



BANK OF ENGLAND

# Speech

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## **“The Stock Market, Capacity Uncertainties and the Outlook for UK Inflation”**

Speech given by

Dr Sushil Wadhvani, Member of the Monetary Policy Committee, Bank of England and Visiting Professor at the City University Business School and the London School of Economics

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## **SUMMARY**

### **1 THE OUTLOOK FOR THE GLOBAL ECONOMY**

Business confidence has declined very significantly in recent months, but global stock markets appear to believe that a recovery is around the corner. In the US, the key downside risks are that the ongoing deterioration in the labour market might impact further on savings behaviour, and weak profitability might keep layoffs high. On the other hand, a possible upside risk is that the post-11 September decline in confidence proves to be relatively transient.

### **2 DO CURRENT STOCK MARKET VALUATIONS POSE A RISK TO THE GLOBAL ECONOMY?**

On the basis of current expectations of earnings growth, it is possible to justify current levels of stock prices. However, long-term expectations of earnings growth are still at a level that has been unusual over the last 125 years. Moreover, there is also a significant mismatch between what the stock market is likely to deliver and what survey evidence implies that individual investors expect. None of this is inconsistent with a significant move up in equity prices if, say, clear signs of an economic recovery do emerge. If, though, the recovery is delayed, we might see a downward valuation adjustment in the stock market. In any case, expectations about long-term earnings growth and stock market returns are likely to need to moderate over the longer-term, and that is likely to accompany a downward valuation adjustment.

### **3 UNCERTAINTIES RELATING TO THE SUPPLY POTENTIAL OF THE ECONOMY**

We have to make difficult judgments about the level of spare capacity. The recent upward revisions to the capital stock have increased the measured degree of spare capacity in the Bank's core model, and partly explain why the November 2001 Inflation Report projection was consistent with less inflationary pressure than the preceding projection, even though the GDP outlook in the two projections differed little. Although the revised measure of capacity utilisation has reduced the size of the errors made in forecasting prices in the past, the previous tendency to over-predicting prices persists. This may be because of an intensification in competitive pressures. Major uncertainties remain, but it is my view that we are possibly overstating the degree of medium-term inflationary pressure.

## **INTRODUCTION**

Good afternoon.

It is a great privilege to be amongst you to discuss the outlook for the UK economy.

I shall begin today by considering the prospects for the global economy. I will then spend some time examining current global equity market valuations, as any setback in the markets could have a significant impact on economic growth.

I will then come home and discuss, by way of example, the recent difficulties that we have had in assessing the supply capacity of the UK economy. As all good economics students know, this is an important issue as prices emerge from the interaction of demand-side and supply-side forces.

## **SECTION A**

### **THE OUTLOOK FOR THE GLOBAL ECONOMY**

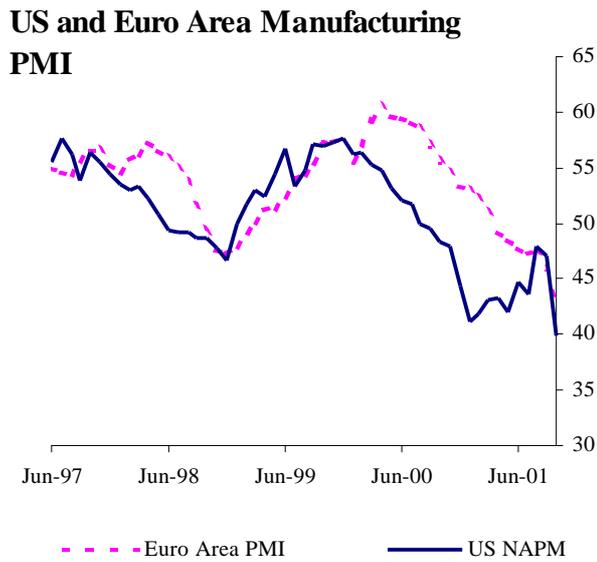
In recent weeks, a number of surveys of business opinion have shown a notable weakening in the US and Europe. Figure 1 shows the purchasing manager indices for manufacturing, while those for services are displayed in Figure 2. Notice that both sectors show falls, with a clear deterioration in the last month. Moreover, the business surveys are below the levels they were at during the financial crisis of the Autumn of 1998, when there was also some anxiety about the health of the world economy.

Some of these surveys are designed to measure business perceptions about tangible magnitudes like current production, employment and new orders, and the published composite index is not supposed to reflect vague notions like 'optimism'. Therefore, the observed deterioration is of potentially greater concern,<sup>1</sup> though, depending on political and military developments, this could turn around quickly.

