Speech

The MPC: Some Further Challenges

Speech given by

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SUMMARY

1 THE PERFORMANCE OF THE NEW MONETARY FRAMEWORK

The new system appears to have made an encouraging start so far with inflation expectations having come down at a time when unemployment has continued to fall. The combination of steady growth and low inflation witnessed in recent years would have been the envy of previous generations of policymakers.

2 THE MPC'S FORECASTING PERFORMANCE

Despite this favourable combination, the MPC has, in the past, been criticised on account of its forecasting performance. I note that the actual outturn for inflation has always been lower than the MPC's two-year ahead forecast, with an average error of up to around 0.5%. A failure to allow for a fall in the level of unemployment consistent with stable inflation appears to have been an important contributory factor. Purely for illustrative purposes, I present some evidence based on a simulation exercise conducted on the Bank of England's core macroeconometric model suggesting that if interest rates had been held modestly lower over the MPC period, then, inflation would have been closer to target, the level of output would have been a little higher, and the path of output and inflation would have been more stable over the last three years. These are just the results of a mechanical exercise carried out on one model, and the time period considered is short. I would not wish to take the precise estimates too literally, but they are suggestive of gains had policy been a little less tight. Of course, one should not exaggerate the significance of these findings – it is always possible, with the benefit of hindsight, to see how one could have done better. Nevertheless, to the extent that policy was held too tight because of a biased forecast, a challenge for the future is to ensure that one learns any relevant lessons from the past.

3 CHANGES IN THE INFLATION PROCESS?

Theoretically, as an inflation-targeting central bank acquires credibility, one would expect the nature of the inflation process to change. I present statistical evidence suggesting that –

(i)   Changes in inflation now tend to be temporary, while, previously, they tended to be long-lasting.

(ii)   Cost shocks like changes in oil prices or exchange rates appear to have a smaller effect on inflation than is implied by historical relationships.

This raises particular challenges for inflation forecasting and monetary policy-setting. A conjunctural example where these issues are relevant is attempting to assess the impact of the Budget on inflation.

4 THE UK BUDGET AND MONETARY POLICY

Since one cannot rely on historical relationships when assessing the impact of cost shocks like higher National Insurance contributions on inflation, the effect of the recent Budget is particularly uncertain. In my judgment, the central projection embodied in the May 2002 Inflation Report probably assumes a higher pass-through into prices than is likely, and too large a 'balanced budget stimulus' to demand growth next year.

5 ASSET PRICES AND INFLATION TARGETING

Asset price misalignments are likely to pose a rather different kind of challenge. An inflation-targeting central bank might improve macroeconomic performance by reacting to asset price misalignments over and above the deviation of, say, a two-year ahead inflation forecast from target. I believe that a clear signal from monetary policymakers that they would, other things being equal, react to a housing market bubble if one clearly emerged, would make the continuance of strong house price growth less likely now.

My Lords, Ladies and Gentlemen. Good afternoon.

We have just passed the fifth anniversary of the announcement that the Bank of England would be independently responsible for the operation of monetary policy, where a nine-member Monetary Policy Committee (MPC) sets interest rates each month. It is a great privilege for me to have the opportunity to discuss some of the challenges ahead for the MPC with such a distinguished audience at the National Institute. In doing so, I shall initially look back, as the past is likely to provide lessons for the future.

I shall start today by briefly discussing the performance of the new monetary policy framework in the UK. It is early days, but the new system appears to have made an encouraging start so far,[1] with a combination of steady growth and low inflation that would have been the envy of previous generations of policymakers. We have been criticised because of difficulties associated with forecasting inflation, so doing better in this regard is a potential challenge for the future. The evidence that I present on how the new monetary framework might have significantly altered the nature of the inflation process suggests that forecasting inflation in response to cost shocks like changes in exchange rates, taxes (National Insurance) or oil prices will remain especially difficult. I will also discuss the role of asset price bubbles – another issue that is likely to continue to make monetary policy-making particularly problematic.

THE PERFORMANCE OF THE NEW FRAMEWORK

During the 1980s, inflation averaged around 7%, whereas it was around 4¼% over the 1990-1997 period. But, annual RPIX inflation has averaged 2.4% between May 1997 and March 2002, which is rather close to target, and has also been remarkably stable (lying within a narrow range of 1.8%-3.2%) since the new framework was introduced (Chart 1). If one excludes the first eighteen months of the MPC's existence from this assessment on the grounds that it takes time for monetary policy to affect inflation, then, inflation has averaged 2.2%, which is a little below target.

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[1] For a detailed discussion of the framework and its performance, see Balls and O'Donnell (2002).
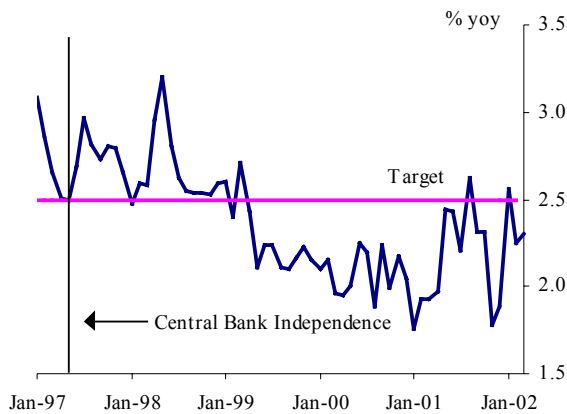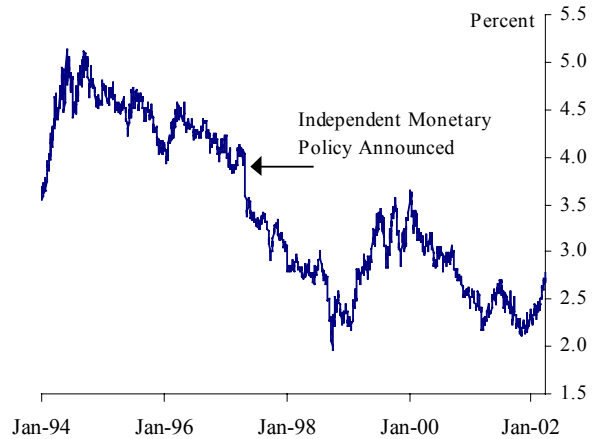
Chart 1: RPIX inflation

