# Monetary Policy Transparency: Too Good to be True?[1]

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## Abstract

In the last fifteen years or so the conduct of monetary policy in developed economies has converged in a number of ways which include an increasing emphasis on 'openness' and 'transparency' in policy-making.

There is a widespread belief that transparency in the conduct of UK monetary policy has increased substantially since, and because of, the introduction of inflation targeting and associated institutional reforms in 1992. A large measure of this belief is based upon studies which reveal the increased ability of money market agents to anticipate accurately the change in official rates. In this paper, we have updated one of those studies and show that the findings are largely unaffected by events of the last five years. More interestingly, perhaps, we have floated the possibility that this improved anticipation may be the result of developments other than institutional reforms. For example, it is notable that the Bank of England has made fewer and smaller interest changes since 1992. It is also widely believed (and the behaviour of many macro variables suggests this) that economies have generally become more stable since 1992. If this is true, then macroeconomic forecasts in general should have improved and the increased anticipation would be, partly at least, due to this rather than institutional changes. We test both theses hypotheses with negative results.

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## 1. Introduction

In the last fifteen years, there has been a striking convergence in the operation of monetary policy by the major central banks. There has been a general agreement that independent central banks help remove the inflation bias resulting from the time inconsistency of monetary policy when conducted by elected governments. At much the same time, there emerged a consensus that some short-term nominal interest rate was the appropriate instrument of policy (and even that it should be set by the use of repo deals in government stock (Borio, 1997)). More recently, we have seen the widespread adoption of direct inflation targeting and steps to increase the openness or 'transparency' of monetary policy decision-making.

As we shall see, the evidence that transparency in monetary policy has increased, comes now in a variety of forms, ranging from a 'characteristics' approach, reminiscent of the tests for central bank independence of some fifteen years ago, through surveys of the views of practitioners in financial markets to 'direct' tests of agents' ability to anticipate policy actions based on the behaviour of short-term market interest rates.

Whatever form the tests take, the consensus is that transparency has increased. At worst, some evidence could be taken as inconclusive; but there is a widespread belief, based on the majority of the studies, that agents have a better understanding of the conduct of monetary policy and that this has come about *as a result of institutional and procedural changes introduced by central banks themselves.*

Such a consensus amongst economists should always be regarded with suspicion (and no doubt with disbelief by the media). The main purpose of this paper, therefore, is to raise and to test the possibility that the improved ability of agents to anticipate the behaviour of the UK's central bank in the setting of interest rates, comes from some other source altogether. We consider two possible sources. The first is the change in the Bank's own interest setting behaviour, whereby changes in the official rate have become smaller and less frequent. The second is rather more far-reaching and looks at whether the macroeconomy itself has become more stable and more easily forecastable. If so, then the anticipation of policy response is just a special case of the general predictability of the economy. As a result of the greater stability, everything is easier to foresee and this includes official decisions about interest rates.

In section 2 we look briefly at some of the tests of transparency that have taken place in recent years, distinguishing the various approaches but concentrating on those which have featured the behaviour of market interest rates.

In section 3 we estimate a model of market interest rate behaviour which enables us to measure the degree of surprise occurring on the day of an announcement of a change in the policy rate. The model is essentially similar to that used in other studies and our purpose in estimating it here is simply to update previous studies to ensure that nothing has changed in the meantime. The model includes a dummy variable for '1992', the year in which inflation targeting was adopted, so that we can compare the degree of anticipation over the whole sample period with that which has occurred since the adoption of that particular regime. Our estimations suggest that the earlier findings have been unaffected by recent events and that therefore the hypothesis that transparency has increased since the introduction of inflation targeting remains apparently well-supported.

In section 4 we test two alternative hypotheses. The first is that the change in the Bank's own operating procedures may have made it easier to anticipate changes in the official rate. Our results show, surprisingly in our view, that the smaller and less frequent changes in interest rates since 1992 have not contributed significantly to agents' improved ability to anticipate official moves. The second is that the UK economy, like many others, has behaved in a more stable manner since the early 1990s and that consequently, with lower uncertainty, many things have become easier to foresee. We test this by looking at the forecast errors from a wide range of private sector forecasts. A necessary condition for our hypothesis to hold is that we should see a general reduction in the size of these errors over time. It is not obvious that these errors have diminished.

In section 5 we summarise and conclude.

## 2. The story so far

The arguments for transparency are well-known and we shall not repeat them in detail.. Very briefly, they include a link with credibility in so far as being open about the inflation target and operating methods makes it easier for agents to hold the central bank to account. Through this link the sacrifice ratio is reduced. (Chortareas *et al.*, 2003). A second argument is that transparency, when it extends to the model of the economy with which the policy-makers are operating, helps anchor the public's expectations about future policy moves (Bean, 1998 p.1796). This is the main argument behind the Bank of England's ambition to make monetary policy 'boring' (King, 1997, p.440). If agents understand how the central bank's mind works, then they can anticipate the next policy move, as though they were making policy for themselves. In these circumstances, the 'news' is in current economic developments and not in any subsequent interest

rate change that the central bank might initiate in response. If this can be achieved, then monetary policy actions themselves no longer risk adding to the noise and general instability in the economy. A third argument follows from the breakdown of the policy ineffectiveness proposition. This is that monetary policy actions do have an effect upon the real economy but that the transmission mechanism often involves medium or long-term interest rates, while the policy instrument is invariably a very short-term rate. What links the two is often said to be 'expectations' and from this it is argued that agents' expectations are more likely to be correct if they fully understand the thinking behind the authorities' actions. If all this is true, then policy transparency enhances the effectiveness of stabilisation policy. (Blinder *et al.*, 2001; De Haan and Amtenbrink, 2002; Woodford, 2001; Freedman, 2002). Two major surveys of the transparency literature are provided by Hahn (2002) and Geraats (2002).

