in the Lawson boom, on the one hand, or the ensuing recession, on the other. A direct examination of the process by which these arrangements operate is therefore in order.

The adoption of an inflation target can be questioned. Even if monetary targets are ruled out by unexpected variations in velocity, it can be argued that nominal income targets -which can be seen as monetary targets with an automatic adjustment for changes in velocity- are superior to inflation targets because they lead to less variability of real output in response to adverse supply shocks.[51] On this point King (1994) has argued that inflation targets with a target expressed as a range enable the authorities in practice to avoid the adverse impact of supply shocks. Inflation targets may also have presentational advantages - the inflation rate is more visible, though less controllable, than monetary growth or nominal income growth - and data on inflation are available more rapidly (and less subject to revision) than nominal GDP data.[52]

However, for the UK in the 1990s it seems important to emphasise that the major problems in monetary policy in the past arose not from the authorities' using the wrong rule but from their having no rule at all or dropping their rule in favour of disorderly discretion. Thus the Heath-Barber boom of the early 1970s was due mainly to the government's 'dash for growth' strategy in which sustained high aggregate demand was expected to lead to a step increase in the ratio of investment to GDP and hence in growth. The problems of the mid-1970s were due to the government's difficulties in getting to grips with a changed international environment in the period before the adoption of monetary targets (which were relatively successful for the rest of the 1970s).[53] In these cases the authorities had no rule, the exchange rate target implicit in the Bretton Woods arrangements having been abandoned but not yet replaced by anything else. The acceleration of prices in the Lawson boom, on the other hand, occurred because the authorities had deliberately dropped their monetary targets but failed to introduce a coherent alternative set of arrangements. With regard to the new policy framework adopted in 1992-94, what is most important is therefore the way in which that framework operates rather than the particular rule - inflation target, monetary target or nominal income target - which it embodies.

The *Inflation Report* produced by the Bank of England has already established a solid reputation for itself, partly because of its thoroughness and partly because of its method. The latter is in line with current mainstream macroeconomic thinking on inflation, emphasising how inflation may be affected in the short term by a range of factors including costs, but is determined in the medium and long term largely by demand and monetary factors. The report starts with an account of recent developments in inflation, from the various measures of retail prices through producer output prices to expenditure deflators; its second section examines developments in money and interest rates, covering narrow, broad and divisia money, credit, interest rates and exchange rates; the third section examines the growth of domestic and external demand and of output; the fourth looks at the labour market, from earnings through unemployment to wage expectations and productivity; the fifth examines price dynamics, from the exchange rate-prices pass-through to profitability and margins; and the sixth gives the Bank's medium-term inflation projection, alongside survey and private sector forecasts and implied financial market expectations. This and the other elements of openness in the new arrangements are clearly to be welcomed: they should make it easier for the private sector to understand and predict government behaviour. The allocation to the Bank of England of responsibility for the short term timing of interest rate changes may also make a small contribution to the depoliticising of monetary policy.

The core of the new framework, however, must be the way in which interest rates are set. Here the Minutes of the Monthly Monetary Meetings provide a great deal more information on monetary policy than has ever been available in the UK before. In principle, therefore, they should show on what grounds interest rates are being set and, which is particularly important in terms of credibility, the extent to which the central bank is in agreement with the decisions taken by the Chancellor. Table 2 provides a classification of each of the meetings for which minutes are so far available (January 1994 to September 1995). It identifies the views of the two protagonists on what should happen to interest rates in terms of 5 categories: the unequivocal recommendation of a cut in interest rates; a 'bias' towards a cut, that is the recognition that it is a cut rather than a rise which should be considered, but an argument that a cut is not currently warranted; 'no bias', that is no preference in either direction; a 'bias' towards a rise, that is the recognition that it is a rise rather than a cut which should be considered, but an argument that a rise is not currently warranted; and the unequivocal recommendation of a rise. If the Chancellor and the Governor always agreed, all meetings would be classified as lying along the diagonal, but in the table there are six off-diagonal meetings, in all of which the Governor took a 'harder' line than the Chancellor. Agreement on 16 out of 22 might be considered impressive, but the fact that all the disagreements are in the same direction suggests some systematic difference of attitude.

