

Markets and operations

- *This article reviews developments in international and domestic financial markets, drawing on information from the Bank of England's market contacts, and describes the Bank's market operations in the period 1 February to 11 May 2001.*
- *Private sector forecasts for short-term growth prospects in the G7 countries were revised down during the period. World equity markets fell sharply until late March but recovered somewhat thereafter.*
- *Official interest rates were reduced by 100 basis points in the United States, by 75 basis points in the United Kingdom, and by 25 basis points in the euro area. The Bank of Japan also eased its monetary policy during the period.*
- *Short-term interest rate expectations fell in the United States, the United Kingdom and Japan, but were broadly unchanged in the euro area. Uncertainty about the short-term outlook for future changes in monetary policy increased in these areas.*
- *US and European government bond yields beyond two years' maturity rose as market participants became more confident that the reductions in official rates would limit the extent of the global slowdown.*
- *The dollar appreciated against the other major currencies during the period.*

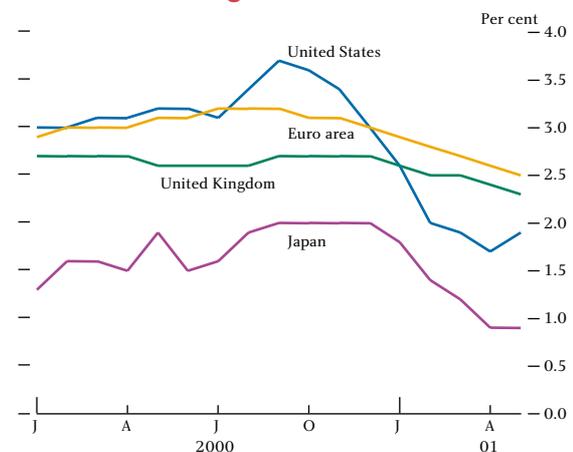
Changes in the macroeconomic environment

One of the main influences on financial market movements in February, March and April was changes in perceptions about the likely severity of the global economic slowdown in 2001. Activity data for the G7 economies released during the period were somewhat mixed. The pace of activity in the service sectors of all seven countries generally weakened by less than the growth rates of industrial production, which slowed quite sharply. Annual rates of GDP growth have consequently slowed in most of the G7 economies. However, the quarterly rate of US GDP growth in Q1 was stronger than most commentators had been expecting and was higher than in Q4.⁽¹⁾

Reflecting these developments, forecasts for GDP growth in 2001 in the United States, Europe and Japan were revised down during the review period. But these

revisions were the same size as, or smaller than, those recorded in the three months to February (see Chart 1). In particular, Consensus Economics' surveys suggest

Chart 1
Forecasts for GDP growth in 2001^(a)



Source: Consensus Economics.

(a) Means of survey samples.

(1) For further details about recent changes in global economic conditions, see pages 14–17 of the May 2001 *Inflation Report*.

that the mean projection for US GDP growth in 2001 was revised down by only 0.1 percentage point in the three months to May, after a fall of 1.4 percentage points in the previous three months. The mean forecasts for GDP growth in Japan, the euro area, and the United Kingdom were revised down by 0.5, 0.3 and 0.2 percentage points respectively during the review period. Looking further ahead, forecasts for GDP growth in 2002 were also revised down. Nevertheless, in mid-May they continued to suggest that growth in the United States and Europe was expected to recover to around $2\frac{3}{4}\%$ – 3% next year.

Forecasts for consumer price inflation in 2001 have generally been revised up slightly since February (see Table A), while inflation forecasts for 2002 have remained largely unchanged.

Table A
Forecasts for consumer price inflation in 2001

Per cent; percentage points in italics

	February	May	Change (a)
United States	2.6	3.1	<i>0.5</i>
Euro area	2.0	2.3	<i>0.3</i>
United Kingdom	2.1	1.9	<i>-0.2</i>
Japan	-0.4	-0.3	<i>0.1</i>

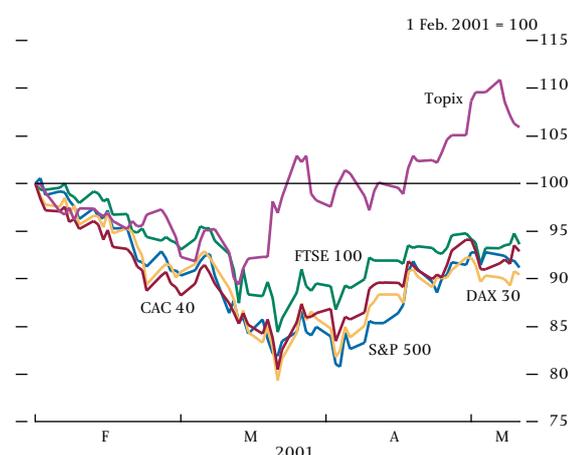
Source: Consensus Economics.

(a) Change between February and May 2001.

Equity markets

Share price indices fell sharply in most countries during the period. Between the end of January and 22 March, the FTSE 100, the S&P 500 and the DAX 30 declined by 16%, 18% and 21% respectively (see Chart 2). These reductions occurred across a broad range of firms and sectors, including well-established 'blue chip' companies and the so-called 'new economy' technology, media and

Chart 2
International stock market indices^(a)



(a) In local currencies.

Table B
International equity market performances

Percentage changes from previous period, using end-period observations in local currencies

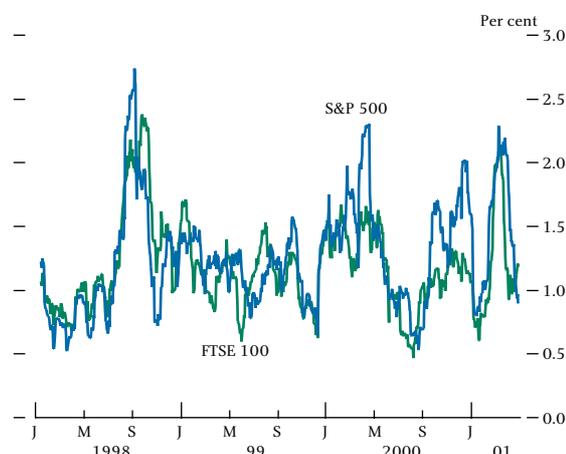
	2000		2001
	Year	Q4	Q1 (a)
United States			
S&P 500	-10.1	-8.1	-9.3
Wilshire 5000	-11.9	-10.6	-9.5
Europe			
CAC 40	-0.5	-5.4	-5.6
DAX 30	-7.5	-5.4	-8.4
FTSE All-Share	-8.0	-1.5	-5.5
FTSE 100	-10.2	-1.1	-5.7
Japan			
Topix	-25.5	-12.7	6.0
TMT indices			
NASDAQ Composite	-39.3	-32.7	-24.3
FTSE techMARK 100	-32.2	-31.4	-27.6
Neuer Markt	-40.1	-43.7	-31.2

Source: Bloomberg.

(a) 1 February 2001 to 11 May 2001.

telecommunications (TMT) sectors. International equity indices then rebounded from 22 March. The FTSE 100 index ended the period at 5897, 5.7% lower than its level on 1 February (see Table B). In the United Kingdom and the United States, equity market volatility rose to levels last seen during the financial market turbulence of autumn 1998 (see Chart 3).

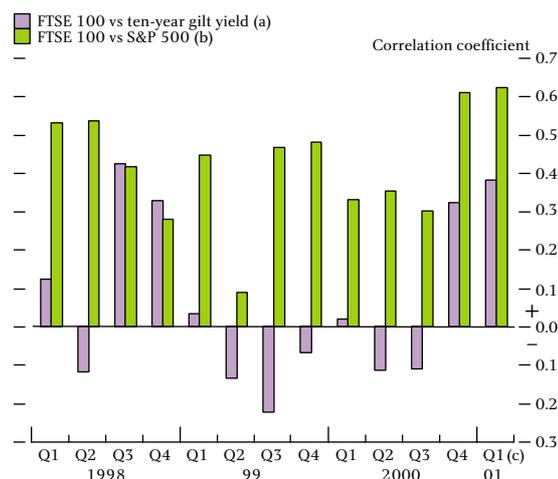
Chart 3
Equity market volatility^(a)



(a) Rolling one-month standard deviations of daily percentage changes in the identified equity indices.

During the review period, correlations between the daily changes in different international share price indices, and between equity and bond markets, were high by recent standards (see Chart 4 and Table C). The correlation coefficient between the daily changes in the FTSE 100 and the ten-year gilt yield rose to 0.40, while the correlation coefficient between daily changes in the FTSE 100 and the S&P 500 was 0.62 during the period. These figures are broadly comparable with the strength of the inter-market relationships observed at the time of

Chart 4
Financial market correlations^(a)



- (a) Quarterly correlations between the daily percentage changes in the FTSE 100 index and the daily changes in the ten-year par gilt yield.
- (b) Quarterly correlations between the daily percentage changes in the S&P 500 and FTSE 100 share price indices.
- (c) 1 February 2001 to 11 May 2001.

Table C
Correlations between the FTSE 100 and other equity indices^(a)

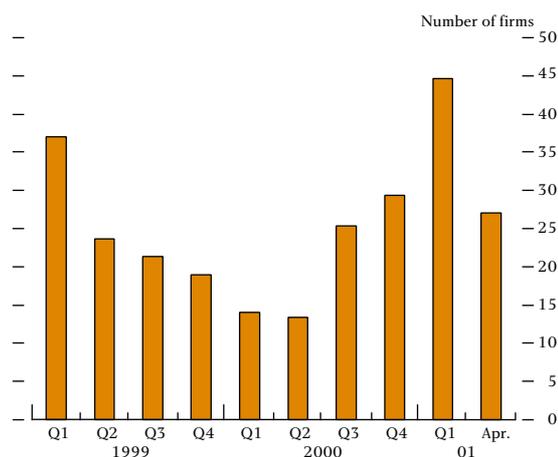
		S&P 500	DAX 30	CAC 40	Topix
2000	Q1	0.33	0.69	0.65	0.24
	Q2	0.35	0.71	0.70	0.07
	Q3	0.30	0.55	0.69	0.10
	Q4	0.61	0.75	0.70	0.29
2001	Q1 (b)	0.62	0.84	0.88	0.26

- (a) Correlations between daily percentage changes in FTSE 100 and identified equity indices.
- (b) 1 February 2001 to 11 May 2001.

the financial market turbulence in autumn 1998. These relatively high correlations suggest that common factors are likely to have influenced the movements in the different markets.