Whether the steps taken to increase transparency have actually achieved that end (and brought the benefits) is another matter. Typically, transparency is said to be enhanced by some or all of: a fixed schedule of policy decision dates; the publication of the minutes of the meeting at which the decision is taken; publication of the voting record (where a committee is involved); a quantified inflation target; publication of the macroeconomic data underlying the decision; and an explanation of the macromodel used by the policy-makers. For the UK, these are developments which for the most part accompanied the introduction of inflation targeting in 1992.[2]

Early studies of the amount of transparency in any given regime proceeded by checking off these 'characteristics' against the operating procedures of each major central bank, in a manner very similar to that of the early central bank independence work. Examples include: Fry *et al* ( 2000), Eijffinger and Geraats (2002), De Haan and Amtenbrink (2002) and Gros and Bini-Smaghi (2000). But more recent work has focused on the evidence revealed by the behaviour of money market interest rates. The argument here is that money market practitioners are well-informed professionals, responsible for managing large volumes of funds on which very small movements in interest rates can mean significant gain or loss. Expectation that the central bank is going to raise rates, for example, will entail the matching expectation that money market instruments of that maturity will fall in value. Dealers will sell to avoid the loss and money market instruments will show the change in price/yield before the date of the announcement.

Those papers that have tested money market responses to official interest changes *as evidence of transparency* are, in effect, bringing together two sets of ideas each of which independently goes back some way.[3] On the one hand there is the theoretical argument that

[2] See Bowen (1995) for a discussion of the thinking behind the switch to inflation targeting and the institutional changes which accompanied it. Also Haldane (1997).

[3] One might argue for three sets of literature. Looking for signs that markets anticipate official announcements is very reminiscent of the 'event study' approach to testing the semi-strong form of the efficient market hypothesis. The

secrecy in policy making influences the volatility of asset prices. Goodfriend (1986) and Dotsey (1987), for example, showed that secrecy in policy making lowered the unconditional volatility of interest rates. However, lowering the *unconditional* variance of asset prices implies *raising* the conditional variance. Secrecy shrinks the feasible information set of agents; it makes the authorities' reaction function less transparent. As a result, secrecy induces larger and more frequent forecasting errors. In the case of monetary policy, for 'asset prices' read 'interest rates'. The other, more voluminous, literature concerns the link between official rates (or other monetary policy announcements) and market rates. Included here is the work of Shiller, Campbell and Shoenholtz (1983), Hardouvelis (1984) for monetary policy news in general; and Cook and Hahn (1989), Radecki and Reinhart (1994), Dale (1993), Hardy (1996).

For the USA, Kuttner (2001) and Poole, Rasche and Thornton (2002) have all documented the ability of money markets to anticipate monetary policy changes, the latter showing that anticipation has improved since the Federal Reserve began announcing its target for the Federal Funds rate in 1994. One of the earliest market-based studies of transparency was done by Daniel Hardy for the IMF in 1998. It showed that German money markets had little difficulty in anticipating Bundesbank interest rate decisions. In 2002, again for the IMF, Ross looked at the performance of the ECB after three years of operation. and compared it with the Federal Reserve and the Bank of England. He found that '… all three central banks are relatively predictable institutions.'

For the UK two papers, by Chadha and Nolan (1999) and Caporale and Cipollini (2001), approach the question of transparency through the volatility of market rates. The former tested for a direct relationship between interest rate volatility in the UK and transparency measured by (i) the publication of minutes of the MPC meetings, (ii) the effects of announcements on the interest rate decisions of the MPC and (iii) the publication of the *Inflation Report*. None of these factors seemed to affect volatility significantly. They also experimented with dummy variables accounting for days on and before announcement day and found mixed significant effects from these dummies on volatility over selected periods in the UK. They conclude that their results are '… simply picking up the fact that markets are continually adapting to new information' (Chadha and Nolan, 1999, p.20). Caporale and Cipollini (2001) found that in Euroland and the US volatility is higher before the change in policy rate than after the decision, which may indicate that agents adjust to information before the policy change relatively more than after the change.

The paper by Haldane and Read (2000) looked at the effect of monetary policy 'surprises' on the yield curve. Its relevance to us is that it finds (for the UK) that the effects of policy news

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market is semi-strong form efficient if the news (of earnings, takeover bid etc.) is in the price by the time of its official announcement.

on the short end of the yield curve have diminished since the introduction of inflation targeting (though they remain high by comparison with the US and with Germany). This, they put down to the increasing transparency of policy. The sample in the Haldane and Read paper is 1984 to 1997 and they look at the response of interest rates of eight different maturities up to 20 years. In the section that follows, we examine the surprise contained in changes in market rates at four maturities at the shorter end and we bring the story more up to date by using data to the autumn of 2003.