Chart 2: UK Market 10-Year Inflation Expectations

Over the last ten years, measures of inflation expectations have fallen significantly (see Chart 2). It is often suggested that there was a lack of credibility in the markets regarding the arrangements that existed prior to May 1997. For example, in June 1995, an inflation target of 2½% or less was announced and yet inflation expectations ten years ahead (derived from financial markets) generally remained above 4%. Note that there was a sharp fall in market measures of inflation expectations on 6 May 1997 following the announcement of the new monetary framework, and there have since been further falls to a level close to the target (Chart 2). And consensus one-year ahead RPIX inflation forecasts[2] also declined noticeably since the new monetary arrangements were introduced and since then, these expectations have remained very close to target (Chart 3). Various factors, such as disinflationary pressures in the global economy or supply-side developments may have helped to keep inflation low, but the timing of the fall in inflation expectations suggests that it may, at least in part, be due to the change in the policy framework in the UK.

When the MPC was created, some people thought that we would act as 'inflation nutters', by only achieving low inflation at the cost of creating high unemployment. However, unemployment (on the Labour Force Survey definition) has continued to fall, from 7.2% in May 1997, to around 5.1% now (Chart 4). And output growth has

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[2] See "Forecasts for the UK Economy: A Comparison of Independent Forecasts", by HM Treasury.

averaged around 2.8% under the new monetary framework, which compares favourably with the forty year historical average of 2.5%.

Chart 3: Average of Independent Forecasts of one year ahead RPIX Inflation
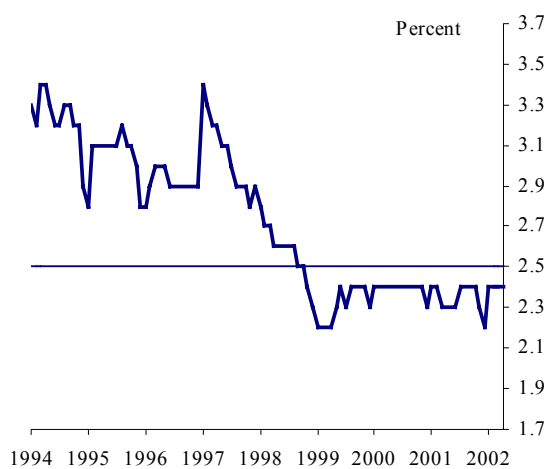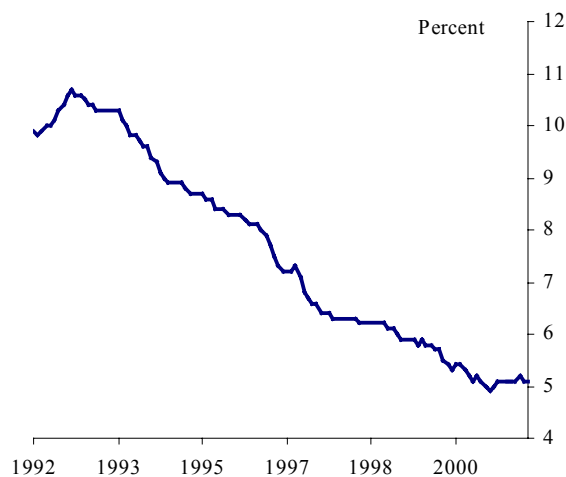
Chart 4: LFS Unemployment

HOW CREDIBLE IS THE INFLATION TARGET?

I noted above that measures of inflation expectations had fallen to around the inflation target, suggesting that the new framework had acquired some credibility. In the post-war period, we had, in the UK, become accustomed to wage-price spirals, where a particular event would increase prices, which would then feed into higher wages and then back into prices, etc. In the jargon, economists describe such an inflation process as being persistent, ie one where higher inflation now, other things being equal, implies higher inflation in the future. By contrast, in a credible inflation-targeting regime, one would expect a rise in inflation above target to be temporary, and so, be associated with a fall in persistence. This is a world in which wage-price spirals are much less likely, as firms and workers alike know that the central bank will do whatever is necessary to keep inflation at target.[3]

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[3] See Erceg and Levin (2001) for a formal, theoretical model of how greater credibility leads to less inflation persistence.