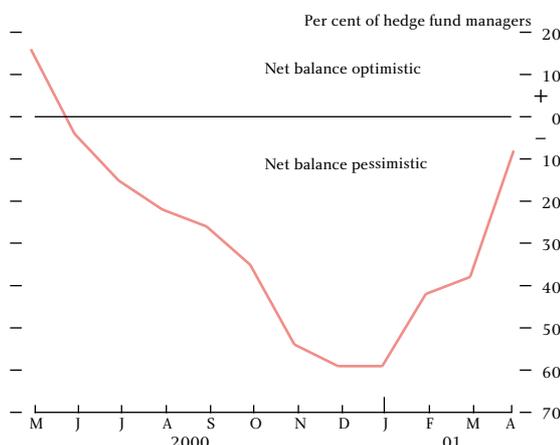
The most significant common influence appears to have been changes in investors' sentiment about the outlook for global growth and, in particular, about prospects for US activity. Until late March, the fall in equity indices occurred alongside a decline in government bond yields as economists and market participants downgraded their expectations for world economic growth in 2001. These declines in equity prices and changes in sentiment about the likely pace of economic activity in the United States and Europe were linked to the number of profit warnings released by firms both in the United Kingdom and internationally. In 2001 Q1, the number of UK companies warning shareholders that their profits would not meet expectations rose to its highest level since the Bank's series began in mid-1997 (see Chart 5). During April, however, it fell back to close to its average since 1997. Similarly, Merrill Lynch's survey-based measure of the global net balance of fund managers with a positive

Chart 5
Profit warnings issued by UK firms^(a)



- (a) Monthly average number of firms listed in the FTSE All-Share index to issue a profit warning or negative trading statement.

Chart 6
Global economic optimism^(a)



Source: Merrill Lynch Fund Managers survey.

- (a) Chart shows the difference between those fund managers who think the outlook for the global economy over the next twelve months has got stronger and those fund managers who think it has got weaker.

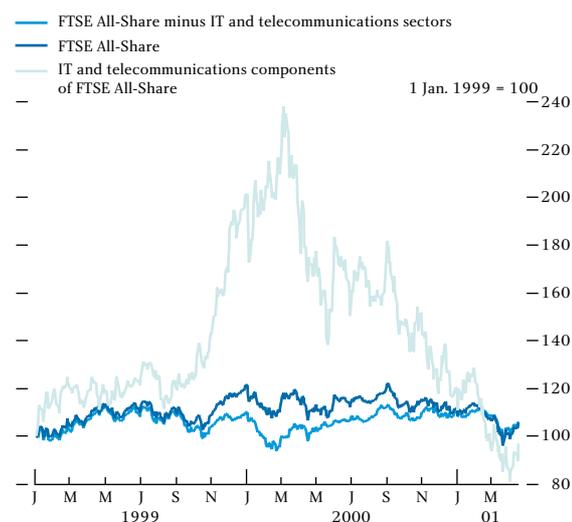
outlook about future economic prospects recovered from -59% in January to -8% in April (see Chart 6).

The behaviour of investors that actively manage their portfolios of bonds and equities may have accentuated the turnaround seen in March, and might help to explain the unusually high inter-market correlations. Commentators have suggested that some of these investors are likely to have moved investment capital from equity markets into fixed-income assets when equity prices were falling. This would have tended to increase the downward pressure on equity prices and the upward pressure on bond prices. In the second half of March and in April, the process seems to have been reversed.

Another component of the movements in equity markets during the period was the continued volatility in 'new

economy' TMT stocks. Indices covering these sectors fell by much more than broader indices; the FTSE techMARK index fell by 28% and the NASDAQ by 24%. But while the negative contribution from these sectors had previously outweighed small price increases in other sectors, they were accompanied by price falls in most other stocks between February and late March (see Chart 7).

Chart 7
FTSE All-Share by sector



Uncertainty about the future path of equity indices, derived from the prices of options on equity futures contracts settling on the FTSE 100 and S&P 500 indices, rose slightly during the period. Nevertheless, current levels of uncertainty remain below historical norms. In addition, the recent decline in equity prices appears to have led to a small reduction in the downside skew derived from option contracts. Hence at the end of the period, market participants attached a slightly smaller probability to further significant falls in these two equity indices.

Short-term interest rates

In the United States, the Federal Open Market Committee (FOMC) reduced the Federal funds target rate by 100 basis points during the period; 50 basis point reductions were announced on 20 March and 18 April, taking the official rate to 4.5%. In the United Kingdom, the Monetary Policy Committee (MPC) reduced the Bank of England's repo rate by 75 basis points in three 25 basis point steps (on 8 February, 5 April, and 10 May)⁽¹⁾ lowering the rate to 5.25%. The European Central Bank (ECB) reduced its minimum refinancing rate by 25 basis points to 4.5% on 10 May,

and on 19 March the Bank of Japan changed its monetary policy target from the overnight call rate to the aggregate of current account balances held with it.

Short-term interest rate expectations in the United States, the United Kingdom and Japan declined over the review period. Rates implied by eurodollar futures contracts maturing in 2001 fell by 50–80 basis points, while rates implied by short sterling and euroyen futures contracts declined by 15–30 and 25–30 basis points respectively (see Charts 8 to 10). In contrast, short-term interest rate expectations in the euro area ended the period little changed from their starting-point (see Chart 11).

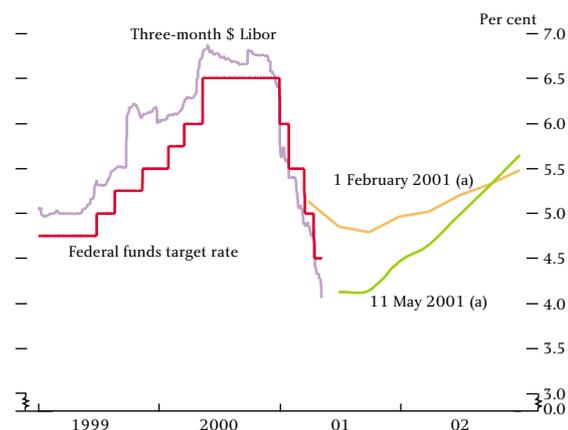
Near-term interest rate expectations in the United Kingdom, the United States and the euro area declined broadly in parallel in the seven weeks to 22 March and then diverged thereafter. The similar pattern of declines in the first half of the period (see Chart 12) reflected at least two common factors.

First, short-term rate expectations fell in all three regions in response to a series of weaker-than-expected activity and confidence indicators and an increase in the number of profit warnings announced by firms. These considerations, in turn, led to declines in equity prices and gave forecasters reason to revise down their expectations for GDP growth in 2001. Rates implied by futures contracts fell in the United States, and to a lesser extent in the United Kingdom and the euro area, following the January US industrial production data, the February University of Michigan consumer confidence survey, and the Federal Reserve Bank of Philadelphia February survey of business conditions, all of which were weaker than expected. In addition, domestic data in the United Kingdom and the euro area were also weaker than expected in February and early March, and contributed to the downward revisions to short-term interest rate expectations.

Second, the size of the reductions in US official interest rates also took market participants by surprise and led to lower expectations of future short-term interest rates. For example, rates implied by eurodollar, euribor and short sterling futures contracts expiring in 2001 fell following the FOMC's 50 basis point rate reduction on 20 March. In contrast, in the United Kingdom, the MPC's policy decisions were widely anticipated by market participants and had little impact on short

(1) For further details, see *Monetary Policy Committee Minutes and Press Notices, May 2001*.

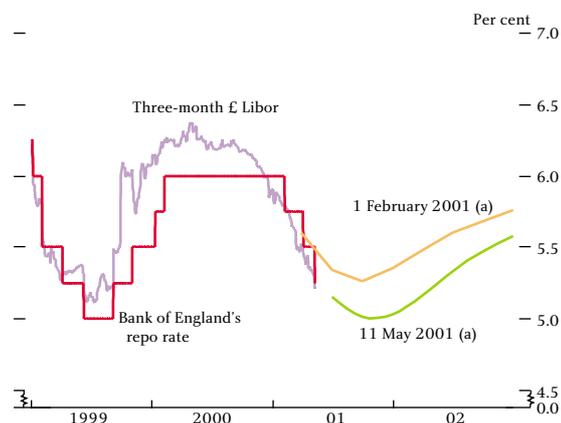
Chart 8
US interest rates



Source: Bloomberg.

(a) Three-month interest rates implied by eurodollar futures contracts at the dates specified. From May 2001 onwards, the x-axis relates to contract expiry dates.

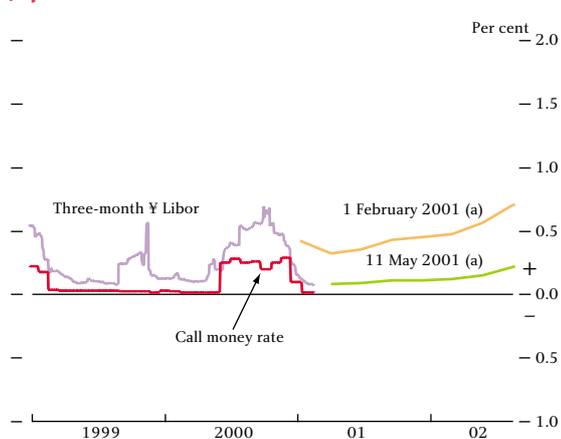
Chart 9
UK interest rates



Source: Bloomberg.