Taken together, market-based tests of transparency show remarkable agreement that monetary policy making by the major central banks, including the Bank of England, have made considerable progress in communicating their approach to interested agents. In the next section, using an approach similar to that of Haldane and Read (2000), we update the situation for the UK before going on to consider the hypothesis that this apparent increased transparency in policy-making may be due to circumstances other than procedural and institutional innovations.

## 3 Updating the evidence

Participants in money markets lend to each other at different maturities. Banks that lend on money markets will not borrow from each other at rates that differ greatly from that of the Central Bank. Money market interest rates thus reflect the actual and expected path of the official interest rate. If money market participants expect the Central Bank to change the official rate, short-term money market rates will incorporate agents' expectations over future Central Bank official rates for the reasons of commercial self-interest that we referred to in the last section. To the extent that agents guess correctly, money market rates will change *before* the change in the official rate occurs. We refer to this as anticipation of monetary policy.

How do agents form expectations of future official rates? If the official rate is set according to a monetary policy rule, a Taylor-type rule, for example, then, provided that the central bank published the rule, agents would have a relatively simple task. However, central banks have always denied that they operate such a rule, at least in a mechanical way, while not denying that the size of the 'output gap' and the divergence of current inflation from target are important inputs to their decisions. After all, if monetary policy decisions were simple rule-driven, one would not require a Monetary Policy Committee and two days of deliberation to make them (Bean and Jenkinson, 2001).

This does, of course, raise the question of how exactly agents do form their judgments of the next change in rates. In the course of preparing the data for the estimations (described below) we took steps to avoid introducing any bias in the results by ensuring that we omitted any case where a change in the official rate was *clearly* foreshadowed by any comment from a senior

member of the Bank of England.[4] We did this by reviewing the *Financial Times* in the seven days prior to any change. In practice we found no such cases but the investigation did reveal very clearly the way in which the *Financial Times* formed its judgements about the impending rate decision. This was done by looking at the voting record at the previous meeting and looking at any major macroeconomic news that had appeared in the meantime. Thus, if the vote had been 5 for leaving the rate unchanged and 4 for raising it and in the interim the CSO had released data about faster than expected growth in GDP, the *FT* would be confident in its prediction of a rate rise. (On the evidence of this rather unscientific survey, the *FT* was generally correct). Two working papers by the Spanish investment bank BBVA, suggest that ECB and Federal Reserve interest rate decisions are well-predicted by a forward-looking Taylor rule (Doménech, Ledo and Taguas 2000 and 2001). In the circumstances, it is obviously possible that traders do forecast on the basis of a Taylor rule even though central banks deny using one. We simply do not know.

However, because policy decisions are to some degree discretionary, agents do not have perfect knowledge of future Central Bank policy. Depending on the amount of Central Bank transparency, some degree of surprise will remain and the yield curve will jump on the day of announcement, where the size of the jump depends on the extent of Central Bank transparency.

To extract some measure of policy surprise along the yield curve, we estimate the change in the market interest rate as follows (see Haldane and Read, 2000):

$$\Delta mar_{t,j} = c_j + \beta_j(L)\Delta mar_{t,j} + \lambda_j \Delta pol_t + \delta_j D92\Delta pol_t + e_t \qquad (1)$$

The subscript *j* stands for the term to maturity. The variable *mar* indicates the market rate, *pol* stands for the official rate and *D92* is an impulse dummy with the value 1 from November 1992 and zero otherwise.

We use daily data for the UK from January 1984 until mid-October 2003. The market interest rates are the yields on Certificates of Deposits with a maturity of 1, 3, 6, and 12 months. This gave us about 5000 observations on each maturity. During this period, the Bank of England changed the official rate exactly 100 times.

Lags of the dependent variable were included to reduce serial correlation. However, as the results below show, most of the lags are insignificant. The coefficient λ measures the average interest rate surprise over the full sample. If λ=0, the market rate does not change in response to the change in the official rate and policy was fully anticipated before the Central bank changed the official rate. Similarly, if λ=1, market agents are completely taken by surprise by Central Bank policy with all adjustment taking place on the day of announcement.

[4] At Charles Goodhart's suggestion.

The coefficient δ measures the effect of the inflation target regime and its transparency reforms on average interest rate surprises. Those reforms include the publication of the inflation report, scheduled meetings and the publication of minutes of monthly monetary meetings, to name a few. If δ=0, then there is no (downward) shift in interest rate surprises caused by the more transparent regime in the recent period. If transparency causes agents to find it easier to anticipate Bank of England policy, we expect the sign of δ to be negative. The sum of the coefficients λ and δ measures the size of the average interest rate surprise along the yield curve during the later period of inflation targeting and greater Central Bank transparency.

Table 1 below shows the results of equation (1). The model was estimated using OLS. The last column of Table 1, which reports the Lagrange Multiplier test for serial correlation of up to order 15, shows that all equations have significant levels of serial correlation. In the light of this, the t-values in brackets in Table 1 are calculated on the basis of Newey-West adjusted standard errors to ensure consistency.