Hence, in a credible, inflation-targeting regime, one would expect the nature of the inflation process to change. A simple test of such a change[4] is whether the inflation process has become less persistent. The empirical results reported in Table 1 suggest that this might be true – between 1965 and 1997, a 1% increase in inflation this month implied that, other things being equal, inflation next month was likely to be 0.55% higher as well. By contrast, since 1997, a rise in inflation this month of 1% only implies a rise in inflation of 0.05% in the following month.[5] This is rather helpful. Incidentally, there is evidence that the persistence of inflation has also fallen in other countries that have introduced inflation targeting regimes. Moreover, in the UK, the persistence of inflation has also been low under previous monetary regimes that were committed to price stability, eg, the Gold Standard. Note also that the volatility of inflation has fallen significantly over this period – in fact, the standard deviation of RPIX inflation was around 5.5 over 1965-97, and has been around 0.3 since 1997. I shall discuss below some further examples of how the nature of the inflation process appears to have changed in the UK below, along with what this might imply for policy.

TABLE 1

INFLATION PERSISTENCE

	PERSISTENCE[1]	STATISTICAL SIGNIFICANCE (t-ratio)
January 1965 – May 1997	0.55	12.98
June 1997 – March 2002	0.05	0.36

1 Coefficient on the lagged dependent variable in an AR(1) regression for seasonally adjusted RPIX inflation. (monthly, annualised rate)

While the performance of the new framework has, so far, been encouraging, it is premature to fully assess its benefits. It is appropriate to now turn to areas where one might do better.

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[4] I shall return to more complex 'tests' of a change in the nature of the inflation process in the UK later in the speech.
[5] See Batini and Nelson (2001) for a discussion of the evidence on this issue.

THE MPC'S FORECASTING PERFORMANCE

The MPC has, in the past, been criticised on account of its forecasting performance.

If we focus on these two-year ahead forecasts for RPIX inflation, the out-turns for inflation have always been lower than the forecast. This is demonstrated in Charts 5a and 5b below, which show actual RPIX annual inflation together with the two-year ahead mode and mean forecasts.[6]

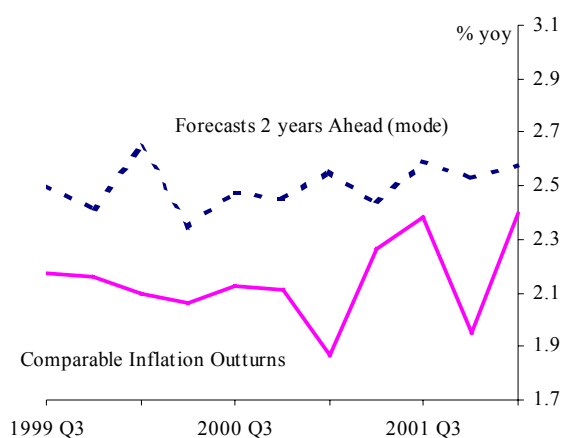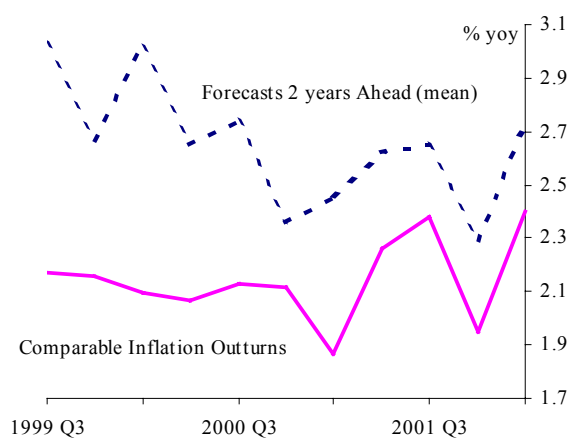**Chart 5a: MPC Forecasts of Inflation (Mode) and Inflation Outturns**

Chart 5b: MPC Forecasts of Inflation (Mean) and Inflation Outturns

Indeed, the average two-year ahead inflation error (mean) over the period in which the Bank of England has been independent has been around 0.5% (see Table 2). [7, 8] The error is statistically significant. Note also that the two-year ahead forecast error, at 0.5%, is rather larger than the estimate of 0.2% error for one-year ahead forecasts that is discussed by Wallis (2002). Moreover, inflation appears to have come in below

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[6] Ie, the value shown in these charts, for say, 1999 Q3, is the two-year ahead forecast of RPIX inflation that was made in 1997 Q3, plotted against the actual RPIX inflation outturn for 1999 Q3. Since most of the data available at the time the forecast is prepared relate to the previous period, these are, de facto, nine-quarter ahead forecasts.

[7] In Table 2, the post-Bank of England independence period is based on a comparison of the two-year ahead forecast of RPIX inflation against the actual RPIX inflation outturn. So, this figure considers the forecasts that were made for the period 1999 Q3 (ie those made in 1997 Q3) until 2001 Q4. The full sample period considers the two-year ahead forecasts made for 1995 (ie those made in 1993) onwards relative to the actual outturn. So the pre-Bank of England independence values are those made for 1995 until 1999 Q2.

[8] We use constant interest rate forecasts in the analysis here. However, the results obtained with forecasts conditioned on market interest rates are very similar.

the published Inflation Report forecasts in the pre-Bank independence period as well (Table 2).