Of the six disagreements the first, classified in the table as B2-C1, was in February 1994. The Governor argued that economic growth seemed to be picking up, inflation was likely to remain around the middle of the target range but there were upside risks, and the only justification for a further cut would be the argument that the Budget measures (due to come into effect in April) would significantly slow the pace of growth; it would be safer to wait for more evidence of such effects, cutting rates now in advance would run a risk of higher inflation and some loss of credibility, and he strongly advised against. The Chancellor was "concerned that advice was erring excessively on the side of caution"; inflation had been consistently better than expected and the monetary indicators provided a case for a cut; thus he saw little risk of inflation picking up, but a significant risk that the fiscal measures would slow down the recovery. In further discussion the Chancellor suggested a case for a 0.25% cut rather than, as he would have preferred, a 0.5% cut, and the Governor accepted the smaller cut, which was implemented by the Bank a few days later.

The second disagreement (B4-C3) occurred in April 1995, when the Governor accepted that on domestic grounds there was no reason for a change but argued that if the recent weakness of sterling persisted it might aggravate existing demand and cost pressures and policy would then have to be tightened. The Chancellor considered that the policy objective of achieving a more

sustainable rate of growth so as to limit inflationary pressure was now being met, played down the recent depreciation, and argued there was no need for a change. The following three meetings, in May, June and July, are classified in the table as B5-C4. With the exact growth of demand and output difficult to discern but monetary growth relatively strong and the depreciation of sterling not reversed, the Governor argued that inflation was now likely to be in the top rather than the bottom half of the target range in the spring of 1977 and there were risks to both the exchange rate and credibility: interest rates should therefore be raised by 0.5%. The Chancellor, basing his judgment on "a broad assessment of the economic data, rather than market expectations", argued that demand and output were not obviously growing at an unsustainable rate (particularly when account was taken of the different experience of different sectors), that the cost pressures arising from depreciation and other factors would not necessarily feed through to retail inflation, and that the previous rises in interest rates and taxes had not yet had their full impact on the economy; he agreed that the decision was finely balanced, but did not think interest rates should be changed. Finally, in early September (B4-C3) the Governor thought that, although inflation in early 1977 was still likely to be in the upper half of the target range, the case for an immediate rise was no longer urgent; the Chancellor considered that the economy had slowed down, but he argued not only against a cut in rates as well as against a rise.

There are a number of points to be made from the above account. First, the general emphasis of the Monthly Monetary Meetings as revealed in the Minutes is overwhelmingly on economic rather than political factors, and this must be welcomed. Second, however, the focus of policy on inflation in two years' time provides plenty of scope for argument between Chancellor and Governor about the likely outturn (on unchanged policies); inflation targeting in this sense is far from a mechanical or rule-based exercise. It may well preclude extreme monetary excesses such as the Heath-Barber boom in the early 1970s, but whether it could prevent another Lawson boom is less obvious. Third, the importance of concerns about the exchange rate in the above account makes clear that the adoption of an inflation target does not solve the longstanding problem for the UK of how to handle its external relationships. In principle the exchange rate should now matter only insofar as its level and/or movement affects the future course of domestic inflation, but this means that it continues to be both important and a matter for debate and disagreement. Fourth, the way in which the new framework operates involves incentives for strategic game-playing by the Chancellor (and possibly also by the Governor), whose contribution to efficiency is not obvious. These incentives can best be considered via two hypothetical stories about possible moves by the Chancellor.