(a) Three-month interest rates implied by short sterling futures contracts at the dates specified. From May 2001 onwards, the x-axis relates to contract expiry dates.

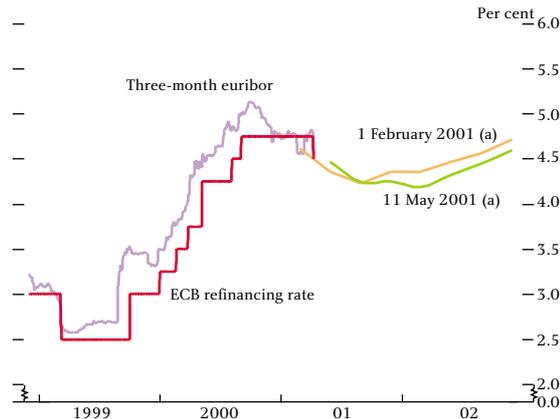
Chart 10
Japanese interest rates



Source: Bloomberg.

(a) Three-month interest rates implied by euroyen futures contracts at the dates specified. From May 2001 onwards, the x-axis relates to contract expiry dates.

Chart 11
Euro-area interest rates



Source: Bloomberg.

(a) Three-month interest rates implied by euribor futures contracts at the dates specified. From May 2001 onwards, the x-axis relates to contract expiry dates.

sterling futures contracts. The box on pages 150–51 discusses the extent to which UK interest rate expectations derived from surveys and from money market instruments have moved in line with each other in recent years.

After 22 March, movements in short-term interest rate expectations became less closely correlated internationally. Interest rate expectations implied by futures contracts expiring in 2001 continued to decline in the United States, and were volatile but little changed in net terms in the United Kingdom (see Chart 13). In contrast, rates implied by US and UK futures contracts maturing in 2002 and beyond rose in the second half of the period (see Chart 14). Market comment suggested that this rise reflected a growing belief that the FOMC's rate reductions would restore consumer confidence and stimulate economic growth. This greater optimism was also reflected in equity markets, which rose from mid-March. Interest rate expectations for 2002 in the United States also rose following some stronger-than-expected activity data releases. In the United Kingdom, interest rate expectations for 2002 reacted partly to US developments, and partly to domestic considerations. In particular, sterling interest rate expectations rose following the stronger-than-expected average earnings data released on 11 April.

In the euro area, rates implied by euribor futures contracts rose at all maturities after 22 March. The principal influence on interest rate expectations during this interval appears to have been the ECB's policy decisions. In particular, short-term euro interest rate expectations rose sharply on 11 April following the ECB's

Comparison of survey and market interest rate expectations

Interest rate expectations can be derived from surveys, as well as forward rates calculated from the prices of traded financial market instruments. This box compares these two sources for sterling interest rate expectations over an eleven-year period.

Surveys of nominal interest rate expectations

There is a range of nominal interest rate surveys available. The principal differences between them relate to: (a) the sample of the survey respondents; (b) the short-term interest rate that respondents are asked to comment on; and (c) the forecast horizon.

Three of the available sterling interest rate surveys ask directly about expectations for the Bank's official rate: Reuters, Merrill Lynch, and Market News International. Among these, the time series of observations available from the Merrill Lynch survey is the longest. This box focuses primarily on this source. Despite the different samples of respondents, the mean expectations from Reuters' surveys of the Bank's official rate are close to those of the Merrill Lynch surveys, in the instances where the forecast horizons coincide (see Chart A).

Chart A
Twelve-month ahead forecasts of the Bank's official rate



Sources: Merrill Lynch and Reuters.

Other surveys ask about expectations for three-month market-determined interest rates. For example, Consensus Economics ask respondents for their forecast of the three-month interbank rate likely to prevail three and twelve months ahead. The latter expectations show a high degree of co-movement with

Merrill Lynch's survey of forecasts for the Bank's repo rate, also at the twelve-month horizon.

Comparison of survey-based and market-determined interest rate expectations

One difficulty in comparing survey-based and market-determined interest rate expectations is that the timing of the survey responses may extend over several days and is somewhat uncertain. This makes it difficult to generate exactly matched comparisons.

Since general collateral (GC) repo is the closest instrument to the Bank's repo agreement, the Merrill Lynch survey results are compared against two-week forward rates derived from the Bank's gilt yield curve (which is constructed from both gilts and GC repo contracts).⁽¹⁾ Chart B shows survey-based expectations of the Bank's repo rate at a twelve-month horizon and comparable two-week forward rates derived from the Bank's gilt yield curve. Between

Chart B
Twelve-month ahead expectations of two-week interest rates



Sources: Merrill Lynch and Bank of England.

(a) Calculated using the Bank's VRP curve-fitting technique.

mid-1990 and the start of 2001, a period that includes several interest rate cycles, the average difference between the two series was only 2 basis points. Furthermore, movements in the two different measures of interest rate expectations have been highly correlated.

However, while at some times within an interest rate cycle the two measures have closely agreed with each other, they have diverged substantially at other times. The standard deviation of the differences is slightly

(1) For further details of this technique, see Anderson, N and Sleath, J, *Bank of England Quarterly Bulletin*, November 1999.

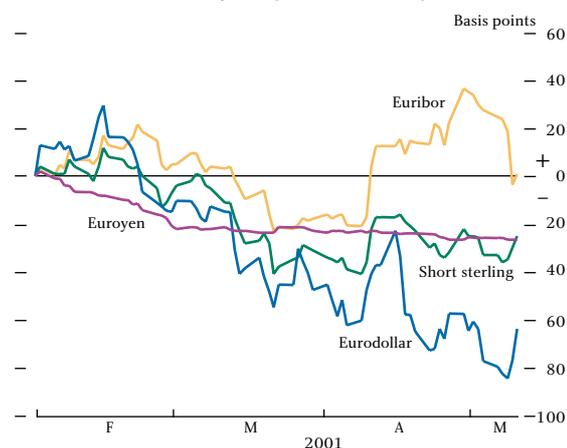
above 50 basis points. Gilt forward rates have tended to be higher than the survey expectations when rates are rising, and below them when rates are falling. On a few occasions the survey-based measure of expectations has diverged substantially from the forward rates. For example, in the second half of 1994, the difference between the two measures reached almost 120 basis points (see Chart B).

Using statistical tests for Granger causality between interest rate expectations from the Merrill Lynch surveys and two-week forward rates derived from the gilt yield curve at the twelve-month horizon, no strong evidence was found that survey or financial market interest rate expectations persistently lead or

lag each other over periods of greater than one month.

When the two measures track each other closely, it gives added confidence to a correct reading of market participants' expectations. When the two diverge, investigating the causes of the divergence may lead to additional insights. Given that financial market instruments are affected by other considerations as well as pure interest rate expectations (eg changes in term premia, liquidity conditions, and hedging activity), it seems likely that most of the divergences between the two measures of interest rate expectations will be related to 'special' factors affecting the traded financial instruments.

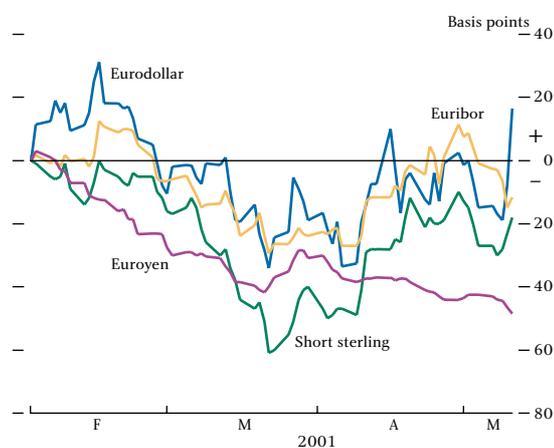
Chart 12
Cumulative changes in expectations for three-month interest rates likely to prevail in September 2001^(a)



Source: Bloomberg.

(a) As indicated by changes in interest rates implied by futures contracts maturing in September 2001.

Chart 13
Cumulative changes in expectations for three-month interest rates likely to prevail in December 2002^(a)



Source: Bloomberg.

(a) As indicated by changes in interest rates implied by futures contracts maturing in December 2002.

decision to leave its refinancing rate unchanged. Prior to this meeting, there had been a widely held expectation in the money markets that the ECB would reduce its official rate by 25 basis points in response to the evidence of weaker global economic conditions.

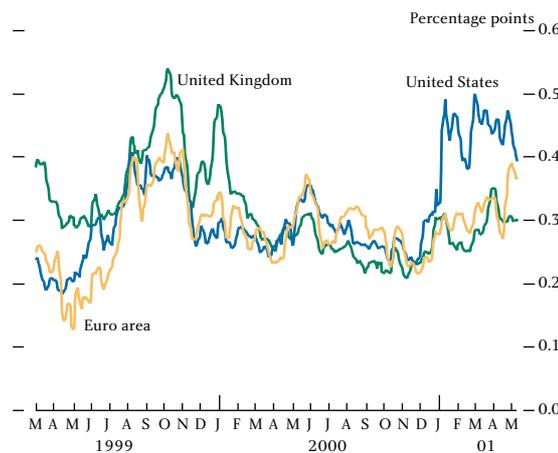
The rise in short-term interest rate expectations following the no-change decision appears to have been reinforced by comments by ECB officials that risks to price stability in the euro area were still present, and by a series of stronger-than-anticipated domestic data releases towards the end of the period. In particular, M3 growth for the euro area and consumer price inflation data for France and Italy were all above market expectations. These developments, combined with a rise in oil prices in the second half of the period, increasingly led market participants to the view that euro-area inflation pressures had not diminished sufficiently to allow the ECB to ease monetary policy. Consequently, the ECB's 10 May decision to reduce its minimum refinancing rate by 25 basis points was not anticipated by market participants and triggered a sharp decline in rates implied by euribor futures contracts expiring in 2001 (see Chart 13).