Interestingly, GDP growth has been underestimated (by around 0.6% pa) on average, which is a large error in relation to the actual average growth of around 2.75% over this period. (Table 3)

TABLE 2

AVERAGE FORECAST ERRORS FOR UK RPIX INFLATION[1]

		AVERAGE ERROR	STATISTICAL[2] SIGNIFICANCE (p-value)
MODE	Full Sample[3]	-0.27%	0.027
	Pre-BoE independence[4]	-0.21%	0.212
	Post-BoE independence[5]	-0.38%	0.000
MEAN			
	Post-BoE independence[5]	-0.53%	0.000

1 Two-year ahead forecast errors.
2 This records the probability that one might obtain the given value of the error by chance if the 'true' value is zero. Hence, the probability that one would observe an average error of –0.53% if the true value were zero is only 0.001, or one in a thousand. Based on a t-test computed using Newey-West standard errors, as observations are not independent.
3 Two-year ahead forecast made for 1995 Q1 – 2001 Q4 (ie made between 1993 Q1 – 1999 Q4).
4 Two-year ahead forecasts made for 1995 Q1 – 1999 Q2 (ie made between 1993 Q1 – 1997 Q2).
5 Two-year ahead forecasts made for 1999 Q3 – 2001 Q4 (ie made between 1997 Q3 – 1999 Q4).

Conditional on potential output growth having remained constant, one would expect that if GDP growth were faster than expected over a sustained period of time, then on average, actual inflation would also be higher than expected. But, actual inflation has been on average 0.5% lower than the inflation forecast in the post-Bank independence period, though, of course, outside forecasters have also tended to make similar errors.

In an uncertain and volatile world, one would expect to see significant forecasting errors. However, the tendency for the errors to be in the same direction does deserve further investigation.

TABLE 3

AVERAGE FORECAST ERRORS FOR UK RPIX INFLATION AND GDP GROWTH

		AVERAGE ERROR	STATISTICAL SIGNIFICANCE (p-value)
INFLATION (MODE)	Post-BoE independence	-0.38%	0.000
GDP[1] GROWTH (MODE)	Post-BoE independence	0.59%	0.054

Notes: See Table 2.

1   4-quarter ahead forecasting horizon.

There are a variety of possible explanations for this phenomenon. One class of hypotheses would envisage a significant change in the structural relationships that underlie the forecasting processes.

It is notable that if one takes the wage equation that is to be found in the Bank of England's core macroeconometric model (see Bank of England (2000)), then, there is evidence that it did have a tendency to over-predict wage growth since 1992.[9]

One also needs to look at the performance of the equation which helps predict prices (the GDP deflator) that is embedded in the macroeconometric model used at the Bank of England. Note that this equation has a conventional specification for prices as a function of unit labour costs and capacity utilisation. In recent years, there has been a persistent tendency for actual prices to come in below what the conventional

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[9] See Wadhwani (2000) for more details.

determinants have predicted – these errors have also been, both, economically and statistically significant.[10]

Hence, the preliminary review of the forecasting errors based on the fan charts published between February 1998 and May 2000 (that was published in the August 2001 Inflation Report) stated that "the level of unemployment consistent with stable inflation now appears to have been lower than originally assumed". (page 59) As I have argued before,[11] the far-reaching changes in the UK labour market over the last two decades and a possible intensification of product market competition (in part, because of globalisation) can plausibly account for the observed decline in the non-accelerating inflation rate of unemployment (NAIRU, hereafter).

Over the last few years, the MPC has, therefore, had too gloomy a view about the level of potential output in the economy. Although some adjustments to this view have been made, I would regard the current view about the level of potential output as still being too pessimistic. In addition, my personal opinion is that the current assumption for "trend" growth, though revised up modestly, is still a little too low relative to, say, the assumption that might be found in HMT (2002).

It is also likely that a component of the errors associated with forecasting inflation over a part of this period is attributable to a failure to predict the persistence of sterling's strength.[12] However, exchange rate forecasting errors do not explain the tendency for inflation to come in lower than forecast during the 1993-96 period, when, in fact, the exchange rate was unexpectedly weak. Also, the failure to predict the exchange rate after 1996 cannot explain why the GDP growth rate was unexpectedly strong.

Of course, it is important that we not lose sight of the fact that the MPC has not been around for very long, so any analysis of forecasting performance is hamstrung by the relatively small sample.

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[10] See Figure 2 in Wadhwani (2001) for earlier details on the historical residuals.
[11] See, eg Wadhwani (2001).
[12] I have argued before (see, eg Wadhwani (1999)) that this was, in part, owing to the use of the conventional 'uncovered interest parity' (UIP, hereafter) assumption, which many academic studies show to be a biased predictor.

Given our difficulties, I do welcome the review of the forecast process by Professor Adrian Pagan that was commissioned by the non-executive directors at the Bank of England.

Meanwhile, it behoves us to ask whether an interest rate policy that was based on a less biased inflation forecast might have led to measurable macroeconomic gains. Answering counterfactual questions of that kind is difficult, but one can make an attempt to do so within the context of the core macroeconometric model used at the Bank of England.[13]

ALTERNATIVE PATHS FOR THE POLICY RATE

Over the period since 1997, real GDP growth has followed a generally stable path, and movements in inflation have been mild both relative to the target and to prior UK experience. On the other hand, deviations of inflation from target, while small, have tended to be one-sided in recent years, with annual RPIX inflation below 2.5% in all but two months in the three years to March 2002.

The UK's macroeconomic stability during the MPC period, combined with the tendency for slight undershoots of the inflation target suggest that the movements in interest rates implied by MPC decisions have been on the whole stabilising, but that the *average* setting of interest rates has been slightly too high. A simulation exercise can indicate whether an even better macroeconomic performance could have been obtained by a policy *identical* to that one followed, except that nominal interest rates were, on average, set a small amount—say, 25 or 50 basis points—lower.