In Story I, the Treasury is concerned about the loss of power to the Bank of England involved in the new arrangements, which it had to concede in the aftermath of Black Wednesday (and it chose then not to concede central bank independence). The Chancellor is also concerned both about his own loss of power and about the creation of an alternative centre of authority to that of the Westminster government, which traditionally claims absolute power in the UK. In order to recoup that loss of power, the Chancellor looks for a case where the economics of a decision are not clearcut so that he can present himself as reasonably arguing a different view from the Bank on economic, not political, grounds; if he can 'get away with' a disagreement even just for a month, that is if the financial markets can be brought to accept that he had as valid a case as the Bank, the latter's reputation will be diminished and there will be greater opportunities for taking decisions against the Bank's advice in the future. And if he turns out to be correct over the longer term he will have strengthened his position even more.

In Story II, the Chancellor knows that in a few years' time he is likely to be wanting to expand the economy for electoral purposes. If he is perceived as doing so by the financial markets there are likely to be consequences for the exchange rate and interest rates which will make expansion all but impossible. He needs to build a reputation for himself in the meantime as tough on inflation, so that a later expansion appears to the markets as justified and in line with a 'tough' objective function. When the economic recovery first gets well underway, some two or more years before the election, the Chancellor is therefore happy to see interest rates raised and to argue forcefully for that himself, in the hope that this will both allow a later relaxation in time for the election (which might otherwise have come after the peak of the cycle) and give him more room for manoeuvre by improving his reputation.

These two stories, the first more strategic and the second more tactical, are not mutually exclusive, and either together or singly they are consistent with the facts of the 1994-95 period as we know them, from the Minutes of the meetings and from other official or unofficial sources. Neither can be proved to be correct, but, more importantly, neither can be proved to be incorrect.[54] The financial markets and the private sector more generally cannot therefore neglect the possibility that the government is seeking actively to reassert its own authority in monetary policy precisely in order to be able to resume the kind of political manipulation of the economy which has occurred only too often in the past. Under these conditions the credibility of monetary policy may rise above the floor but it will tend to fluctuate within a relatively low band.

6 Conclusions

The UK entered the ERM in 1990 in search of a better framework for monetary policy than, and an alternative nominal discipline to, the discarded framework of monetary targets. However, the details of entry - the timing, the parity and the associated interest rate policy -were dominated by short term considerations, and it was not obvious that the politicians, in particular, really understood the constraints they were assuming. The experience of ERM membership included a sharp fall in inflation (though this was not necessarily due to entry itself), but it ended in tears because the UK monetary authorities were ultimately not prepared to accept the constraints implied by the circumstances of late 1992 - that is, higher interest rates or devaluation against the DM. The crisis of September 1992 led to a recognition of the time-inconsistency problem and of the authorities' own loss of credibility. A new framework for monetary policy was put in place, which involved an inflation target and a new openness in monetary policy associated with the granting of some limited and informal autonomy to the Bank of England. The outcome of the new framework is so far unimpressive in terms of inflation, expected inflation and credibility, and these findings are consistent with an analysis of the process by which the new arrangements operate. In particular, the focus on the inflation rate expected in two years' time allows a great deal of scope for discretion, and the monetary decision-making process leaves open the possibility that the Chancellor is seeking to recoup the power lost from the Treasury to the Bank of England and to return to traditional forms of political manipulation of monetary policy. At the same time the new arrangements do not provide a clear answer to the vexed question of the exchange rate.

The new framework remains, therefore, highly unsatisfactory and is likely to become, if anything, more unsatisfactory in the light of the Chancellor's apparent victory over the Bank of England during the summer of 1995. The central problems facing UK monetary policy remain (a) how to achieve credibility and avoid the costs of time-inconsistency, and (b) whether and how to attempt to control the level and/or the variability of the exchange rate. The obvious answer to the first problem is the one answer that has not yet been tried (although Lawson proposed it to Thatcher in November 1988[55]): making the Bank of England statutorily independent, with a mandate to keep prices stable. This measure would also go a long way to allowing successful membership of the ERM or, indeed, of EMU, thereby providing an answer to the second problem as well.