**Table 1: The policy surprise in short-term interest rates**

| $Rate_j$ | c | $\beta_{j,1}$ | $\beta_{j,2}$ | $\beta_{j,3}$ | $\lambda_j$ | $\delta_j$ | $R^2$ | LM |
|---|---|---|---|---|---|---|---|---|
| 1 Month | -0.001<br>(0.85) | -0.029<br>(0.94) | -0.018<br>(0.54) | 0.001<br>(0.02) | 0.430<br>(4.90) | -0.322<br>(3.03) | 0.13 | 379.3 |
| 3 Months | -0.001<br>(0.85) | -0.021<br>(0.46) | -0.072<br>(1.63) | 0.039<br>(1.34) | 0.133<br>(2.35) | -0.105<br>(1.36) | 0.02 | 162.7 |
| 6 Months | -0.001<br>(0.89) | -0.093<br>(1.95) | -0.066<br>(1.59) | 0.000<br>(0.00) | 0.308<br>(4.05) | -0.300<br>(3.39) | 0.07 | 133.6 |
| 12 Months | -0.001<br>(0.81) | -0.021<br>(0.54) | -0.100<br>(2.05) | -0.004<br>(0.18) | 0.248<br>(3.83) | -0.209<br>(2.76) | 0.05 | 114.6 |

Turning first to $R^2$, we note that between 2 and 13 per cent of the average variation in the market rate is explained by the model. The policy surprise coefficient λ is significant along throughout the yield curve. Taking the sample period as a whole, between about 25 and 45 per cent of a policy rate change comes as a surprise on the day of the announcement when considering the total sample period. The exception to this is the surprise effect of only 13 per cent for the 3-month CD rate. On the whole, this nevertheless suggests that actual Central Bank policy is some news to agents and shifts the yield curve on the day of announcement. These results indicate that the Bank of England has an information advantage on macroeconomic development over private agents.

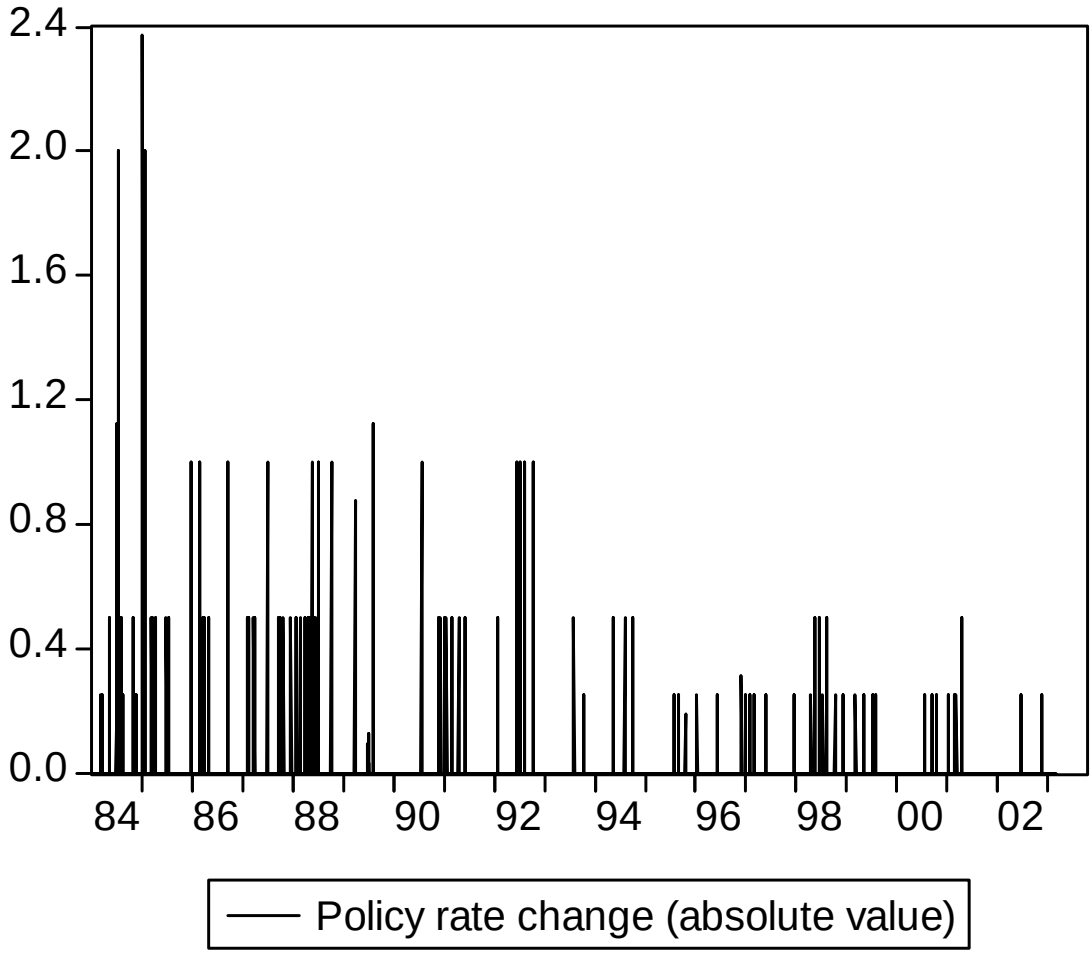
The coefficient of the dummy variable is also significant throughout the yield curve (again, with the exception of the 3-month CD-rate) suggesting that the change to institutional arrangements with the introduction of inflation targeting has improved transparency. This is confirmed when we look at the later period (from November 1992 onwards), where only about between 8 and 11 per cent of the policy rate changes are not anticipated on the day of announcement.