Movements in Japanese interest rate expectations were not well correlated with US and European developments during the period. Rates implied by euroyen futures fell during the first half of the period following a series of weaker-than-expected domestic activity data and consumer confidence indicators, and the strong decline in Japanese equity prices. However, sentiment then improved, helped by the easing of monetary policy and the rise in stock markets in the second part of the period.

On 11 May, eurodollar future contracts implied an expectation that the Federal funds target rate would be reduced to 4% in 2001 Q3, while euribor futures contracts suggested a floor of around 4%–4¹/₄% in the ECB's minimum refinancing rate early in 2002. In the United Kingdom, short sterling futures contracts implied a trough of around 4³/₄%–5% in the Bank of England's repo rate towards the end of 2001, and in Japan euroyen futures supported the view that the Bank of Japan's quantitative monetary policy target would be maintained for the next year.

Information from options contracts settling on interest rate futures suggested that the uncertainty attached to these short-term projections remained high in the United States and increased in the euro area (see Chart 14). In contrast, while the degree of uncertainty about the short-term prospects for monetary policy in the United Kingdom increased slightly over the period, it remains broadly in line with recent norms.

Chart 14
Interest rate uncertainty^(a)

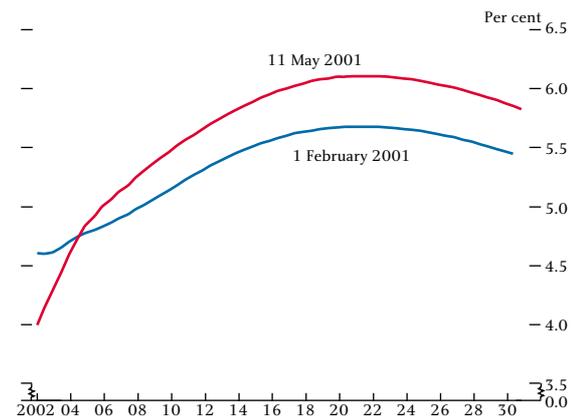


(a) Implied standard deviations of three-month constant-horizon interest rate futures contracts; five-day moving averages.

Long-term interest rates

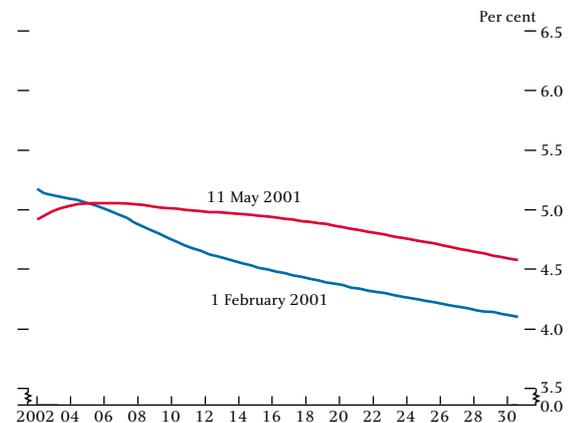
Over the period, two-year US Treasury, gilt and Bund yields fell by about 30, 15 and 10 basis points respectively (see Charts 15 to 17). In contrast, long-dated government bond yields rose. Movements in ten-year government bond yields in the three areas were highly correlated with each other, and were also highly correlated with equity markets (see Charts 18 and 19 and Table D). These yields fell between 1 February and mid-March, and then rose from late March, as equity markets rebounded. Movements in very long-dated government bond yields were not as closely synchronised with each other, however. At the twenty-year maturity, yields rose by about 45, 50 and 35

Chart 15
US Treasury yield curves^(a)



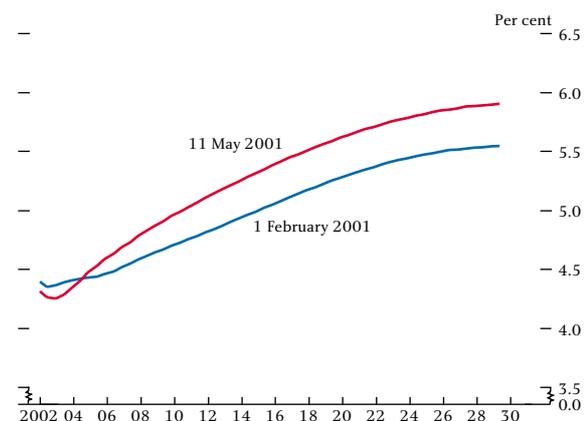
(a) Derived using the Bank's VRP curve-fitting technique. For further details on this technique, see Anderson, N and Sleath, J, *Bank of England Quarterly Bulletin*, November 1999.

Chart 16
UK gilt yield curves^(a)



(a) Derived using the Bank's VRP curve-fitting technique.

Chart 17
German bund yield curves^(a)

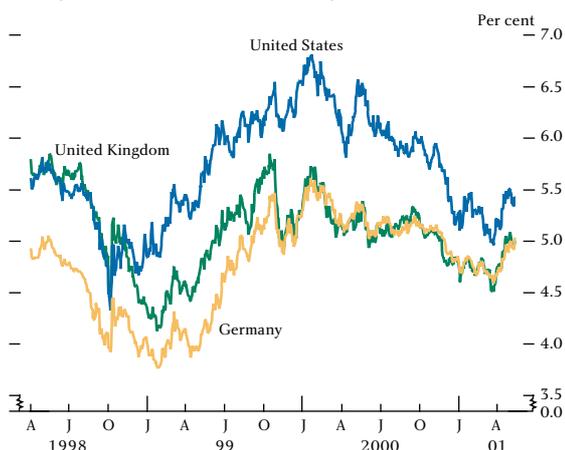


(a) Derived using the Bank's VRP curve-fitting technique.

basis points in the United States, the United Kingdom and the euro area respectively.

Market participants reported that the rise in international government bond yields out to ten-year

Chart 18
Ten-year government bond yields^(a)



(a) Zero-coupon spot yields derived using the Bank's VRP curve-fitting technique.

Chart 19
Cumulative changes in FTSE and gilt yields since 1 February

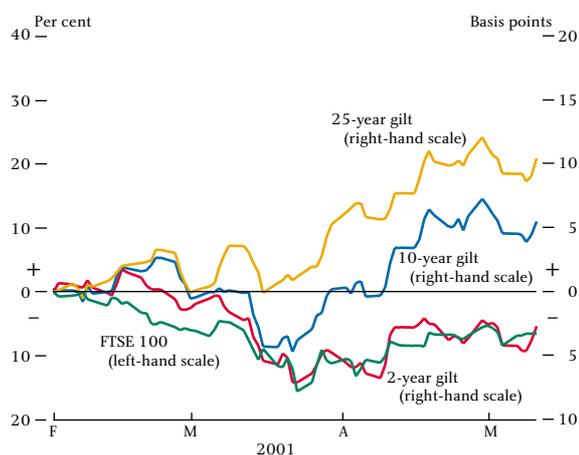


Table D
Correlations between equities and ten-year government bonds^(a)

Coefficient		US Treasuries with S&P 500	German Bunds with DAX 30	Gilts with FTSE 100
2000	Q1	0.12	-0.01	-0.02
	Q2	0.29	-0.01	-0.10
	Q3	-0.17	-0.17	-0.10
	Q4	0.24	0.48	0.32
2001	Q1	0.34	0.49	0.41

Sources: Bloomberg and Bank of England.

(a) Correlations between daily percentage changes in the identified equity indices and daily changes in government bond yields.

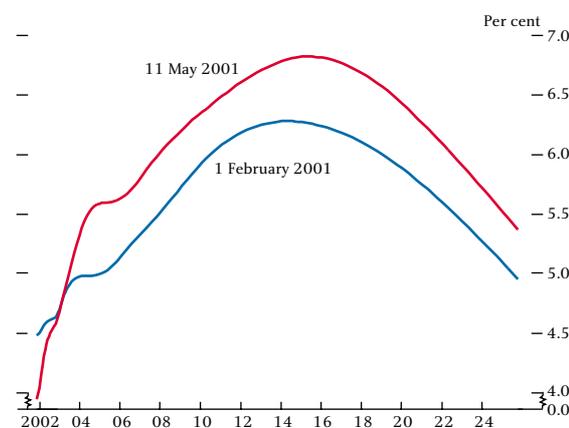
maturities was largely related to cyclical developments in the United States. Yields on ten-year government bonds reflect an average of interest rate expectations over the life of the bond, of which the nearest one to five years form an important part. As noted above, although US growth forecasts for 2001 have continued to be revised down, market participants seem to have become less

pessimistic about the medium-term prospects for growth.

Some market participants have suggested that the easing by the FOMC may have led to greater inflation risks. The contrast between the rise in nominal bond yields of about 35 basis points and the fall of about 20 basis points in the yields of index-linked Treasury securities (TIPS), both at the ten-year maturity, provides some support for this view. However, liquidity in the TIPS market is not considered to be particularly good; its prices therefore, may not provide an accurate reflection of market participants' real interest rate expectations.

If the above-mentioned short-term cyclical considerations were the only factors to have influenced government bond yields, there would have been little change in forward rates beyond a seven to ten-year horizon. However, one-month forward rates derived from the US Treasury yield curve have also increased beyond ten years (see Chart 20). This suggests that other factors also contributed to the rise in long-term bond yields. Market commentators have noted that two supply-side considerations were likely to have been influential. First, there was a strong rise in corporate bond issuance in 2001 Q1 (see discussion below). And second, the US administration's tax-cutting proposals, combined with its intention to raise spending on the Strategic Defence Initiative, may have led to expectations of an increase in the supply of US Treasuries in the longer term, and thus contributed to the rise in yields.