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Table 1: Basic annual data

	1989	1990	1991	1992	1993	1994
GDP growth (factor cost, average estimate)	2.3	0.6	-2.1	-0.5	2.2	3.9
Inflation (RPI) (%) *	7.8	9.5	5.9	3.7	1.6	2.5
Inflation (RPIX) (%) *	5.9	8.1	6.8	4.8	3.0	2.4
Inflation (GDP deflator) (%) *	7.6	7.8	5.3	4.7	3.5	1.9
Unemployment (% of workforce)	6.3	5.7	7.8	9.6	10.3	9.5
Current account (% of GDP)	-4.1	-3.5	-1.6	-1.8	2.0	0.3
M0 growth (%) *	5.4	5.0	2.5	2.0	5.3	6.8
M4 growth (%) *	18.0	15.6	7.6	4.7	3.5	5.1
Short term (money market) interest rates (ave)	13.9	14.7	11.8	9.6	5.6	4.8
Long term (govt bond) interest rates (average)	9.6	11.1	9.9	9.2	7.9	8.1
Effec exch rate (1985=100) (average)	92.6	91.3	91.7	88.4	80.2	80.2
DM per £ (average)	3.08	2.88	2.93	2.75	2.48	2.48
$ per £ (average)	1.64	1.79	1.77	1.77	1.50	1.53
General govt financial balance (% of GDP)	0.9	-1.2	-2.6	-6.1	-7.9	-6.5
General govt net financial liabilities (% of GDP)	30.6	28.8	30.2	35.2	41.2	45.4

Note: * average of four-quarter growth rates.
Sources: *Economic Trends, Economic Trends Annual Supplement, International Financial Statistics*, *OECD Economic Outlook*, various issues.

Table 2: The degree of agreement between Governor and Chancellor

	C1	C2	C3	C4	C5
B1					
B2	**1**	**3**			
B3			**3**		
B4			**2**	**7**	
B5				**3**	**3**

The entry in each cell indicates the number of Monthly Monetary Meetings at which the views on interest rates expressed by the Governor and Chancellor were those defined by the rows and columns concerned.

Key: C = Chancellor of the Exchequer
B = Bank of England Governor
1 = wants cut in interest rates
2 = bias towards cut but not justified in this case
3 = no bias for or against cut/rise
4 = bias towards rise but not justified in this case
5 = wants rise in interest rate

Endnotes

1. See Artis (1989, 1990) for broader accounts of the UK debate on ERM entry, and Johnson (1994) for an overview of the UK's ERM experience.

2. There is a methodological assumption here, that what the various monetary authorities (Treasury and Bank of England) say about their intentions and objectives is at least a part of the truth, and is taken as such by the financial markets.

3. See Brown (1990) for a more detailed discussion of the evolution of monetary and exchange rate policy during the 1980s.

4. The way in which the authorities 'picked the numbers' of the target ranges is discussed in Cobham (1989a), and the role of financial innovation is discussed in Cobham (1989b)

5. Overfunding means selling public sector debt to the private sector in excess of the public sector borrowing requirement. Other things being equal it restrains the growth of bank deposits, but creates shortages of bank liquidity whose relief leads to other complications. See Cobham (1995a) and Goodhart (1991).

6. A new target for £M3 was announced in the 1986 Budget but again overshot, and broad money targets were formally abandoned in the 1987 Budget. Targets for M0, a definition of the monetary base, remained but it was never clear how much the authorities actually treated M0 as a target (rather than an information variable).

7. Cobham (1995a) discusses the relative contributions to the boom of financial liberalisation and the excessive depreciation of 1986.

8. *Bank of England Quarterly Bulletin*, August 1989, p. 373. In a lecture given a year after the UK joined the ERM the Governor talked positively about membership, emphasising the successful reduction in both inflation and interest rates over that period and saying that "ERM membership has of course greatly reinforced the credibility" of the UK's "continuing counterinflationary commitment" (*Bank of England Quarterly Bulletin*, November 1991, p. 517).