Purely for illustrative purposes, Table 4 gives the implications of such a policy according to the Bank of England's macroeconometric model.[14] The exercises reported are simulations of the model with interest rates (a) consistently 25 basis points lower than actual since 1997 Q3; and (b) consistently 50 basis points lower than actual since 1997 Q3. Several statistics are reported, both for the data and the

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[13] Blake and Young (1999) provide details of a different counterfactual exercise based on the National Institute model.
[14] I am extremely grateful to Ed Nelson and Nick Davey of the MPC Unit for carrying out these simulations.

two simulations. These are: average nominal interest rates, annual RPIX inflation rates, the root mean-squared error (RMSE) of inflation from 1997 Q3 onwards, which is a measure of the fluctuations of inflation around the 2.5% target; and the root mean squared error of the deviation of output from a steady 2.75% growth path from mid-1997.

TABLE 4 ALTERNATIVE POLICY SCENARIOS

1997 Q3–2001 Q4				
	Interest Rate Average	Inflation Average (annual)	RMSE[1] Inflation	RMSE[1] Output relative to trend
Actual Policy	6.04%	2.35%	0.34%	0.43%
25 basis points lower from 1997	5.79%	2.52%	0.22%	0.33%
50 basis points lower from 1997	5.54%	2.68%	0.28%	0.47%

1999 Q1–2001 Q4				
	Interest Rate Average	Inflation Average (annual)	RMSE Inflation	RMSE Output relative to trend
Actual Policy	5.48%	2.17%	0.37%	0.48%
25 basis points lower from 1997	5.23%	2.42%	0.19%	0.34%
50 basis points lower from 1997	4.98%	2.66%	0.30%	0.50%

Memo item: Real GDP level in 2001 Q4 (index: actual = 100)		
Actual policy	25 basis points lower from 1997	50 basis points lower from 1997
100.0	100.5	100.9

1 RMSE = Root mean squared error.

These simulations suggest that interest rates 25 basis points lower than their historical values from 1997 Q3 would have delivered 2.5% inflation on average since 1997, as well as a more stable path for both inflation and output (relative to trend). It also consistently outperforms a policy of setting rates 50 basis points lower than otherwise. However, given that interest rate changes take around twelve to eighteen months to have a significant impact on inflation, it may be more relevant to only look at the post–1999 Q1 period. For the most recent three calendar years (1999–2001), the 25-bps-lower policy delivers inflation of 2.42% on average, compared to 2.17% observed in practice, and a more stable path for inflation and output. Moreover, the level of GDP in 2001 Q4 would have been about ½% higher if rates had been held 25bp lower. These are the results of a mechanical exercise carried out on one model, and the time period considered is short. I would not wish to take the precise estimates too literally, but they are suggestive of gains if policy had been a little less tight.

I have deliberately just considered "naïve" alternatives to the actual policy followed as this exercise is for illustrative purposes only. It is likely that the "optimal" interest rate path would differ from the actual path by different amounts over time.

Of course, one should not exaggerate the significance of these findings – it is always possible, with the benefit of hindsight, to see how one could have done better. Nevertheless, to the extent that policy was held too tight because of a biased forecast, it is obviously important to ensure that one learns from the past.

MIGHT INCREASED CREDIBILITY HAVE CHANGED THE INFLATION PROCESS?

Standard economic theory would suggest that an improvement in the credibility of an inflation target could change the behaviour of wages and prices.[15] I noted above that the inflation process in the UK had, in the jargon, become less persistent, ie an inflation shock appears to die out much more quickly under the new framework. One might also wish to examine this proposition more directly by examining whether certain specific triggers for an increase in the price level are less likely to lead to inflation now as compared to the past. For example, in the past, it was typically

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[15] See, eg Taylor (2000) for a recent elaboration of this view.

assumed that a rise in the oil price and an associated rise in other import prices, would feed into higher retail prices, and then into increased wage demands. The latter would in turn, lead to higher prices and hence, one would get an upward spiral along which wages and prices would chase each other up.

A credible, independent central bank that targets inflation can have a significant impact on the above process. Under the new regime, wages and prices are now set in the knowledge that, at the economy-wide level, medium-term inflation will not be allowed to rise above 2.5%, which then considerably limits the scope for individual firms and unions to push through significant increases. Lest you regard this as just 'theory', I would point to some simple evidence that is based on the well-known Phillips curve.

If, say, one estimates a Phillips curve with a time-varying NAIRU for the UK over the post-1973 period[16] then, one finds that the coefficient on oil prices falls significantly (to insignificantly different from zero) in the 1990s. (see Table 5) This econometric evidence is consistent with the common perception that while the oil shocks of the 1970s appeared to be associated with wage-price spirals and significant increases in inflation, this has been much less true of recent movements in oil prices.

TABLE 5
OIL PRICE EFFECTS[1] - THEN AND NOW

	1973-97	1997-2001
Coefficient	0.74	-0.32
t-ratio	2.35	-0.65

1 Taken from a Phillips curve with a time-varying NAIRU (using a Kalman filter-based estimate)

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[16] I am extremely grateful to Jennifer Greenslade of the MPC Unit for estimating this equation. She used a Kalman filter-based estimate of the NAIRU.

In addition to this evidence based on Phillips curves, I would also wish to discuss some work on exchange rate pass-through based on the core macroeconometric model used at the Bank of England.[17]

One can decompose the effects of the exchange rate on inflation into two stages. First, there is the effect on import prices. Chart 6 displays the forecast for import prices that is produced by the Bank of England's macroeconometric model for the period following the significant appreciation of sterling in 1996 Q4. Notice that import prices fell by <u>less</u> than would be predicted by the historical relationship, ie a <u>lower</u> pass-through. Second, if one looks at the next stage (ie pass-through from import prices into retail prices), then, once again, Chart 7 shows that, other things being equal, pass-through would be less than predicted.