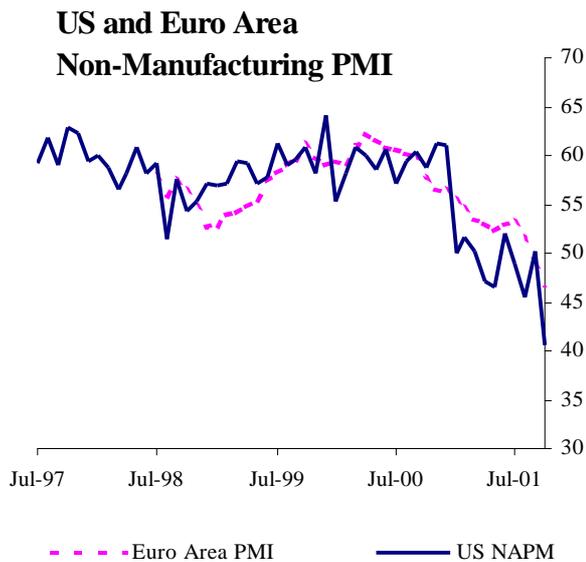
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<sup>1</sup> One cannot, of course, entirely rule out the possibility that those who answered these questions were, nevertheless, somewhat swayed by current sentiment.

**FIGURE 1**



**FIGURE 2**

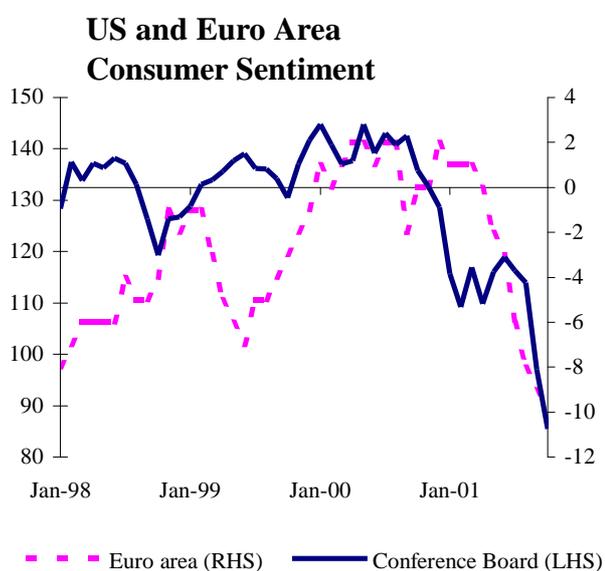


There is also clear evidence of weakening consumer confidence in the US and Europe (Figure 3). Notably, US consumer sentiment had already weakened significantly in August and early September (before the tragic events of 11 September), with mixed evidence on whether there has been any further weakening thereafter (Table 1), ie the different indices yield divergent answers.

**TABLE 1**  
**CONSUMER SENTIMENT IN THE US IN 2001**

	University of Michigan	Conference Board
June	92.6	118.9
July	92.4	116.3
August	91.5	114.0
Preliminary September	83.6	-
Final September	81.8	97.0
October	82.7	85.5

**FIGURE 3**



It is difficult precisely to disentangle the economic effects of the September terrorist attacks. The global economy had, of course, been weak for some time before the attacks. In the US, although the NAPM indicators had appeared to edge up before the attacks, consumer confidence was still weakening, as was employment. Business sentiment in Europe was still deteriorating ahead of the attacks. In the US, those who survey business opinion say that the 11 September attacks solidified earlier tentative decisions to reduce business commitments and employment.

It is still too early to understand the full economic effects of the attacks. For the present, a survey carried out in the UK by the Bank's Agents for the November Monetary Policy Committee (MPC) Meeting suggested that while a number of firms have cut back on current discretionary expenditure (eg travel, entertainment etc) and have scaled back their plans for investment and hiring, a clear majority of firms have not, as yet, reacted. A related survey carried out for the CBI<sup>2</sup> in the UK also contained broadly similar findings, with, for example, just over a quarter of the sample having cut back on investment plans. Somewhat more worryingly, the CBI survey suggested that the respondents did not see the economic effects as being purely temporary. For example, the fraction of businesses expecting their orders to be negatively affected over the next 12 months (39%) was higher than the proportion who had already experienced the cancellation or postponement of orders (29%) as a result of the 11 September events. Moreover, 31% of respondents expected the effects of these events to last at least 2 years (53% said that it would last at least a year). An upside risk to activity is that, contrary to these expectations, the shock to business confidence proves to be relatively transient after all.

While the surveys have suggested a significant weakening in confidence in the future with the effects of the attacks expected to be relatively long-lived, global stock markets have behaved in a way that is more consistent with the dip in growth being relatively short-lived. Most major equity market indices are now at or above their levels of 10 September. The markets appear to be willing to 'look through' the valley in earnings associated with recent economic weakness to the sunlit uplands that are expected to result from the significant monetary and fiscal stimulus that has been injected. Traditionally, stock markets bottom before recessions end, so it is not that unusual to have weak business confidence and stock market rallies co-existing. A key question is whether the markets are right to expect an economic recovery in the US by the middle of 2002.