Chart 20
One-month forward rates derived from US Treasuries^(a)



(a) Derived using the Bank's VRP curve-fitting technique.

In addition, the rise in long-dated US Treasury yields may have been accentuated by an unwinding of the hedging of mortgage prepayment risk by investors in mortgage-backed securities. Such hedging strategies

were thought to have contributed to the decline in bond yields between October 2000 and February 2001 (see [page 9 of the Spring Quarterly Bulletin](#) for details).

The US developments discussed above were said by market participants to have had a significant effect on gilt and Bund yields, as well as on US Treasuries. Daily changes in ten-year yields on US Treasury, Bunds and gilts showed a higher correlation than in the previous quarter. This view was reinforced by the fact that the turning points in equities and ten-year government bond yields in the United States, the United Kingdom and Germany occurred at approximately the same time. This suggests that fluctuations in medium-term government bond yields were dominated by international cyclical considerations.

Beyond the ten-year horizon, however, correlations between the movements in US, UK and German government bond yields were somewhat weaker. Long-term gilt yields rose by more than either US Treasury or Bund yields. At twenty years' maturity, gilt yields rose by about 50 basis points, compared with increases of about 45 and 35 basis points in the United States and Germany respectively. This, and the fact that one-month forward rates derived from the gilt yield curve rose at maturities beyond ten years, suggest that other (non-cyclical) factors specific to the United Kingdom affected long-term gilt yields.

In particular, long-term gilt yields increased following the announcement of the abolition of the Minimum Funding Requirement (MFR) by the Chancellor on 7 March. The MFR is to be replaced with a scheme-specific funding standard. In contrast to the universal standard approach of the MFR, the new system will allow a much greater degree of flexibility for defined-benefit pension fund managers to determine the adequacy of their assets to meet their expected liabilities. In future, each pension fund will have to prepare its own Funding Statement setting out the funding objectives for the scheme, the fund's investment policy and projected return on assets, its assumptions for projecting liabilities, and a contribution schedule agreed by the trustees and the employer. No timetable has been announced for the implementation of the new proposals.

Even without an announced timetable, market participants concluded that the adoption of the new arrangements would lead pension funds to reduce their demand for long-dated gilts. Consequently, the prices of

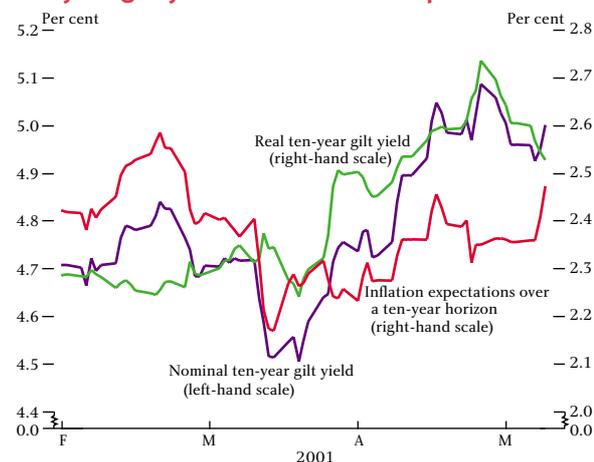
long gilts fell and yields rose. Between 5 and 9 March, the thirty-year yield increased by around 15 basis points, while the ten-year yield was virtually unchanged. However, the impact of the announced abolition of the MFR is unlikely to have been concentrated on the announcement date. Rather, it may well be extended over a longer period since institutional investors could take some time to adjust their portfolios. In addition, the strong increase in demand for sterling-denominated non-government bonds since the summer of last year suggests that the abolition of the MFR had been partly anticipated.

Moreover, the announcement by British Telecommunications in April that it will no longer offer a defined-benefit pension option to new employees may have also contributed to the disinversion of the gilt yield curve. Given that BT operate the largest occupational pension scheme in the United Kingdom, this development may have led to expectations that other firms will adopt a similar approach, thereby potentially lowering future demand for long-dated gilts from pension funds.

The issuance of £2 billion of gilts maturing in 2032 (see below) may have added to the upward pressures on very long-dated gilt yields during the period. More generally, however, the indications of future gilt sales announced in the 7 March Budget were broadly in line with market expectations and had little impact on gilt yields.

Between 1 February and 11 May, real interest rates implied by index-linked gilts rose by about 25 basis points at the ten-year maturity (see Chart 21), compared with a rise in nominal gilt yields of 30 basis points. This suggests that the reductions in interest rates decided by

Chart 21
Ten-year gilt yields and inflation expectations



the MPC during the period had little effect on UK inflation expectations.

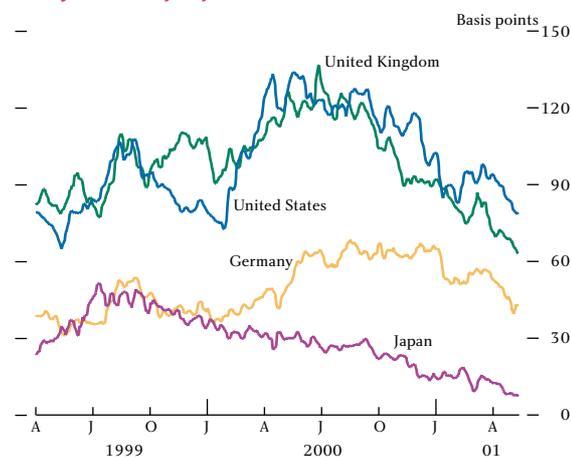
As already noted, long-term government bond yields rose by less in the euro area than in the United States and the United Kingdom. In the earlier part of the period, up to 22 March, long-term Bund yields fell by less than comparable US Treasury yields, reflecting a market view that the economic slowdown would be less pronounced in the euro area than in the United States. Similarly, after 22 March, when market confidence in the resumption of stronger growth recovered, government bond yields rose by less in Germany than in the United States.

Japanese government bond yields fell by between 12 and 37 basis points out to fifteen years' maturity, and were little changed at the longest maturities, leading to a steepening of the yield curve. In addition to equity market developments and a reassessment of the US economic slowdown, domestic factors affected Japanese government bond yields. In particular, the shift in the Bank of Japan's monetary operations target from the overnight call rate to the aggregate of current account balances held at the Bank of Japan contributed to the fall in yields.

Swap and corporate bond spreads

Ten-year sterling and euro-denominated swap spreads (the difference between swap rates and government bond yields) continued to narrow during the period, declining by around 15 and 10 basis points respectively. In contrast, dollar swap spreads ended broadly unchanged from their level at the start of February

Chart 22
Ten-year swap spreads^(a)



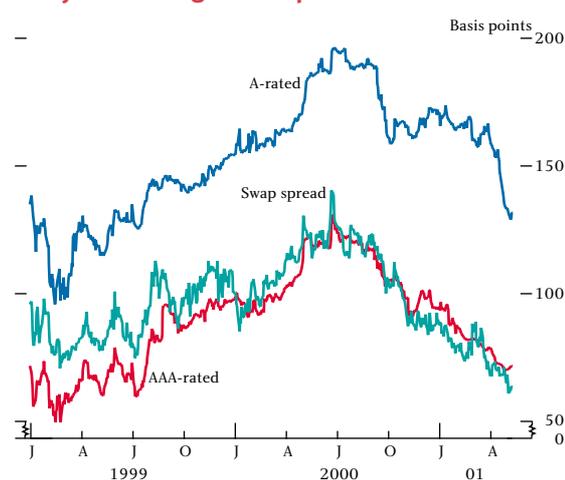
Source: Bloomberg.

(a) Five-day moving averages of yield differences between ten-year swap rates and ten-year government bond yields.

(see Chart 22). In part, the recent narrowing in sterling and euro swap spreads may have reflected reduced credit concerns, particularly as equity markets recovered after 22 March. The greater reduction in sterling swap spreads in recent months is likely to have been related to the announcement that the MFR is to be abolished. Although generally expected by market participants, this decision may have increased the number of pension funds switching away from holding long-dated gilts in favour of holding long-dated non-government bonds. This in turn may have put upward pressure on gilt yields, helping to narrow sterling swap spreads.

A and BBB-rated UK corporate bond spreads over gilt yields narrowed sharply in the second half of April, ending the period about 35 basis points lower (see Chart 23). Similarly, the spreads of A and BBB-rated sterling corporate bonds over corporate bonds of AAA and AA ratings decreased over the period. Telecommunications companies typically have A-ratings or below, and the large fall in A and BBB-rated spreads may have come in response to recently announced plans by several telecoms firms to restructure their business operations and to reduce their debt levels. In particular, the yields of BT bonds fell sharply following the announcement of their plans for asset disposals.

Chart 23
Ten-year sterling bond spreads^(a)



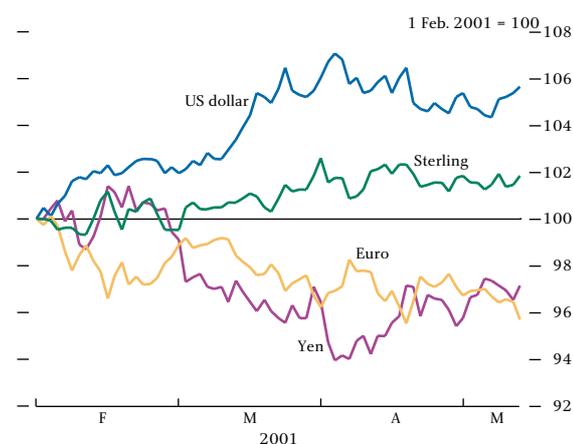
(a) All spreads shown relative to ten-year gilt yields derived using the Bank's VRP curve-fitting technique.

The spreads of A and BBB-rated corporate bond yields over swap rates also decreased during the period. This may have partly reflected reduced credit concerns following interest rate reductions, the increases in equity prices from late March, and the plans for restructuring by telecoms companies.