9. See, for example, the Governor's remarks reprinted in the *Bank of England Quarterly Bulletin*, February 1990, pp. 60, 64.

10. *Bank of England Quarterly Bulletin*, May 1990, pp. 220, 219.

11. See, for example, the Governor's speech in July 1989, *Bank of England Quarterly Bulletin*, August 1989, pp. 372-3. See also Lawson (1992, eg chapter 71); Thatcher, (1993, chapters 24 and 25).

12. See Major's statement to the House of Commons on 15 October 1990 (Hansard vol. 177, col. 928): "A firm exchange rate is a vital part of our policy to maintain tight monetary conditions in order to reduce inflation... [ERM membership will be] an additional discipline

for the United Kingdom *economy*," (emphasis added), and the Bank of England's announcement of entry in the *Bank of England Quarterly Bulletin*, November 1990, p. 439

13. Thatcher (1993, p. 724).

14. See, for example, the *Economist*, 13.10.90, pp. 13 and 29; Lawson (1992, p. 1009).

15. *Bank of England Quarterly Bulletin*, November 1990, p. 485.

16. Marsh (1994, p. 158).

17. See OECD (1991, Annex 2), which concluded that sterling did not appear to be significantly over- or under-valued in real terms compared to historical averages, Treasury (1990-91) and Williams (1991). See also Allsopp (1994), one of the few who continued to argue this case after Black Wednesday.

18. *Bank of England Quarterly Bulletin*, February 1991, p. 54.

19. *Bank of England Quarterly Bulletin*, August 1989, p. 374. See also the *Economist*, 6 October 1990, p. 133.

20. *Bank of England Quarterly Bulletin*, August 1990, p. 326; November 1990, p. 442.

21. The Bank of England regarded the interest rate and exchange rate as two aspects of the stance of monetary policy. For example, the Bank had commented on the interest rate cuts following the appreciation of sterling in March-April 1988 as follows: "...the combination of a stronger currency and lower interest rates does not represent an ideal response to current concerns and a different balance would be desirable if it could be achieved." (*Bank of England Quarterly Bulletin*, May 1988, p. 162; see also p. 181). Lawson (1992, p. 836) records that Thatcher was infuriated by this remark.

22. Consumer prices, data from OECD Main Economic Indicators.

23. Lawson (1992, p. 503).

24. See Allsopp (1994, p. 142).

25. *Bank of England Quarterly Bulletin*, February 1991, pp. 29, 30.

26. This is the figure for the RPI; RPIX inflation (which excludes mortgage interest payments and therefore the effect of cuts in interest rates) was 4.3% in 1992 Q3.

27. By late 1991 the Treasury was hailing the unusually small differential between German and UK (short term) interest rates as "a rare event... in part due to the perceived discipline of the ERM commitment," but also partly the result of "the substantial progress in convergence of UK inflation towards German inflation seen over the last year" (Davies, 1991-92, p. 36).

28. *Bank of England Quarterly Bulletin*, February 1991, p. 7; May 1992, p. 126. Later figures show that GDP began to rise in 1992 Q2, but contemporary data did not indicate an unequivocal upturn until well into the following year (*Bank of England Quarterly Bulletin*, May 1993, p. 167, referring to 1993 Q1).

29. But see Eichengreen and Wyplosz (1993) and Cobham (1995b).

30. *Bank of England Quarterly Bulletin*, February 1992, pp. 36-7.

31. *Bank of England Quarterly Bulletin*, May 1992, pp. 156, 159-62.

32. *Bank of England Quarterly Bulletin*, August 1992, p. 274.

33. *Bank of England Quarterly Bulletin*, November 1992, p. 388.