All year, policy in the US has had a race against time in its effort to keep consumer spending resilient while the corporate sector dealt with its capital stock overhang. The danger has been that the layoffs resulting from the corporate sector's woes would

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<sup>2</sup> Economic Outlook Survey – Post-11 September, October 2001.

undermine consumer spending before companies had completed the necessary adjustments. The 11 September events were an obvious setback to this endeavour. Layoffs have now accelerated, consumer confidence has dipped, and business perceptions of new orders have weakened markedly. That is why further policy steps have been necessary, and we shall now have to wait and see whether the economic recovery arrives on schedule.

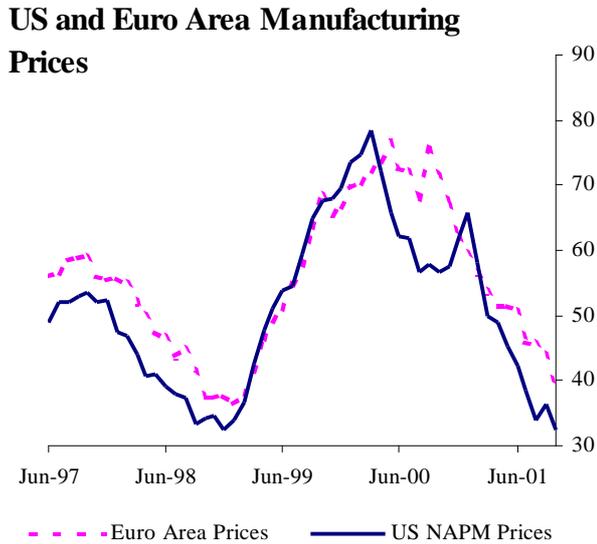
The equity markets appear to be relying on a significant recovery in profits next year – for example, the IBES consensus is for a 14.4% increase in operating earnings in 2002. Not only is this forecast dependent on an economic recovery, but it also assumes that profits will rise significantly faster than GDP. Yet firms have little pricing power as capacity utilisation is at an 18 year low and nominal GDP growth has slowed to just under 2% per year. On the other hand, unemployment is still low by long-term historical standards, and workers appear to be able to secure real wage increases significantly in excess of productivity growth. The implied squeeze on profitability does not bode well, because firms are likely to respond by scaling back on their investment and employment plans, which could then feed back onto consumption.

I shall discuss current equity market valuations later in this lecture, and will return to considering whether a postponement of economic recovery and/or earnings disappointments could prove problematic for the equity markets. Obviously, a further setback to share prices would generate additional headwinds for the hoped-for recovery.

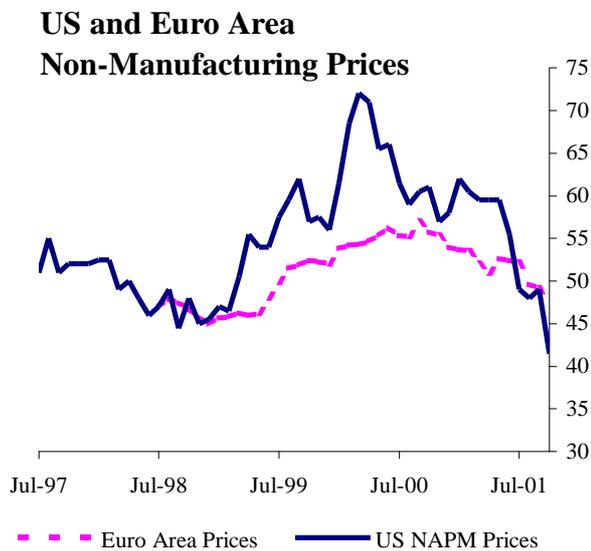
To return to the theme of the perceived lack of pricing power amongst firms, Figures 4 and 5 display the responses to questions on pricing that are embedded in the PMI surveys discussed before. They point to inflation pressures being extremely benign (recall that 50 reflects the no change level), with both manufacturing and services now in deflation territory. Note also that the price of oil and industrial metals are down by around 20% this year. In addition, capacity utilisation in the US and Japan has not been lower since the early 1980s. For all these reasons, it is likely that global inflation will remain low over the next year or so. Indeed, this is one reason why I am especially optimistic that, assuming unchanged interest rates, UK inflation

will remain low (below target) over the next 2 years.<sup>3</sup> If one thinks that inflation is likely to remain subdued, it is easier to contemplate proactive monetary policy actions to counter the confidence-destroying effects of recent events.

**FIGURE 4**



**FIGURE 5**




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<sup>3</sup> I am one of those members who believes that the global inflation rate in finished goods prices has a direct effect on UK domestic prices – an effect that is not currently built into the Bank’s Medium-Term Macroeconometric Model (MTMM). This is one reason why my personal inflation projection is lower than the best collective projection published in the November Inflation Report.

In terms of the UK, for much of 2001, we have eased policy to offset global economic weakness notwithstanding the relatively robust growth of domestic demand.