**4. Alternative possibilities**

The results in the previous section suggest that transparency and inflation targeting improved agents' ability to anticipate monetary policy. The questions we want to address here are, firstly, whether the recent improvement in policy anticipation may be due to the recent period of relatively infrequent and only moderate (usually 25 basis points) changes in the official rate. Secondly, we test whether macreconomic forecasting has improved over the last 10 years or so. If this were the case, then the gain in Central Bank policy anticipation may (at least partly) be explained by agents' improved predictions of the future development of the economy.

Turning to the first question, it seems reasonable to assume that when Central Banks do not change the official rate over long periods of time (because of a stable macroeconomy or otherwise) and when they change it, they change it by a constant amount, agents may find it easier to predict official rate moves. Higher volatility increases agents' uncertainty of the future and will make it more difficult for agents to anticipate policy changes. If it was more difficult to anticipate official rate changes before 1992, because of the manner in which changes were made, then we must credit this change in operating procedure in the later period with some of the increased anticipation which has hitherto been put down to the greater release of information. To test for this, we compared the number and magnitude of policy changes between the pre- and post October 1992 periods. In the earlier period, the median of policy changes was 50 basis points, compared to a median of 25 basis points in the more recent period. During the first nine years, the official rate was changed 62 times, compared with 38 times over the following eleven years. In the first period, 24 per cent of all changes were sign changes, compared with 18 per cent of sign changes in the later period.

We measure uncertainty as the *absolute* change in the policy rate over time. The graph below shows the absolute change in the policy rate between consecutive changes in the official rates. The vertical axis shows the changes in the official rate in percentage points. Clearly, as the statistics above summarised, the graph illustrates that the policy rates changed more frequently and at greater absolute magnitude in the period from January 1984 until October 1992 than in the later period.




In order to test whether Central Bank policy anticipation was more difficult during the times of greater volatility, we constructed an additional variable which we added to the model in (1). This variable ( $\gamma_j \Delta pol25_t$ ) only contained absolute policy changes of more than 25 basis points.

$$\Delta mar_{t,j} = c_j + \beta_j(L)\Delta mar_{t,j} + \lambda_j \Delta pol_t + \gamma_j \Delta pol25_t + \delta_j D92\Delta pol_t + e_t \qquad (2)$$

We expect the coefficient γ to be positive if greater uncertainty made it more difficult for agents to anticipate policy changes. The sum of the coefficients λ and γ measures the average degree of surprise during the period of greater Central Bank policy variability. In other words, γ measures the additional surprise generated by increased uncertainty. Likewise, an insignificant coefficient of γ would indicate that greater official rate changes do not affect agents' ability to anticipate Central Bank policy.

The results of the estimation including the momentum variable $\gamma_j \Delta pol25_t$ are shown in Table 2, where the coefficient γ measures the size of its effect.

**Table 2: The effect of large and frequent interest rate changes**

| $Rate_j$ | c | $\beta_{j,1}$ | $\beta_{j,2}$ | $\beta_{j,3}$ | $\lambda_j$ | $\delta_j$ | $\gamma_j$ | $R^2$ | LM |
|---|---|---|---|---|---|---|---|---|---|
| 1 Month | -0.002 | -0.031 | -0.016 | -0.003 | 0.386 | -0.230 | 0.119 | 0.14 | 310.1 |
| | (1.66) | (1.04) | (0.47) | (0.10) | (5.44) | (2.56) | (1.85) | | |
| 3 Months | -0.001 | -0.017 | -0.074 | 0.036 | 0.151 | -0.145 | -0.053 | 0.02 | 201.5 |
| | (0.50) | (0.37) | (1.63) | (1.36) | (2.41) | (1.44) | (0.91) | | |
| 6 Months | -0.002 | -0.093 | -0.064 | -0.000 | 0.292 | -0.268 | 0.042 | 0.07 | 109.7 |
| | (1.07) | (-1.94) | (1.61) | (0.00) | (3.75) | (2.67) | (0.60) | | |
| 12 Months | -0.001 | -0.021 | -0.099 | -0.004 | 0.235 | -0.182 | 0.035 | 0.05 | 92.39 |
| | (0.97) | (0.51) | (2.09) | (0.16) | (3.54) | (2.09) | (0.58) | | |

Note: OLS estimation and Newey-West adjusted *t*-values in brackets.

Except for the change in the yield on the 1-month CD, the momentum variable is insignificant while the remaining coefficients have not changed much compared to the results in Table 1. On the basis of these results, we reject the hypothesis that official rate volatility reduced anticipation. Returning to Figure 1, most of the greater changes in the official rate occur in the earlier period. We suspected that the combined dummy/policy variable distinguishing between the earlier and later periods measures some of the momentum variable effect. However, the correlation coefficient between the period dummy and the momentum variable is -0.156 and the correlation coefficient between the momentum variable and the policy variable is 0.271. It seems surprising, but on this evidence we are forced to conclude that it was not obviously more difficult for agents to anticipate Central Bank policy when the official rate moves substantially.