These results are by no means an isolated exception. I have previously discussed the recent experience of two other economies with independent, inflation-targeting central banks – Australia and New Zealand.[18]

Research carried out at the two central banks has suggested that the impact of a fall in the exchange rate on consumer price inflation has been rather less than would have been suggested by past historical relationships.[19] For example, Debelle and Wilkinson (2002) argue that –

"the effect of exchange rate changes on inflation has become more muted ..... the Australian economy has become more resilient to temporary price level shocks"
(page 30)

Similarly, Hampton (2001) asserts that –

"Earlier internal research done at the RBNZ ..... suggested that the long run import price pass-through coefficient was around 0.25 to 0.30. The much lower level of 0.15 estimated in this paper is consistent ..... (with the observation) that the recent

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[17] This work was carried by Jennifer Greenslade and Kenny Turnbull of the MPC Unit. Further details of the overall model can be found in Bank of England (2000), and the Appendix also provides some detail on what was done.

[18] See Wadhwani (2002).

[19] I have greatly benefited from very useful conversations with various officials at the RBA and the RBNZ, though, of course, the views expressed here are entirely my own and do not necessarily reflect those of either central bank.

depreciation in the exchange rate has not resulted in increases in consumer prices as large as we had expected." (page 14)

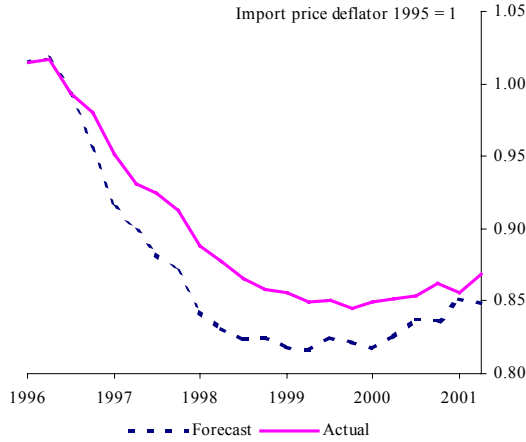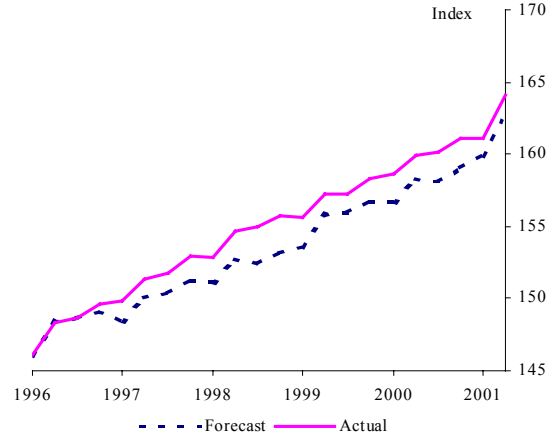**Chart 6: Import price forecasts and Actual outturns in the UK**

Chart 7: RPIY forecasts and Actual outturns in the UK

Import price deflator 1995 = 1

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- - - Forecast ——— Actual
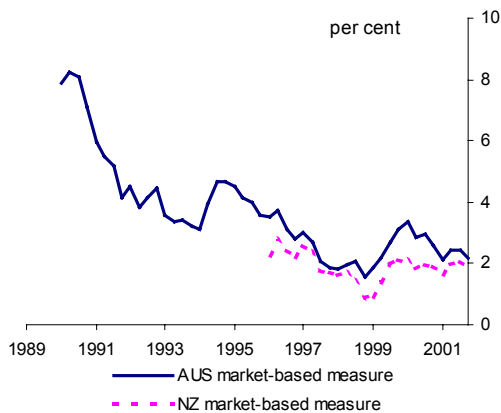
- - - Forecast ——— Actual

In both countries, crucially, measures of medium-term inflation expectations have been relatively well anchored (see Chart 8) despite the fall in the exchange rate (and, indeed, in 2000, a rise in oil prices and indirect taxes).

Chart 8: Inflation Expectations for Australia and New Zealand

per cent

——— AUS market-based measure

- - - NZ market-based measure

In a recent paper, researchers at the Federal Reserve Board have argued that[20] -

"When agents expect the monetary authority to act strongly to stabilize the domestic inflation rate, they are less inclined to change prices in response to a given exchange rate shock. We present evidence for a sample of 20 industrial countries that supports this hypothesis indirectly and directly."

Moreover, the Bank of Canada has also conjectured that changes in pass-through behaviour may be due to changes in the orientation of monetary policy, eg in their November 2000 Monetary Policy Report (page 9), they argued that -

"the low-inflation environment itself is changing price-setting behaviour. When inflation is low, and the central bank's commitment to keeping it low is highly credible, firms are less inclined to quickly pass higher costs on to consumers in the form of higher prices".

THE IMPLICATIONS FOR POLICY

If greater credibility and lower inflation lead to actual inflation being less responsive to a variety of cost shocks (eg oil prices, exchange rates, taxes, etc), it is obviously important that policy takes this into account. This is difficult to do as historical relationships become less useful. It is sometimes argued that one should continue to rely on historical relationships until one is proved wrong. However, therein lies the danger of making persistent forecast errors in the same direction, and thereby potentially setting policy poorly. Given the evidence offered above, it is plausible that the existing core macroeconometric model used at the Bank exaggerates the impact of changes in exchange rates and oil prices on inflation. A challenge for the future would be to ensure that interest rates are set in a way that adequately allows for the likelihood that such cost shocks have a smaller effect on inflation.