However, the labour market now appears to have turned, and there are some signs of a deceleration in house price inflation. The prospects for consumption are uncertain, though, until recently, growth has been strong.

As discussed above, a key issue is whether the global equity markets are likely to remain resilient. For that reason, I turn to a detailed consideration of current equity market valuations in the US.

## **SECTION B**

### **DO CURRENT STOCK MARKET VALUATIONS POSE A RISK TO THE GLOBAL ECONOMY?**

Global stock markets have fallen significantly since their peaks in 2000. Table 2 shows that the declines in the major equity indices from their peak values have ranged from over 20% for the FTSE100 to around 60% for the NASDAQ. It is, therefore, tempting to believe that, perhaps, stock markets are unlikely to go down much further.

Normally, bear market bottoms are associated with clear signs of the purging of the excesses that built up during the euphoria associated with the preceding bull market. However, Figure 6A shows that the current price-earnings ratio for the S&P500 index in the US remains high by long-term historical standards.<sup>4</sup> While it is true that current

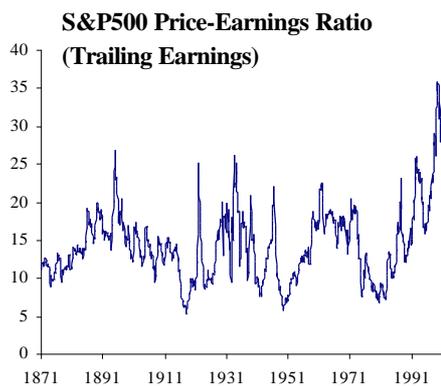
**TABLE 2**  
**STOCK MARKET PERFORMANCE SINCE THE PEAK**

	FTSE100	S&P500	DAX	CAC	NIKKEI	NASDAQ	EUROSTOXX
Peak	6930.2	1527.5	8046.0	6922.3	20833.2	5048.6	466.2
15 Nov 2001	5238.2	1142.2	5006.3	4577.3	10489.9	1900.6	307.5
% Change	-24.4	-25.2	-37.8	-33.9	-49.6	-62.4	-34.0

<sup>4</sup> Computed at an index value of S&P500 = 1084. Note that, using operating earnings, the current P/E ratio would be lower (22.4), but this level remains comfortably above its long-term historical average.

earnings are at cyclically depressed levels, Figure 6B, which is computed using a 10 year moving average of past earnings, suggests that the market is still trading at a relatively high multiple. These high absolute valuations have led some commentators to argue that the US stock market is still vulnerable to a further, significant decline. Of course, were they to be correct, this would be likely to have an important impact on global growth.

**FIGURES 6A AND 6B**



Source: Shiller dataset for 1871-1968, thereafter S&P Composite P/E ratio



Source: Shiller dataset for 1871- early 2001

It must be noted that P/E ratios have been high by historical standards for some years, and several Wall Street strategists have argued that this has been appropriate because interest rates and inflation have been low and that holding equities has become less risky. Indeed, at present, a survey of Wall Street strategists’ recommendations suggests that they believe that this is one of the best times to buy equities in the last 16 years.<sup>5</sup>

In attempting to form a view about the likely evolution of the global economy, it is important to form a judgment about the equity valuation debate, and it is why I shall consider it in some detail today.

<sup>5</sup> This is based on a survey of sell-side recommended asset allocations (“Sell Side Consensus Indicator”), compiled by Merrill Lynch Quantitative Strategy since 1985. The recommended equity allocation (71.2%) in October 2001 is the second highest since 1985 (the highest was at the end of September 2001). The average equity allocation since 1985 is about 55%.

## SECTION B1

### A SIMPLE VALUATION MODEL

For simplicity, consider the following valuation model for stock prices:<sup>6</sup>

$$DY + g = r + rp \dots\dots (1)$$

where

DY = Dividend yield

g = Expected long-term, real growth rate of dividends

r = Real interest rate

rp = Equity Risk Premium

Currently, in the US (computed at S&P500 = 1142, on 15 November), DY = 1.4%, r = 3.3% (ie, the yield on US Treasury Inflation-Protected Securities), and we may initially assume that g = 2%, which is approximately equal to the long-term average growth rate of real dividends.<sup>7</sup> This yields an estimate of the equity risk premium (ERP) of 0.1%, which is extraordinarily low in relation to long-term historical standards, eg the actual, ex post ERP has been about 7 per cent over the 1926-2000 period, while some estimates<sup>8</sup> of the ex ante ERP suggest a value of around 4 per cent over the same period. Some believe that the appropriate level of the ERP has fallen in the post-World War II period, and, indeed, estimates of the ex ante risk premium suggest that it has averaged around 2.4% since 1965. If one assumed that the ERP needed to rise to 2.4 per cent, then, that would imply a very significant decline in the S&P500, ie from its current value of 1142, to around 430!<sup>9</sup> Fortunately, the above analysis needs to be modified.