Foreign exchange markets

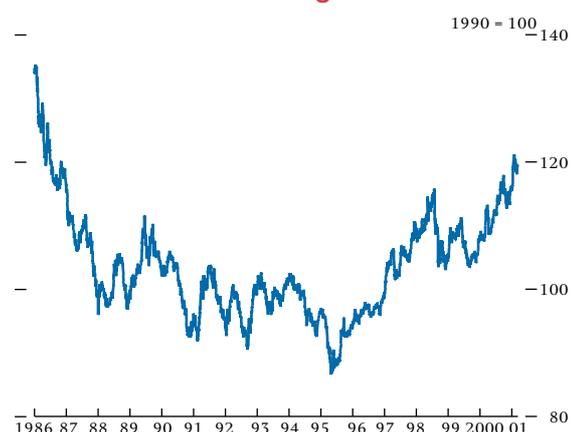
Among the major currencies, the most notable movement during the period was the further appreciation of the US dollar. Between 1 February and 11 May, the dollar trade-weighted exchange rate index (ERI) appreciated by 5.7%. The euro and yen ERIs both fell over the same period, depreciating by 4.2% and 2.9% respectively. Sterling moved within a narrower range than the G3 currencies; its ERI rose by 1.8% over the period as a whole (see Chart 24).

Chart 24
Effective exchange rate indices



The appreciation of the US dollar has been broadly based, and in effective trade-weighted terms the dollar has recently reached a fifteen-year high (see Chart 25). During the period, it rose by 7.3% against the euro, by 4.1% against sterling, and by 6.0% against the yen; it also reached record highs against the Australian dollar and the South African rand. However, the dollar's recent appreciation has occurred at a time when the US economy has been slowing. Furthermore, both official rates and short-term money market interest rates declined by more in the United States than in other

Chart 25
US dollar effective exchange rate index



industrial countries during the period. These considerations would generally have been expected by market participants to lead to a depreciation of the dollar, rather than an appreciation.

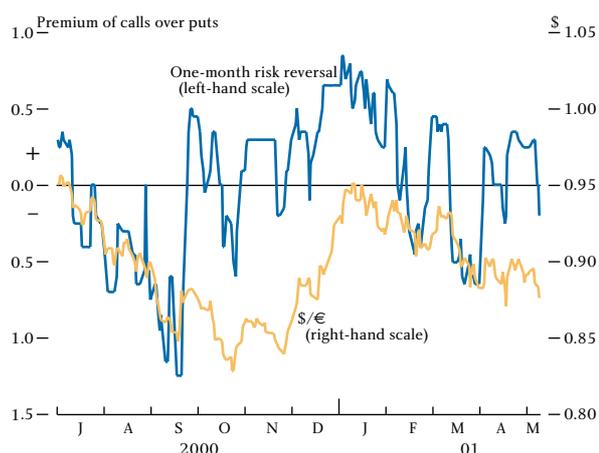
Foreign exchange market participants have therefore found it difficult to rationalise recent movements in dollar exchange rates. A number of potential explanations have, however, been put forward. In particular, many commentators have highlighted that although uncertainties over the extent and breadth of the US economic slowdown have persisted, the consensus in the foreign exchange market has increasingly shifted toward an expectation that the slowdown will be relatively short-lived and that growth prospects for the US economy in the medium term remain robust.

Another suggestion is that there have been large 'safe-haven' flows into the United States reflecting the uncertainties surrounding the global economic outlook. In support of this view, there is some evidence of net capital flows into US equities from Europe and elsewhere during the first quarter of this year. This may have reflected an increased preference on the part of US investors to hold US stocks during a period of uncertainty in the global economy.

Currency flows related specifically to mergers and acquisitions (M&A) are well below the peak levels seen during 1999 and the early part of 2000, and have not been widely regarded as a significant explanation of currency movements over recent months. This decline in M&A activity may have encouraged some hedge funds to return to the foreign exchange markets in the past year (see the box on pages 158–59 for further details).

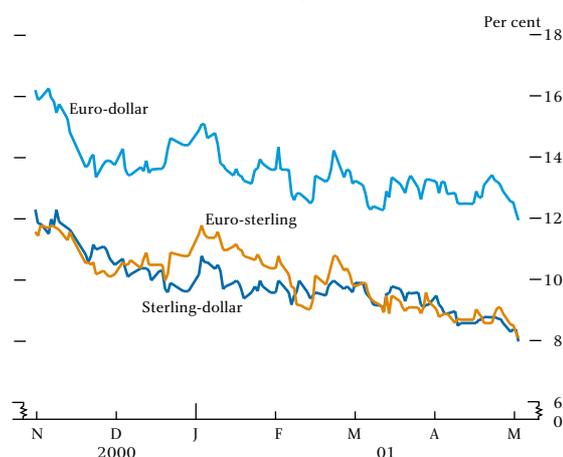
The lack of a definitive and convincing explanation for the dollar's appreciation has led some market commentators to talk of the dollar's 'irrational strength'. This may indicate that downside risks to future movements in dollar exchange rates have increased. However, there seems to be little evidence of this in the current configuration of market prices. For example, skew statistics derived from options on euro-dollar futures contracts (one-month risk reversals) were broadly neutral at the end of the period (see Chart 26). This suggests that there was little or no price premium associated with the prospect of an appreciation of the euro against the dollar. Nonetheless, uncertainty about future movements in the euro-dollar exchange rate remained at relatively high levels during the period and

Chart 26
Euro-dollar spot exchange rate and risk reversals



at much higher levels than those for sterling against the euro and the dollar (see Chart 27). Looking slightly further ahead, Consensus Economics' mean market forecast is for the dollar to depreciate gradually against the euro over the coming 18 months (see Chart 28). This view is broadly consistent with forward rates out to two years for the dollar against the euro.

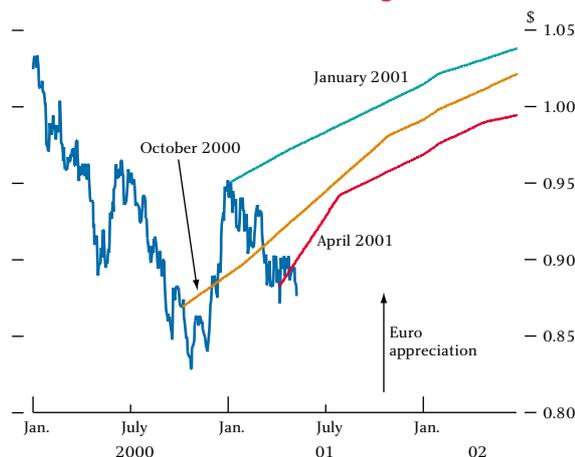
Chart 27
Exchange rate uncertainty^(a)



(a) One-month implied volatilities derived from options on foreign exchange futures contracts.

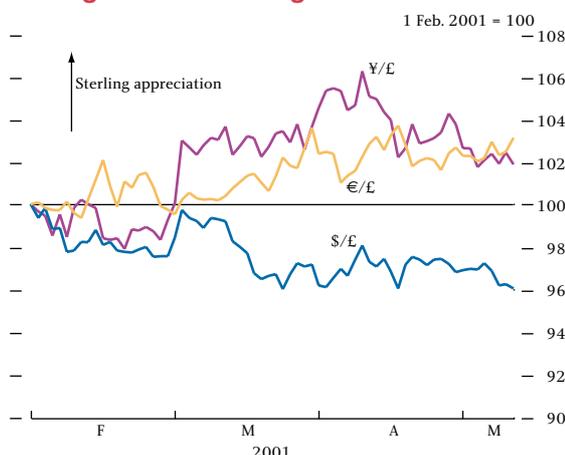
Movements in sterling bilateral exchange rates during the period have generally reflected developments outside the United Kingdom rather than domestic news. In effective terms sterling appreciated by 1.8% over the period; a 3.9% depreciation against the generally strong dollar was more than offset by appreciations of 3.1% and 1.9% against the euro and yen respectively (see Chart 29). Sterling's movement against the euro was broadly in line with the euro's more general depreciation against other currencies, while the appreciation against

Chart 28
Forecasts for euro-dollar exchange rate



Source: Consensus Economics.

Chart 29
Sterling bilateral exchange rates



the yen largely reflected the political and economic uncertainties in Japan during March. Implied volatilities derived from one-month sterling-dollar and euro-sterling option contracts continued to fall during the period (see Chart 27). This suggests that uncertainty about future short-term movements in these exchange rates diminished. There has also been a slight increase in the one-month expected correlation between sterling and the euro against the dollar. Consequently, sterling is implicitly expected to move in line with the euro against the dollar to a greater extent than at the start of the period.

The sterling money market

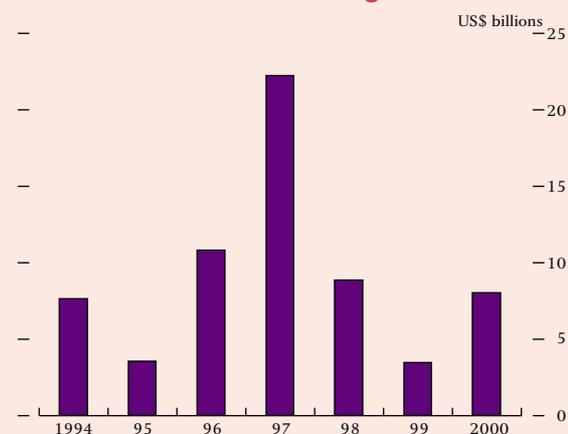
The sterling money market⁽¹⁾ grew sharply in 2001 Q1, increasing by £35 billion (7%) relative to Q4. This strong growth followed a period of little change in the second half of last year (see Table E). The main

(1) The sterling money market is defined for this purpose as the sum of the outstanding amounts in the interbank, certificate of deposit, Treasury bill, eligible bank bill, local authority bill, commercial paper, gilt repo, stock lending and sell/buy-back markets.