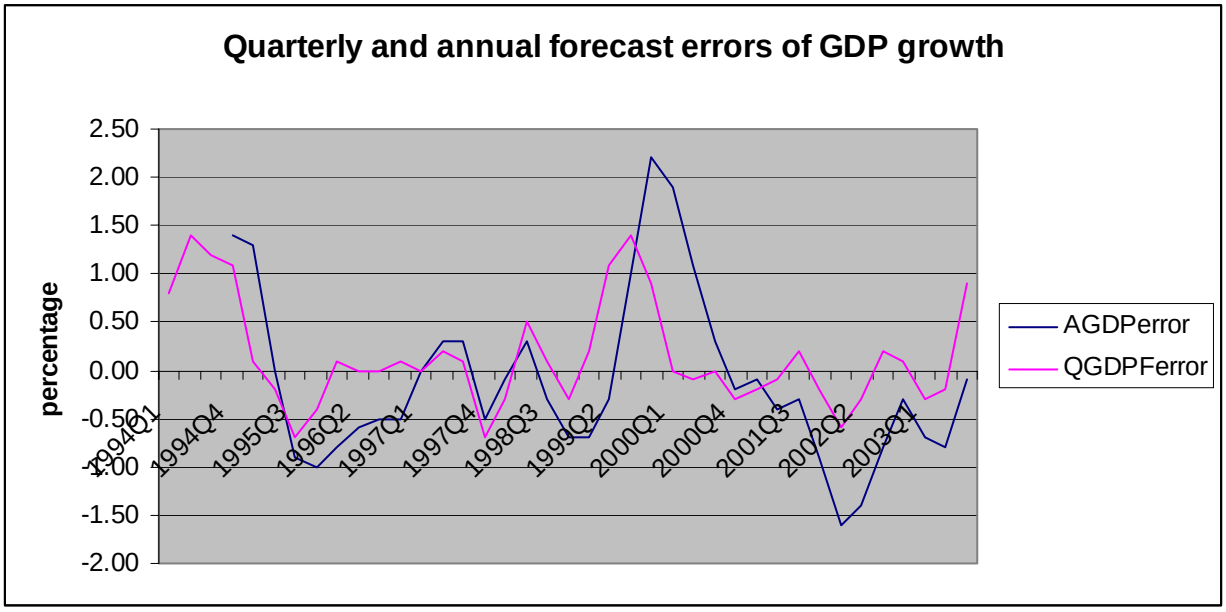
A second possibility that may explain (some of) the rise in policy anticipation since 1992 is, that macroeconomic forecasting in general has improved since the introduction of inflation targeting.[5] Forecasting improvements may come about through better econometric models and techniques, or, through a more stable macroeconomy. All should improve agents' ability to predict variables like inflation or GDP growth and, if the central bank's reaction function is well-understood, this will feed through to a better anticipation of changes in the official rate. If private agents (in particular) have improved their forecasting ability over time, then what

[5] We could have formulated our hypothesis sharper by comparing the forecasting ability of agents of macroeconomic variables before and after October 1992. However, we were constrained by the data to limit our attention to 1994 onwards.

appears as a gain in Central Bank policy transparency may be due the generally increased 'ease' of forecasting.

In order to test this hypothesis, we look at private agents' forecast errors of real economic growth and inflation over time. The data come from *Consensus Forecasts* which publish the mean (or consensus) forecasts of a group of mainly private economic forecasters, of a range of variables. We use their quarterly and annual forecasts from 1994 Q1 until 2003 Q4. Figure 1 shows the behaviour of quarterly (QFGDP) and annual (AFGDP) forecast errors of GDP.