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<sup>6</sup> This is known in the literature as Gordon's (1962) growth model, and is just a steady-state version of the dividend discount model.

<sup>7</sup> ie, over the 1926-2000 period.

<sup>8</sup> See, eg Blanchard (1993) or Wadhvani (1999).

<sup>9</sup> This is because, holding interest rates and the expected growth of dividends constant, the dividend yield would have to rise from its current value of 1.4% to 3.7%.

## SECTION B2

### ALLOWING FOR HIGHER DIVIDEND GROWTH

There is significant variation in the rate of productivity growth over time, ie although the long-term growth rate of labour productivity in the US is about 2% pa, there are long periods of time where actual productivity growth has been maintained at a rather higher level, eg it averaged nearly 3% pa over the 1948-1973 period, or just under 4% during the 1917-1927 period. When valuing stocks, given that US productivity growth appears to have accelerated in the mid-1990s, it is reasonable to allow for a period of above-average dividend growth, before allowing the growth rate to fall back to its long-term average. In this regard, it is notable that analysts had become significantly more optimistic about medium-term earnings growth prospects during the last two decades – Figure 7 displays the consensus 3-5 year ahead consensus real earnings growth forecast – it had risen from around 8 per cent pa in the mid-eighties to a peak of almost 16 per cent pa in 2000, though it has fallen back to around 12 per cent pa now.<sup>10</sup>

If one assumes that the longer-term earnings growth forecasts are likely to be an accurate guide over the next 4 years, and additionally assumes that the growth rate will gradually diminish towards its long-term average of 2 per cent pa over, say an 8 -year period,<sup>11</sup> then, the implied ERP today is around 2.7% (see Figure 8).<sup>12</sup>

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<sup>10</sup> Incidentally, for the period that such data on long-term earnings expectations have been available, there is a no evidence of these expectations being biased. This is in contrast to the data on one-year ahead earnings expectations, where analysts appear to have been over-optimistic.

<sup>11</sup> Hence, real dividend growth is assumed to rise at a faster than average rate over the next 12 years.

<sup>12</sup> I have used a 3-stage DDM here, and am grateful to Nikolaos Panigirtzoglou and Robert Scammell of the Bank of England's MA Division for their help with these calibrations.

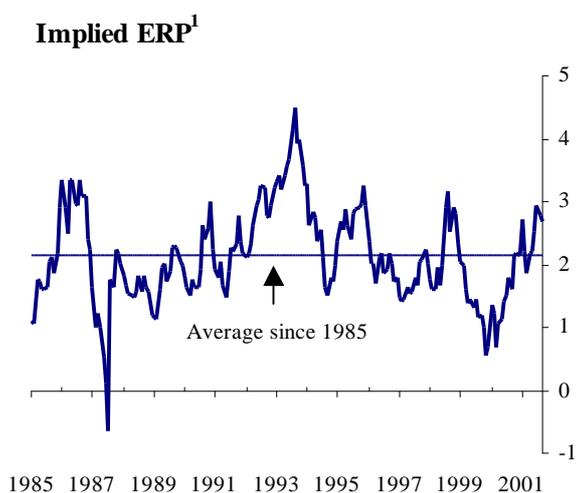
**FIGURE 7**



Note: I/B/E/S nominal earnings expectations deflated by University of Michigan survey based 5-10 year inflation expectations.

Obviously, this makes the US stock market actually look undervalued – requiring an ex ante risk premium of 2.4% would imply a rise in the S&P500 index from 1142 to around 1285. Indeed, the post-1985 average of the implied ERP is even lower (2.1%), so one could derive an even higher implied value for the S&P500.

**FIGURE 8**



<sup>1</sup> Computed using 3 stage Dividend Discount Model based on long-term earnings expectations