A closely related issue is the appropriate response of monetary policy to cost shocks that have some temporary effects on the price level, eg a fall in the exchange rate has some temporary price level effects (through higher import prices), and more durable effects on inflation through its effect on the supply-demand balance in the economy.

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[20] See Gagnon and Ihrig (2002).

A central bank that has acquired credibility can safely ignore the temporary price level effects, and only react to the more enduring effects on demand. In the recent past, discussion of the inflation effects of an exchange rate fall may not always have paid sufficient regard to this key distinction.

A conjunctural example of how credibility-induced changes in historical relationships might be relevant to policy is the issue of how the recent UK Budget might affect inflation. Therefore, I turn to this next.

THE UK BUDGET AND MONETARY POLICY

In commenting on the recent UK Budget, the May 2002 <u>Inflation Report</u> stated that –

"Although the extra spending will be financed largely through extra revenue over the forecast period, the net impact of the Budget is likely to be to augment demand growth next year. It is also possible that the higher National Insurance contributions required of employees and employers may add to wage and price pressures."
(page ii)

As the full inflation effects of higher demand growth next year might not be felt until the following years, which is formally beyond our forecast horizon, the fiscal plans could play an increasingly significant role in monetary policy deliberations over the next year or so, ie although the effect of the Budget on the inflation forecast at the two-year horizon was small, it was likely to be larger further ahead.

The projection for the demand effects of the Budget reflected some 'balanced budget stimulus' from the tax-financed rise in spending, ie as we said in the <u>Inflation Report</u> -

"... the injection to demand from higher public expenditure will not be matched by an equivalent cut in private demand, given that some of the extra taxes will result in lower savings and that the import content of public sector spending is typically lower than that of private consumption. The magnitude of such a stimulus is highly uncertain and will depend on factors such as the potential leakage from increased government spending into imports and higher public sector wages." *(page 41)*

Personally, I am nervous about assuming any sizeable 'balanced budget stimulus'. While conventional macroeconometric models of the kind used at the Bank do indeed

imply such significant demand effects, I think that Blanchard and Perotti (1999) are right to point out that these models -

"... largely postulate rather than document the effect of fiscal policy on activity". (page 1)

I am struck by the fact that pure empirically-based approaches do not necessarily find evidence for a significant balanced budget stimulus. For example, a recent study, albeit one for the US economy (see Mountford and Uhlig (2002)) actually found the balanced budget multiplier to be negative.[21] Interestingly, using an event-study approach, Blanchard and Perotti (1999) found that a balanced-budget fiscal expansion has a strong negative effect on investment, an effect that was not allowed for in the May 2002 Inflation Report central projection.

Another factor that has, so far, not been allowed for in the inflation projection is the potential supply-side benefit of higher public investment over the coming years. This too might imply that the potential inflationary implications of the Budget may have been overstated.

There is also considerable uncertainty about the effects of the increase in National Insurance contributions, and a variety of possibilities were discussed in the Inflation Report. In my opinion, the intensification of competitive pressure (partly due to greater globalisation), and the anchoring of inflation expectations because of the new monetary framework should imply that there is very little (if any) pass-through of higher National Insurance contributions into higher prices. However, although past experience suggests that, in the long run, the burden of an increase in National Insurance is passed on fully to employees, I would be rather less sanguine in the short-run. Consequently, corporate margins might suffer, implying a greater burden of adjustment by lower employment, investment and output. Although the outcome is particularly uncertain, my best guess is that, relative to the central projection in the Inflation Report, there will be less pass-through into prices and a greater effect on output. This is another reason why, in my personal opinion, the

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[21] They use an atheoretical, VAR approach. It must be emphasised that they allowed for a "monetary policy shock" variable, so their estimate of the effect of fiscal policy can be compared to its assumed effect in a projection for GDP that is conditioned on constant interest rates.

Inflation Report probably overstates the impact of the Budget on GDP growth next year. The judgments required to calibrate the impact (if any), of the Budget on inflation are likely to become increasingly relevant over the next year or so.

Fortunately, the changes in National Insurance contributions have been announced around a year in advance. This should give the Committee some time to monitor their effects before reacting to them.

ASSET PRICES AND INFLATION TARGETING

A rather different kind of challenge to the setting of monetary policy is likely to be provided by asset price misalignments. About two years ago, some academic work that I was associated with[22] argued that there were sound theoretical reasons for believing that an inflation targeting central bank might improve macroeconomic performance by reacting to asset price misalignments over and above the deviation of, say, a two-year ahead inflation forecast from target. One argument for doing so is that 'leaning against the wind', when an asset price moves for 'non-fundamental' reasons, can moderate the impact on the real economy. A second advantage of having a central bank that behaves in such a fashion is that the knowledge of a likely policy response to an inflating bubble should reduce the likelihood of asset price bubbles forming in the first place. I should emphasise that our proposal did not envisage targeting asset prices, as, of course, the central bank would continue to target inflation. Reacting to asset price misalignments would help the central bank fulfil its remit more effectively.