Hedge fund activity in the foreign exchange market

Recently released data suggest that investors' net flows into hedge funds increased in 2000 (see Chart A). This followed declines in net inflows seen in 1998 and 1999 after the turbulence in financial markets in the autumn of 1998 related to the collapse of Long Term Capital Management (LTCM) and the rescheduling of some of the Russian government's debt. Separately, market commentary so far this year suggests that hedge funds have also increased the proportion of their funds under management that

Chart A
Annual investor flows into hedge funds



Source: TASS Research/Tremont.

they allocate to speculation about future foreign exchange rate movements. For much of the 1990s, hedge funds were often cited as an important influence on exchange rates, although they are reported to have been less active since 1998. This box examines the extent to which hedge fund activity in the foreign exchange market has changed, the reasons behind this and its implications for exchange rate movements.

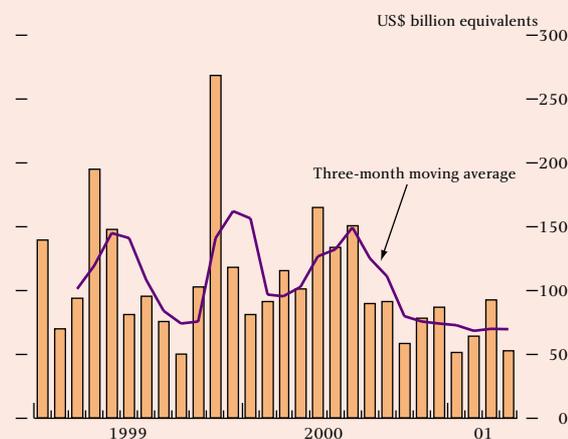
At least two explanations for the recent increase in hedge fund activity in foreign exchange markets have been offered by market participants.

First, it is suggested that the decision by hedge funds to increase their asset allocation to foreign exchange markets may have reflected declining returns in equity markets, in particular technology stocks. The returns of technology-based hedge funds have declined since 1999 Q4 (even before the sharp fall in the NASDAQ) and were negative in 2000 Q2 and Q4 and 2001 Q1. According to this view, hedge funds have become less active in equity markets and have looked to other

markets to maintain the high return that their investors expect.

Second, it is suggested that increased hedge fund activity in the foreign exchange market may be partly related to slowing cross-border mergers and acquisition (M&A) activity. The average monthly volume of announced M&A deals in the first four months of 2001 was significantly below the average monthly volumes recorded in 1999 and 2000 (see Chart B). Some of these deals were structured in a way that led to large flows in the foreign exchange market. So, in certain currencies and at certain times, these flows may have dominated considerations related to economic fundamentals in the determination of exchange rates. Moreover, M&A flows are generally difficult to predict. Given hedge funds' relatively short investment horizons, this may have discouraged them from choosing to express a macroeconomic view via exchange rates. On this view, the more recent decline in M&A activity may have encouraged increased activity in currency markets, including by hedge funds.

Chart B
Value of announced cross-border M&A deals



Source: Thomson Financial Securities Data.

The implications of any increase in hedge fund activity are difficult to predict. In principle, reduced M&A flows may be associated with greater activity of both momentum traders and hedge funds. Momentum traders are often thought to add to the volatility in exchange rates. In contrast, greater activity by hedge funds may increase the heterogeneity of trading styles and investment horizons, thereby increasing market liquidity and reducing volatility.

It is nonetheless important to note that hedge fund activity in the foreign exchange markets has not returned to levels approaching those of the period before summer 1998. As a result of the events of that period, the financing available to hedge funds has been reduced and more disclosure to creditors is required. Increased hedge fund activity in the foreign exchange market is said partly to reflect the establishment of new funds, often with \$50 million–\$200 million under management. These funds are small in comparison with the size of some high-profile funds a few years ago, some of which no longer exist or are smaller and less active than in

1998. They are also small in comparison to gross flows in foreign exchange markets. The leverage that hedge funds have access to is also reported to be lower. Both factors will tend to reduce the size of positions taken, and perhaps also the period over which they are run.

Looking forward, hedge funds may have more of an influence in the foreign exchange market than in the past few years, particularly in the context of recent structural changes in the market including suggestions of reduced market-making and the consequent changes in the nature of liquidity.

components of the rise were a £20 billion increase in the size of the unsecured interbank deposit market (which rebounded after an £11 billion decline in the previous quarter), an £11 billion rise in certificates of deposit (CDs) issued by banks, and a £5 billion increase in stock lending. In addition, the eligible bank bill market, which had been contracting gradually since the start of 1998, grew by £2 billion over the quarter. These gains were partly offset by a £2 billion decline in the size of the gilt repo market and a £3 billion fall in sell/buy-backs.

With little evidence of substitution away from other money market instruments, the large increases in the interbank and CD markets may have been related to two other considerations. First, CD rates with maturities greater than one month have been falling since the summer of 2000. Consequently, banks may have held back their CD issuance in the second half of last year in anticipation of cheaper funding opportunities in 2001. During the course of Q1, many market participants came to the view that CD rates out to twelve-month maturities were close to their troughs. This led banks to increase their issuance of CDs, particularly of longer-dated CDs, in an attempt to lock in relatively low financing costs. The corollary of this increase in

issuance by banks is likely, in the first instance, to have been higher lending in the unsecured markets. A second consideration highlighted by market participants is that the weakness of equity markets may have encouraged some fund managers to liquidate their equity holdings and temporarily to invest the proceeds from these sales in money market instruments.

Growth in so-called 'bank-on-bank' bills contributed to the first quarterly increase in the overall size of the bill market since the second half of 1997. Bank-on-bank bills are bills of exchange that are drawn by one bank and accepted by a second bank whose sterling acceptances are eligible for discount at the Bank of England. Such bills became eligible to be used in the Bank's open market operations on 1 March 2000 and now represent more than a quarter of the size of the overall eligible bill market. In addition to their use in the Bank of England's operations, these bills are increasingly seen as an attractive form of liquidity since they are also eligible in the Financial Services Authority's sterling stock liquidity regime.

The absence of growth in the gilt repo market may have been related to the growth in unsecured instruments in Q1 (noted above) and a more general growth in off

Table E
Sterling money markets

Amounts outstanding: £ billions

	Interbank (a)	CDs (a)	Gilt repo (b)	Stock lending (b)	Eligible bills (a)	Commercial paper (a)	Other (c)	Total
1998	150	122	95	35	19	10	4	435
1999	146	142	99	49	14	14	7	471
2000	Q1	156	132	100	51	15	6	474
	Q2	159	135	124	54	16	7	507
	Q3	162	125	127	55	16	7	502
	Q4	151	130	128	62	18	9	509
2001	Q1	171	141	126	67	19	7	544

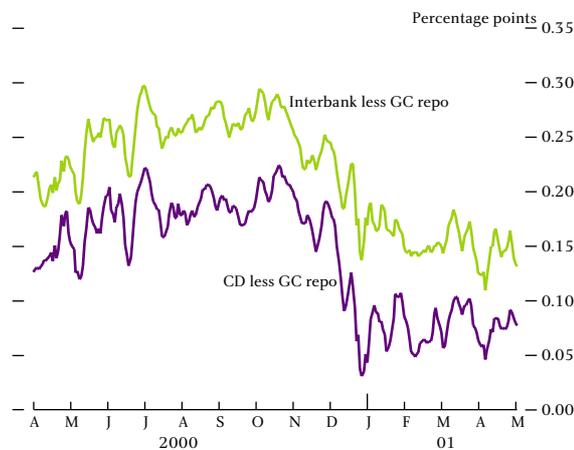
(a) Reporting dates are quarter-ends.

(b) Reporting dates are end-February for Q1, end-May for Q2, end-August for Q3, end-November for Q4 and end-year.

(c) Treasury bills, sell/buy-backs and local authority bills.

balance sheet instruments. In particular, swap transactions in which the floating rate component settles against the sterling overnight interest rate average (SONIA) provide an alternative to gilt repo for interest rate hedging and position-taking and are noted by market participants to have grown strongly over the past year. Along with this reduced demand for gilt repo relative to the interbank and CD market, spreads between these instruments have narrowed somewhat over the quarter and compared with their levels in the second half of 2000 (see Chart 30).

Chart 30
Spreads between six-month unsecured and secured interest rates^(a)



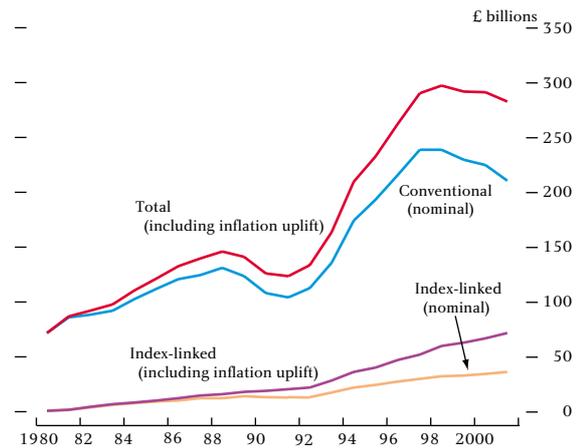
(a) Interbank is the offer rate, CD and GC repo are the bid rates. Five-day moving averages.

The specials market continues to be dominated by those gilts that are deliverable into the long gilt futures contracts. While such gilts have traded at a premium to general collateral (GC) repo this year, there has been only one occasion when the premium was large enough to warrant a request by the market to open the Debt Management Office's (DMO) standing repo facility.