## SECTION B3

### BUT, A LOW ERP MUST ACCOMPANY LOWER EXPECTED RETURNS

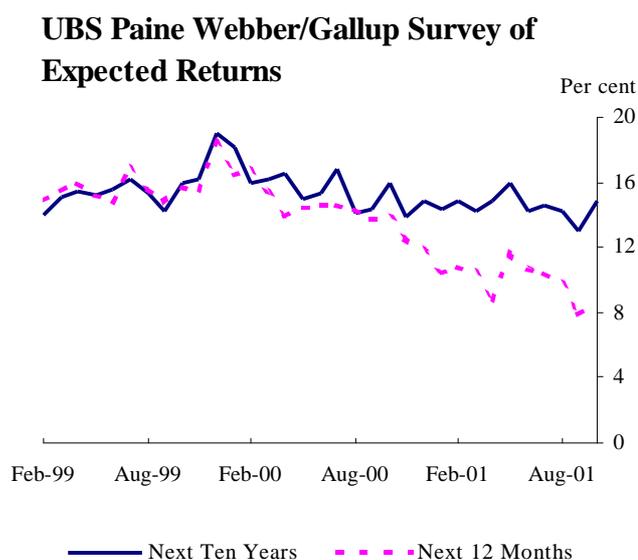
At first sight, one might take some comfort from the fact that the ERP appears to have risen from around ½% at the peak of the market of 2000, (see Figure 8), to a value above its post-1985 historical average. However, in the long bull market that we have had, investors have increased their expectations of equity returns. It is important that investor expectations for returns on the stock market are consistent with the ERP. Specifically, with long-term bond yields of around 4 ¾%, an ERP of 2½% implies a long-term return on equities of 7 ¼% pa. This implied level of equity returns is, though, considerably lower than what investors say that they expect to earn on their stocks. Specifically, the UBS Paine Webber/Gallup poll of investor attitudes asks individual investors to estimate the annual rate of return on the stock market over the next 10 years. The October 2001 survey suggested an expected return of around 15% pa! Figure 9 shows that the expected return has fallen a little (it was as high as 19% pa in December 1999), but it remains more than twice as high as implied by the current constellation of interest rates, ERP and earnings growth expectations. The mismatch between what the stock market is likely to deliver versus what individual US investors expect it to deliver is a potential source of concern about the medium-term viability of existing stock market valuations.

Of course, the recent bear market has had some impact on expected returns – indeed, 1 year-ahead expected returns have fallen significantly over the last 2 years (see Figure 9), but as already noted, 10 year-ahead expected returns have moved relatively little. Individual investors appear to believe that the current bear market is only going to have a relatively temporary effect on the path of equity returns – their longer-term expectations for returns are still what some may consider to be extraordinarily high.<sup>13</sup>

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<sup>13</sup> In theory, if the ERP were to fall further for some years to come, then it is possible that the expectations of individual investors might be validated by subsequent stock market performance. However, I regard it as an unlikely possibility since the ERP is already quite low.

**FIGURE 9**



## **SECTION B4**

### **ARE EARNINGS GROWTH EXPECTATIONS TOO HIGH?**

A related concern about possibly over-exuberant expectations is associated with the fact that analysts still expect earnings growth over the next 4 years to average almost 15% pa in nominal terms, or around 12% in real, inflation-adjusted terms. Of course, in the long-term, earnings growth must match GDP growth, and not even the most ardent advocate of the New Economy in the US believes that the economy is likely to grow faster than 4% pa. Historically, since 1875, this rate of real earnings growth of 12% pa over a 4-year period has been exceeded only about 10% of the time. Hence, the next 4 years would have to be unusually good in terms of corporate earnings growth in order to match the expectations of analysts. While this is possible, it is not particularly reassuring that the current optimism of stock market pundits is predicated on a high decile outcome. Actually, the estimate of the current ERP of 2.7% derived in Section B2 above is based on a 3-stage DDM where real earnings growth only falls gradually from its elevated level over the next 4 years. I have implicitly assumed an average growth rate of real earnings of around 8.2% pa over the next 12 years. Yet, as Figure 10 shows, this has been a very unusual event over the last 125 years.

Specifically, this rate of earnings growth has only been exceeded around 1% of the time.<sup>14</sup>

**FIGURE 10**



We also discussed before (in Section A) that expectations for a vigorous profits recovery in 2002 are threatened by a combination of little pricing power and positive unit labour cost growth.

## **SECTION B5**

### **THE LINK BETWEEN INFLATION AND THE P/E RATIO MIGHT BE UNRELIABLE**

Wall Street strategists typically justify the current level of the P/E ratio in the US by appealing to the evidence that, at least over the last 30 years, lower inflation appears to have been associated with higher P/E ratios. Equivalently, the ERP appears to have been positively correlated with inflation.

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<sup>14</sup> Some may want to argue that these earnings forecasts are not truly believed by the market. If so, this would imply that the level of the ERP is rather lower than the current estimate of 2.7%, and might still imply that the market was “overvalued” unless one also thought that the appropriate equilibrium ERP was very low.

A significant problem associated with relying on this relationship is that it is not stable over time. In an earlier paper,<sup>15</sup> I report evidence using 3 centuries of UK data suggesting that over the 1705-1949 period, the correlation between inflation and stock returns was the opposite sign of the post-1950 correlation. Similarly, in Japan, the post-1992 correlation has also switched signs relative to what prevailed before.

In Japan, the failure of the economy to recover convincingly, associated with fears relating to deflation implied that lower interest rates no longer stimulated higher share prices. Some commentators believe that there is some risk that the same might eventually occur in the context of the US stock market.

## **SECTION B6**

### **SOME TENTATIVE CONCLUSIONS**

Although global stock markets are down significantly over the past 18 months, it is not, as yet, possible to assert that all the previous “excesses” have been purged. Current valuations still appear to be predicated on estimates of medium-term earnings growth which, while not impossible, only occur infrequently. Individual investors appear to still have an unrealistic expectation of future, long-term equity returns.