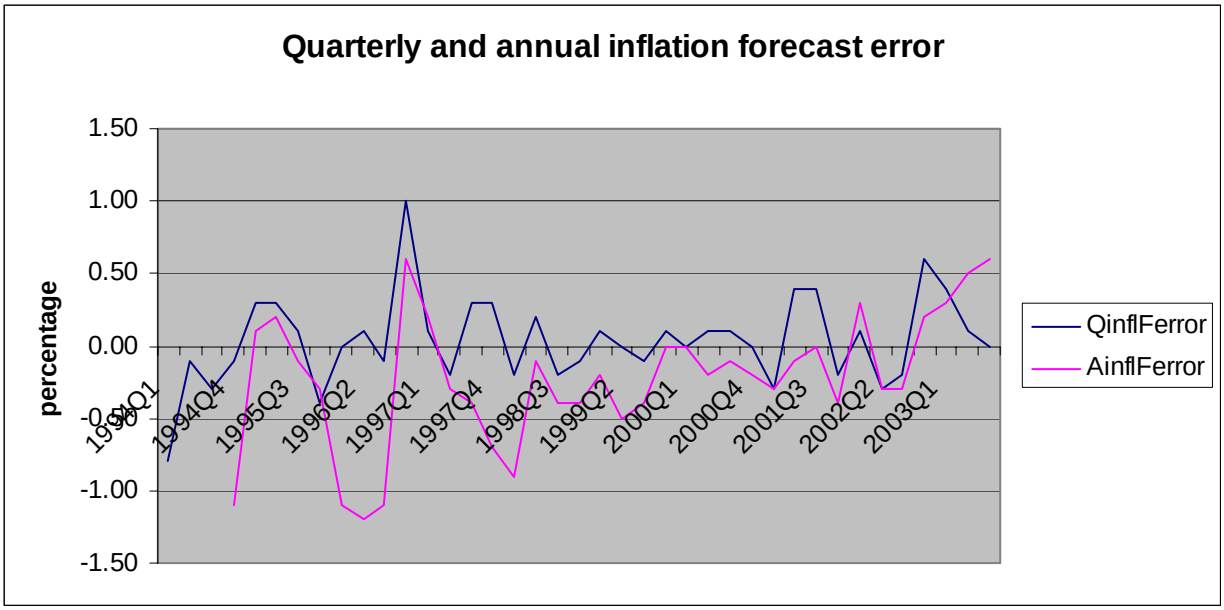
**Figure 1**




For most of the period, forecast errors for GDP growth are fairly low, particularly for the quarterly forecasts. There is though a substantial under forecast in 1994 and in 2000. The latter may be connected with the sharp fall in equity markets where agents may have tended to over-predict the effect on the economy and the following brief stagnation.

The following figure shows the quarterly and annual forecast errors for inflation rates. The measure for inflation is the change in the retail price index excluding mortgage payments. Generally, forecasting errors of inflation are lower than those for GDP growth with quarterly forecasts doing better again than annual forecasts. One-year-ahead inflation is badly predicted in 1996/7.

**Figure 2**




However, in neither figure does there appear to be any systematic change in forecasting errors over time. This result is confirmed by the regressions presented in Table 3, where the forecast errors of GDP and inflation are regressed on a constant and trend. If forecast errors declined over time, we would expect the coefficient of the trend variable to be significantly negative.

**Table 3: DGP and inflation forecast errors over time**

| Variables | FErrorQGDP | FErrorAGDP | FErrorQinfl | FErrorAinfl |
|---|---|---|---|---|
| c | 0.375<br>(1.25) | 0.179<br>(0.48) | -0.06<br>(0.5) | -0.574*<br>(3.04) |
| trend | -0.012<br>(1.04) | -0.017<br>(0.96) | 0.005<br>(1.01) | 0.020*<br>(2.38) |
| Diagnostics | | | | |
| $R^2$ | 0.06 | 0.04 | 0.04 | 0.21 |
| LM | 18.88* | 24.78* | 1.3 | 5.41* |

Note: Newey-West adjusted standard errors and covariances. '*' indicates that the coefficient is significant at the 5% level or less.

The coefficient of the trend variable in all cases is insignificant, except for the one-year-ahead inflation forecast. Notice though that this coefficient is *positive*, indicating, if nothing else, that inflation forecasts one-year ahead have become worse over time. For all other estimations, the results confirm the lack of

any trend shown in figures 1 and 2. This suggests, that private sector's ability to forecast macro economic variables have not changed in the UK over the last 10 years.

The extreme high annual under-predictions of GDP growth at the end of 1994 and at the end of 1999, the beginning of 2000, may have influenced our estimation results. Outliers are also present for the quarterly forecast of GDP growth at roughly the same times. We re-estimated the equations for GDP growth in the table above, this time eliminating the outliers. The coefficients on the trend variable did not change in either of the estimations.

Taking all the evidence together, we cannot say that apparent gains in transparency are the result of a general improvement in private agent's ability to anticipate the behaviour of the macroeconomy at large. Therefore, it appears that the gain in Central Bank policy anticipation is not due to agents' improving their forecasting abilities. We cannot reject the hypothesis that the increase in transparency owes something to the deliberate adoption of inflation targeting and other procedural innovations.

**V Summary and conclusion**

In the last fifteen years or so the conduct of monetary policy in developed economies has converged in a number of ways. One much-documented trend has been the move to central bank independence. In the last few years, however, a number of central banks have placed increasing stress on the transparency and openness of their policy-making procedures on the grounds that this improves monetary policy outcomes. A variety of studies, of very different types, have set out to measure the degree of (and changes in) the transparency of different regimes.

There is a widespread belief that transparency in the conduct of UK monetary policy has increased substantially since, and because of, the introduction of inflation targeting and associated institutional reforms in 1992. A large measure of this belief is based upon studies which reveal the increased ability of money market agents to anticipate accurately the change in official rates. In this paper, we have updated one of those studies and show that the findings are largely unaffected by events of the last five years. More interestingly, perhaps, we have floated the possibility that this improved anticipation may be the result of developments other than institutional reforms. For example, it is notable that the Bank of England has made fewer and smaller interest changes since 1992. Intuitively, this generally more stable environment should have made it easier to anticipate official changes when they do occur. But adding a variable representing the greater volatility of interest changes pre-1992, does not add anything to our ability to forecast official changes. The reduction in volatility does not, therefore, seem to be responsible for the improved anticipation. It is also widely believed (and the behaviour of many

macro variables suggests this) that economies have generally become more stable since 1992. If this is true, then macroeconomic forecasts in general should have improved and the increased anticipation would be, partly at least, due to this rather than institutional changes. But macroeconomic forecasts seem not to have improved over the last 10 years or so.