In a more recent paper,[23] we argued that -

"A non-trivial and unresolved issue relates to the communication challenges presented by our proposal. Setting policy on the basis of conscious deviations of expected inflation from target, at, say, the two-year horizon could hurt credibility. There is a signficant risk that policy becomes less predictable and less transparent, thereby potentially jeopardizing accountability. In practice, attempts to set interest rates at a level that is different from what is necessary to achieve the target level at a two-year horizon must be accompanied by a justification that is explained simply and

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[22] See Cecchetti, Genberg, Lipsky and Wadhwani (2001).
[23] See Cecchetti, Genberg and Wadhwani (2002), page 18.

that commands broad agreement. Policymakers who consciously aim away from their target at a two-year ahead horizon (in order to reduce inflation volatility at other horizons) will attract suspicion if their explanation for doing so is complex and not well-understood, or, even worse, if a significant group of commentators does not agree that aiming away from the two-year ahead target will actually reduce inflation volatility. We recognize these to be critically important considerations when deciding on the implementation of our proposal."

In the current conjuncture, some commentators are arguing that the Bank of England should react to a developing house price bubble. Obviously, current house price inflation cannot be sustained forever at current rates, and there is some anecdotal evidence that, in certain areas, price rises are becoming self-feeding. The house price-average earnings ratio is now higher than its historical average, though below its 1989 peak (Table 6). However, comparisons with average household income might be more appropriate, and these suggest that valuations are somewhat less stretched, ie between 16% and 29% below the 1989 peak levels, though, still a little above average (with the exception of the Halifax measure, which is at around its historical average).[24]

When discussing asset market valuations, I am usually wary of arguments that assert that "this time is different", but it is possible that a low inflation environment can contribute to some rise in the equilibrium house price-income ratio. This is because, in the absence of index-linked mortgages, lower inflation and nominal interest rates reduce the initial cashflow burden associated with a mortgage. Hence, there is necessarily some uncertainty about whether, at a national level, the housing market is significantly overvalued as yet. However, the current double-digit house price growth cannot go on for very long before the market would start looking overvalued.

I believe that a clear signal from monetary policymakers that they would, other things being equal, react to a bubble if one clearly emerged would make the continuance of strong house price growth less likely now.

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[24] Ie, the ratio of the average house price to whole economy post-tax income divided by the number of households. Household data for GB; Bank estimates post-1999.

TABLE 6

COMPARISONS OF HOUSING AFFORDABILITY

HOUSE PRICE TO AVERAGE GROSS EARNINGS
(2002 Q1)[1]

% Difference	DTLR	Nationwide	Halifax
Relative to 1989 Q2 Peak	-8.4	-16.3	-21.1
Relative to average	+22.0[2]	+15.7[2]	+8.0[3]

HOUSE PRICE TO PER HOUSEHOLD POST-TAX
INCOME (2001 Q4)

% Difference	DTLR	Nationwide	Halifax
Relative to 1989 Q2 Peak	-16.1	-22.8	-28.7
Relative to average	+15.3[2]	+9.9[2]	+0.4[3]

1 Bank estimate for Q1 earnings.
2 Relative to average since 1982.
3 Relative to average since 1983.

CONCLUSIONS

The new monetary framework in the UK has made an encouraging start, with inflation expectations having come down at a time when unemployment has also continued to fall.

The MPC has, though, had a tendency to produce inflation forecasts that have been uniformly higher than actual out-turns. As might be expected, the increased credibility of the inflation-targeting framework has led to changes in the inflation process, which will, actually, make forecasting even more difficult. If the current rate of house price growth does not slow soon, rather different issues will be raised by the possible emergence of a housing market bubble. I would like to take this opportunity to wish my colleagues good luck in dealing with these and other challenges that will confront them.

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APPENDIX

THE IMPACT OF THE EXCHANGE RATE ON INFLATION

Stage one (Pass-through from the exchange rate to import prices)

The equation we use is the same specification used in "*Economic models at the Bank of England*" September 2000, updated to take into account new data, and estimated up to 2001 Q2. The equation is of the following form:

$$\Delta pm_t = -0.07 + 0.08(\Delta comnus_{t-1} - eds_{t-1}) + 0.46\Delta(wpx_t - eer_t) + 0.03\Delta(petspot_t - eds_t) + 0.43\Delta ulc_{t-1}$$
$$- 0.18\big[(pm_{t-1} - 0.93(wpx_{t-1} - eer_{t-1}) - 0.04(petspot_{t-1} - eds_{t-1}) - 0.03(comnus_{t-1} - eds_{t-1})\big]$$

where
pm = import price deflator.
comnus = world non-oil commodity prices (index,US$).
eds = US dollar-sterling exchange rate.
eer = sterling effective exchange rate index.
petspot = oil spot prices.
ulc = nominal unit labour costs.
wpx = world export prices.

Stage 2 (Pass-through from import prices to retail prices)

The equation we use is the same specification used in "Economic models at the Bank of England" September 2000, updated to take into account new data and estimated up to 2001 Q2. The equation is of the following form:

$$\Delta rpiy_t = 0.49 + 0.35\Delta dpp_t + 0.38\Delta dpp_{t-1} + 0.23\Delta dpp_{t-2} + 0.13\Delta pm_t + 0.09\Delta pm_{t-1} + 0.02\Delta pm_{t-2}$$
$$- 0.10(rpiy_{t-1} - dpp_{t-1} - 0.2pm_{t-1})$$

where

rpiy = retail price index excluding mortgage interest payments and indirect taxes.
pm = import price deflator.
dpp = domestic price index (estimated by removing export prices from the PGDP deflator)