However, none of these “excesses” are necessarily inconsistent with a significant move up in equity prices over the next few months if, say, clear signs of an economic recovery do emerge. It behoves us to recall the fact that equities rallied by almost 60% over the subsequent 17 months from the lows reached in October 1998, even though levels of the ERP and long-term earnings expectations were not significantly different from today. Valuation considerations only matter on a longer-term basis. An economic recovery that brought forth a significant bounce in profits and share prices is unlikely to lead anyone to question their current, longer-term expectations about earnings and equity returns. Also, if the military campaign were to be seen to be continuing to be proceeding well, equity markets and business confidence could recover significantly.

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<sup>15</sup> See Wadhvani (1999).

If, on the other hand, for whatever reason, the recovery is delayed further, then we might see a valuation adjustment as investors come to re-evaluate their expectations about longer-term earnings growth and returns. Recall that, earlier this year, we have already had two failed rallies (January, and April-May) in the expectation of a recovery. When it appeared that the economy was actually getting weaker, the stock market fell significantly, and provided further downward impetus to the economy. Hence, were the US economy to not recover on the expected schedule, there is the risk that the stock market might then act to amplify the extent of the weakness. Alternatively, even if the economy and the stock market were to recover strongly over the next few months, it is possible that the potentially over-exuberant returns and earnings growth expectations prove problematic for the markets at some future date. We shall have to wait and see.

## **SECTION C**

### **UNCERTAINTIES RELATING TO THE SUPPLY POTENTIAL OF THE ECONOMY**

At a theoretical level, most existing macroeconomic models produce forecasts of inflation that depend on some assessment of demand pressures relative to the supply potential of the economy. However, in practice, assessing the true degree of supply potential is very difficult. We have, for some time, had to make some difficult judgments about, among other things, the level of spare capacity and the degree of competitive pressure. One way of assessing whether our assumptions about these key, hard-to-measure variables are appropriate is to look at the performance of the equation which helps predict prices that is embedded in the Bank's Medium-Term Macro-econometric Model (MTMM, hereafter).

Now, there has been a tendency since around 1998 for actual prices to come in below what the MTMM equation predicted – these errors have been, both, economically and statistically significant.<sup>16</sup> Much of the “art” of forecasting lies in the judgments that are made. Different assumptions about whether or not these errors would persist can have a large effect on the inflation forecast. If one assumes that these errors are relatively transient, then the forecast would tend to follow the prediction of the

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<sup>16</sup> See Wadhvani (2001) for a more detailed discussion.

equation. If, instead, one felt that the factors that explain these errors were likely to endure, then this can lead to a significantly different forecast of inflation.

In deciding on appropriate assumptions, we have had to take into account the upward revisions to the historical capital stock data that were unveiled by the ONS in September 2001. The new measure of the capital stock had a significant effect on the MTMM measure of capacity utilisation.<sup>17</sup> This new measure is rather closer to survey measures than was true of the previous measure, and implies that we are operating below full capacity, while the previous measure implied that we were operating above full capacity.<sup>18</sup> The revised measure of capacity utilisation has the considerable advantage that it reduces the size of the price forecasting errors that would have been made. It is also more plausible as it is more closely correlated with survey measures.<sup>19</sup> One is normally more confident about projecting the future when one understands the past better. Since this alternative explanation of the price forecasting errors was of a more enduring character, this reduced the medium-term inflation forecast that was mechanically produced by the model.<sup>20</sup>

Indeed, this partly explains why, as was noted in the November 2001 Inflation Report (p iii), although the broad outlook for growth was similar to August, underlying inflationary pressures were a little weaker.<sup>21</sup>

However, important uncertainties about the degree of inflationary pressure remain. This is unlikely to be the final word on the capital stock.<sup>22</sup> Moreover, although the

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<sup>17</sup> The Bank's measure of capacity utilisation is defined in Bank of England (2000), pp 28-29.

<sup>18</sup> See Wadhvani (2001) for a discussion of the lack of correlation of the previous measure with survey measures.

<sup>19</sup> We have compared it to a composite measure based on surveys carried out in manufacturing and services.

<sup>20</sup> Since the previous adjustments that had been previously been made to deal with the price forecasting errors were unwound over time. Note also that we have now assumed a faster, prospective growth rate in the capital stock over the forecast period, which, in a mechanical sense, implies a faster growth rate of potential output.

<sup>21</sup> Other explanatory factors included lower input prices and, perhaps, the fact that quarterly growth in the second half of 2002 is a little lower than in the August projection.