34. *Bank of England Quarterly Bulletin*, November 1992, pp. 389-90. These included relieving money market shortages early in the day, allotting no bills at all in the Treasury bill tender on 28 August, not cutting the tap prices of gilts for which demand had dried up, and issuing gilts designed to appeal to domestic rather than international investors.

35. On 20 July the government "attempted to head off a widespread rise in the cost of home loans" by cutting the rate on a highly successful new National Savings product, the First Option Bond (*Financial Times*, 21.7.90); on 5 August it cut rates on a variety of other National Savings products "in a move apparently aimed at avoiding mortgage rate increases by building societies" (*Financial Times*, 6.8.90).

36. *Bank of England Quarterly Bulletin*, November 1992, p. 388.

37. *Treasury Bulletin*, summer 1992, vol. 3, no. 3, pp. 59, 61. The latter point was in line with the article by Davies (1991-92) previously referred to. The Chancellor also ruled out interest rate cuts themselves, in or out of the ERM.

38. *Financial Times*, 11.9.92. This speech was described in an article the next day headlined 'Major gambles his authority on the pound' as representing the "return of conviction politics", rather than "the ritual pledge of a prime minister in the heat of battle with speculators on foreign exchange markets". (*Financial Times*, 12/13.9.92).

39. See *Financial Times*, 7.9.92, for a contemporary report, and Norman (1992) and Norman and Barber (1992) for the more complete story which came out later.

40. *Bank of England Quarterly Bulletin*, November 1992, pp. 384-5, 389.

41. Ridley was Trade and Industry Secretary at the time, but had been in the Cabinet since the early 1980s and was a close ally of Thatcher. He made a serious of remarks in an interview with the *Spectator* magazine which were interpreted as xenophobically anti-German.

42. See also Treasury (1992), King (1994) and Bowen (1995).

43. An earlier Treasury statement had referred to a longer term target of 2% or less, "levels that match the best in Europe" (Treasury, 1992, p. 2).

44. The normal procedure for Bank statements and for the *Bank of England Quarterly Bulletin* has been that the Treasury vets them and can insist on changes before publication.

45. Inflation targets have also been adopted in a number of other countries in recent years (Leiderman and Svensson, 1995).

46. Treasury (1992, p.3); King (1994, p. 123).

47. In his resignation speech from the post of Chancellor, Lamont revealed that he had tried for two and a half years to persuade the prime minister to accept central bank independence, which would have enabled interest rates to be lower for a given exchange rate, made policy more credible and ensured the necessary discipline (*Hansard* 9.6.93, vol. 226, cols. 283-4). Major's reply took the standard line that it was not possible to make the Bank independent without loss of Parliamentary accountability (Hansard vol., 226 col. 297). The OECD (1993, p. 43) noted the failure of the new proposals to "address the monetary policy conflict between short- and long-term incentives under present institutional arrangements", and suggested central bank independence as a way of dealing with the problem.

48. See Deacon and Derry (1994), King (1995) and Breedon (1995). The Bank's estimates are now publicly available, and end-month data provided by the Bank were used to generate Figures 1 and 2.

49. But see Breedon (1995) for the tendency of these estimates in the past to over-predict inflation, possibly because of an inflation risk premium.

50. Quarterly data (averages of daily data) from *International Financial Statistics*, various issues.

51. See for example Bean (1983) for a more formal evaluation of nominal income targets, and Haldane et al. (1995) for a specific proposal for the UK.

52. See Cukierman (1995) for further discussion and a comparison of inflation and monetary base targeting.

53. See Cobham (1991) and Allsopp (1991).

54. The stories deserve to be analysed fully in a game-theoretical setting which includes the responses of the Bank of England and of the financial markets. However, with respect to 1994-95 it seems probable that - if these stories are true - the Bank did not respond directly and was simply outmanoeuvred.

55. Lawson (1992, pp. 867-72; 1059-61). In the UK context an important contribution to the public debate has been made by the Roll Committee (Roll et al., 1993).

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