For the time being, we are left with the conclusion the monetary policy does now contain fewer surprises and that this owes something to the introduction of inflation targeting and the associated steps toward more openness.

## References

Bean C and Jenkinson N (2001) 'The formulation of monetary policy at the Bank of England', *Bank of England Quarterly Bulletin,* winter.

Bini-Smaghi, L and Gros, D (2000) *Open Issues in European Central Banking* (London: Macmillan).

Borio, C E V (1997) Monetary Policy Operating Procedures in Industrial Countries' (Basel: Bank for International Settlements) Working Paper no. 40.

Bowen, A (1995) 'Inflation Targetry in the UK', in A Haldane (ed) *Targeting Inflation* (London: Bank of England).

Caporale, M C and Cipollini, A (2001) 'The euro and monetary transparency', discussion paper, South Bank University.

Chadha, J and Nolan, C (2001) 'Inflation Targeting, Transparency and Interest Rate Volatility: Ditching 'Monetary Mystique' in the UK', *Journal of Macroeconomics*, 23.

Chortareas G, Stasavage D and Sterne G (2003) Does Monetary Policy Transparency Reduce Disinflation Costs?, *Manchester School*, 71 (5), September, 521-40.

Cook, T and Hahn, T (1989), 'The Effect of Changes in the Federal Funds Rate Target on Market Interest Rates in the 1970s', *Journal of Monetary Economics*, 24, 331-51.

Cornell, B (1983), 'Money Supply Announcements and Interest Rates: Another View', *Journal of Business*, 56, 1-23.

Dale, S (1993), 'The Effect of Changes in Official UK Rates on Market Interest Rates Since 1987', *The Manchester School*, Vol.LXI, 76-94.

De Haan, J and Amtenbrink F (2002) 'A non-transparent European Central Bank? Who is to blame?' Paper given at the conference on Monetary Policy Transparency, held at the Bank of England, 10 May 2002.

Doménech R, Ledo M and Taguas D (2000) 'Some new results on interest rate rules in the EMU and in theUS', BBVA working paper, 2/2000

Doménech R, Ledo M and Taguas D (2001) 'A small forward-looking macroeconomic model for the EMU' BBVA working paper, 2/2001

Dotsey, M (1987), 'Monetary Policy, Secrecy and Federal Funds Rate Behaviour', *Journal of Monetary Economics*, 20, 463-74.

Eijffinger S C W and Geraats P M (2002) 'How transparent are central banks'? Paper given at the conference on Monetary Policy Transparency, held at the Bank of England, 10 May 2002.

Freedman C (2002) 'The value of transparency in conducting monetary policy', *Federal Reserve Bank of St Louis Review*, July/August.

Fry M, Julius D, Mahadeva L, Roger S, and Sterne G (2000) 'Key Issues in the Choice of Monetary Policy Framework', in L Mahadeva and G Sterne, *Monetary Policy Frameworks in a Global Context*, (London: Routledge)

Geraats P M (2002) 'Central Bank Transparency', *Economic Journal*, 112, No.483, 532-565

Goodfriend, M (1986), 'Monetary Mystique: Secrecy and Central Banking', *Journal of Monetary Economics*, 17, 63-97.

Hahn V (2002) 'Central Bank Transparency: A Survey', *Ifo-Studien*, 48(3), 429-455

Haldane, A G (1997), 'Designing Inflation Targets', in P Lowe (ed.), *Monetary Policy and Inflation-Targeting*, Reserve Bank of Australia.

Haldane A G and Read V (2000) 'Monetary policy surprises and the yield curve', Bank of England Working Paper no. 102.

Hardouvelis, G A (1984), 'Market Perceptions of Federal Reserve Policy and the Weekly Monetary Announcements', *Journal of Monetary Economics*, 14, 225-240.

Hardy, D C (1996), 'Market Reaction to Changes in German Official Interest Rates', *Deutsche Bundesbank Discussion Paper No.4/96.*

King M (1997) 'The inflation target five years on', *Bank of England Quarterly Bulletin*, 37 (4), 431-42.

Kuttner K N (2001) 'Monetary Policy Surprises and Interest Rates: Evidence from the Fed Funds Futures Market', *Journal of Monetary Economics*, June 2001, *47*(3), 523-44.

Panigirtzoglou N, Proudman J and Spicer J (2000) 'Persistence and volatility in short-term interest rates', Bank of England, working paper.

Poole W, Rasche R H and Thornton D L (2002) 'Market Anticipations of Monetary Policy Actions', *The Federal Reserve Bank of St Louis Review*, 84(4), 65-94.

Radecki, L J and Reinhart V (1994), **'**The Financial Linkages in the Transmission of Monetary Policy in the United States', in *National Differences in Interest Rate Transmission*, Bank for International Settlements.

Shiller, R J, Campbell, J Y and Shoenholtz, K (1983), 'Forward Rates and Future Policy: Interpreting the Term Structure of Interest Rates', *Brookings Papers on Economic Activity*, 1, 173-217.

Woodford, Michael. (2001). Monetary policy in the information economy. Paper given at the Federal Reserve Bank of Kansas City conference *Economic Policy for the Information Economy*, Jackson Hole, Wyoming, August 2001.