<sup>22</sup> I have previously (Wadhvani (2000, 2001)) considered the possibility that we use alternative conceptual measures of the capital stock.

new capital stock data imply smaller forecast errors in the price equation, there is still some tendency to over-predict price inflation since 1998.<sup>23</sup> These forecasting errors are still economically significant. If, for example, we projected the average forecast error that has been made over the post-1998 period into the future, Figure 11 shows that the implied path for inflation would have been quite different from what was published in the November Inflation Report, with a difference in the two year-ahead inflation projection of as much as 1.8 percentage points.<sup>24</sup> Of course, the model-based inflation forecast is very sensitive to different technical assumptions about the behaviour of future forecast errors. Figure 11 shows that projecting the post-1997 error forward would yield a path for inflation that was lower than the November Inflation Report projection by 0.9 percentage points instead. Hence, considerable uncertainty remains, though all reasonable assumptions regarding the historical errors would point to lower inflation.<sup>25</sup> Of course, the forecast that we publish is not mechanically generated, and depends on a host of judgments.

This suggests that there might still be important missing/poorly measured variables in the MTMM price equation, and that there is much work for us to do. Progress here could help reduce the degree of dispersion in alternative inflation forecasts in Figure 11. Candidate explanations include the possibility that the capital stock remains mis-measured and we still need to investigate alternative conceptual measures of the capital stock, eg the Volume Index of Capital Services. More generally, the evidence that prices have been coming in below what the equation predicts is consistent with the growth rate of potential output being higher than we have assumed. Another issue is that the equation does not currently allow the world price of competitor goods to influence domestic pricing and, thereby, potentially fails to pick up the intensification of competitive pressure that has occurred<sup>26</sup> as the ratio of world prices to domestic prices has fallen significantly in recent years. There is also survey evidence suggesting that an intensification of competitive pressures since mid-1997 has been perceived to have an important effect on profitability. Further, it may be that we need to revisit the conceptual measure of capacity utilisation that is used in

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<sup>23</sup> A t-ratio to assess the statistical significance of the forecasting errors was previously  $-2.19$ . It is now  $-1.5$ . Although this is not statistically significant, it is economically significant, as I discuss in the text.

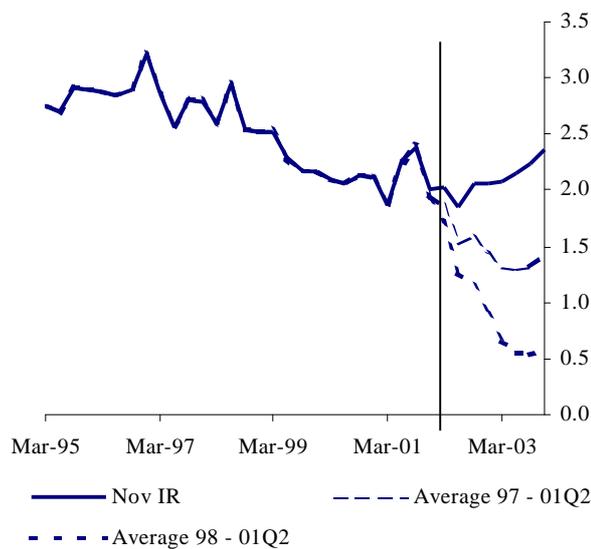
<sup>24</sup> This simulation was carried out within the External MPC Unit.

<sup>25</sup> Note that, in any case, the variance of our August 2001 inflation forecast was around 0.8 percentage points at the two year horizon.

the model. In any case, while there are considerable uncertainties, my personal judgment is that the current published best collective projection is overstating the degree of inflationary pressure.<sup>27</sup>

**FIGURE 11**

**Alternative 'Inflation Forecasts'**



I have used the above example to illustrate some of the difficult decisions that we have to make in terms of assessing supply potential. While I have concentrated on issues relating to physical capacity and the degree of competitive pressure today, trying to assess slack in the labour market is just as difficult, though that can be left for another occasion.

**CONCLUSIONS**

Let me end by summarising what I have said today.

In terms of the outlook for the global economy, the consensus forecast is for a recovery to begin in the US by the middle of 2002. This view is based on the significant degree of fiscal and monetary stimulus in the pipeline. I did, though discuss the risks to this view, including the possibility that the ongoing deterioration

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<sup>26</sup> See Wadhvani (2001), Section 6 for further discussion of this hypothesis.

<sup>27</sup> It is one reason why I personally favoured the lower modal inflation projection, represented in Table 6B of the November Inflation Report.

in the labour market would impact on consumption, and also that weak profitability might keep layoffs high.

Turning to the stock market, while valuations are much more moderate than in early 2000, expectations of medium-term earnings growth and stock market performance are still high. While none of this would preclude a significant rise in stock prices over the next few months, it does increase the risk to the stock market if the economic recovery were delayed. Moreover, over the medium-term, a downward valuation adjustment may still be necessary.

Finally, I discussed some of our recent difficulties associated with assessing supply capacity. The recent upward revisions for the capital stock have helped us to understand the past better and increased the measured degree of spare capacity in the economy. Major uncertainties remain, but my own view is that the tendency for prices to come in lower than the Bank's model appears to imply that there might be less inflationary pressure than has been assumed.

I now look forward to hearing your views on these thorny issues.

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