Sterling bond issues

The outstanding stock of gilts increased by £2 billion during the period, after decreasing in Q4. The main reason for this was the auction of £2 billion of the 4¹/₄% Treasury Stock 2032 on 28 March, combined with the auction of £0.4 billion of the 2¹/₂% index-linked Treasury Stock 2011 on 25 April. Partly offsetting these increases in supply, £0.4 billion of the 8¹/₂% Treasury Stock 2007 was bought back in a reverse auction on 22 February. Despite this recent increase, the amount of conventional gilt stock outstanding at the end of March 2001 was lower than a year earlier. This was the fourth consecutive annual fall in the outstanding stock of conventional gilts (see Chart 31). By contrast, the

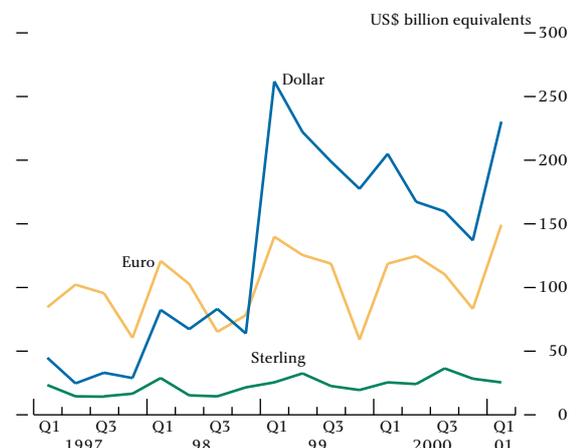
Chart 31
Gilt-edged stock outstanding



amount of index-linked gilts outstanding at the end of March continued the annual increases seen since 1991.

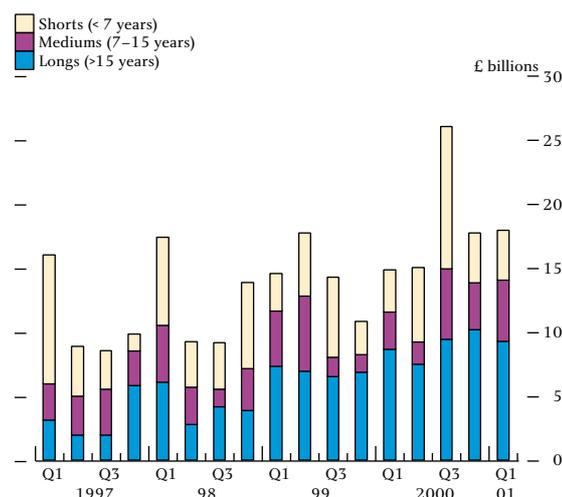
Issuance of non-government bonds was strong in Q1. Dollar and euro-denominated corporate bond issuance rose relative to Q4 by 81% and 68% respectively (see Chart 32). A number of larger UK-based firms have issued bonds in the euro and dollar markets, sometimes swapping the proceeds back into sterling. In Q1, euro-denominated bond issuance by firms resident in the United Kingdom rose by 75% on a quarter earlier. However, dollar-denominated bond issuance by UK-based firms more than halved. While gross sterling-denominated non-government bond issuance was quite high by historical standards, it was broadly unchanged from Q4. Total issuance was £18 billion in Q1 (see Chart 33), 80% of which was in fixed-rate bonds. Floating-rate borrowing declined to £3.6 billion in Q1, with most issuance taking place at short

Chart 32
Gross non-government bond issuance by currency of denomination



Source: Capital Data.

Chart 33
Sterling-denominated non-government bond issuance



maturities. In contrast, the majority of fixed-rate issuance continued to take place at long maturities.

In Q1, the share of total sterling-denominated issuance accounted for by AAA-rated firms fell to about 40%, compared with around 65% in the previous quarter. This partly reflected a £2 billion decline in issuance by supranationals, as a narrowing of their swap spreads reduced the opportunities to obtain cheap foreign currency funding by issuing in sterling and swapping the proceeds. In addition, issuance of bonds by firms with credit ratings of AA and below increased sharply (see Table F). This shift partly reflected record issuance by telecoms firms (see Chart 34). In Q1, sterling-denominated bond issuance by telecoms firms accounted for 10% of total sterling non-government bond issuance. Reflecting these developments, issuance

Table F
Sterling bond issuance in 2001 Q1

DMO gilt auctions (£ millions)

Reverse	Date	Amount purchased	Stock
	22 Feb.	13	7 ³ / ₄ % Treasury Stock 2006
	22 Feb.	411	8 ¹ / ₂ % Treasury Stock 2007
Conventional	Date	Amount issued	Stock
	28 March	2,000	4 ¹ / ₄ % Treasury Stock 2032

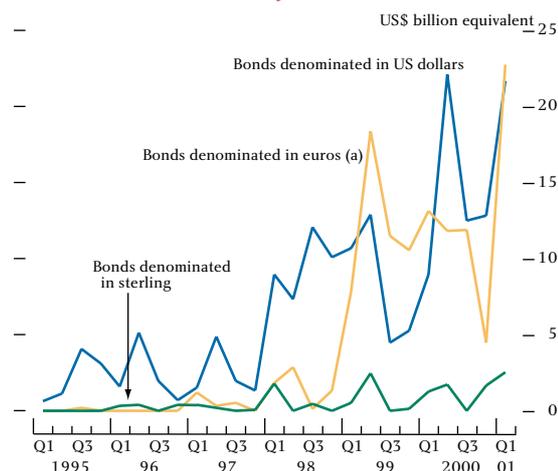
Non-government issuance

	Number of issues	Amount (£ billions)	By credit rating:		
			AAA	AA/A	BBB and lower
Fixed-rate issues					
UK corporates	23	3.2	0.2	2.3	0.7
UK financials	15	2.8	1.1	1.1	0.6
Supranationals	15	1.7	1.7	0.0	0.0
Overseas borrowers	43	6.8	3.3	3.4	0.1
Total (a)	96	14.4	6.2	6.9	1.3
FRNs					
UK corporates	2	0.1	0.0	0.1	0.1
UK financials	24	2.5	1.1	1.1	0.4
Supranationals	0	0.0	0.0	0.0	0.0
Overseas borrowers	10	1.0	0.4	0.6	0.0
Total (a)	36	3.6	1.4	1.7	0.4

Sources: Bank of England, Debt Management Office, Moody's and Standard and Poor's.

(a) Totals may not sum exactly due to rounding.

Chart 34
Gross bond issuance by telecoms firms



Source: Capital Data.

(a) Euro-area legacy currencies used prior to 1999.

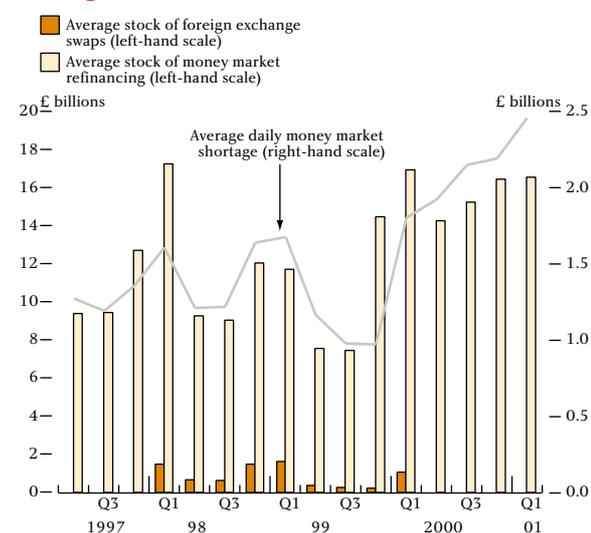
by UK corporates increased from £1 billion in Q4 to more than £3 billion in Q1.

Open market operations

Between February and April, the stock of notes in circulation averaged around £28 billion. This is a liability on the Bank of England's balance sheet and is principally matched by two assets, the government's Ways and Means advance (which was frozen at £13 billion on 31 March 2000) and the stock of money market refinancing (which is made up of the short-term assets acquired by the Bank in its open market operations). During the review period, the stock of refinancing held on the Bank's balance sheet averaged £17 billion (see Chart 35). Given that the size of the government's Ways and Means advance has been fixed

since the transfer of Exchequer cash management to the DMO in April 2000, the principal counterpart of the growth in the note circulation has been the growth in the stock of refinancing.

Chart 35
Stock of money market refinancing and daily shortages



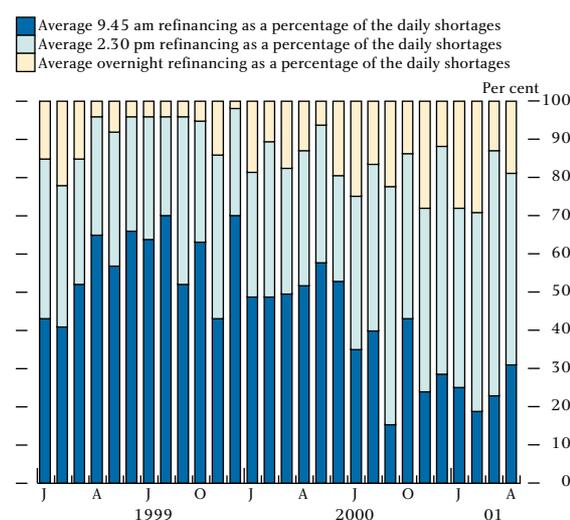
The note issue creates a liquidity shortage in the sterling money market that is refinanced daily in the Bank of England's open market operations (OMOs). Given that the Bank typically undertakes two-week (ten working days) reverse repo transactions, roughly one tenth of the repo loans that make up the stock of refinancing mature each day. During the review period, daily money market shortages averaged £2.4 billion (see Table G), somewhat larger than one tenth of the stock of refinancing. As well as reflecting the growth of the stock of refinancing on the Bank's balance sheet, the change in the size of the shortage is also influenced by the rate of turnover of the stock of refinancing. Although most of the Bank's open market operations are conducted via two-week reverse repo transactions, the average rate of turnover of the stock in recent months has actually been around $7\frac{1}{2}$ working days. This reflects the fact that counterparties can also choose to obtain refinancing by selling bills with less than a two-week residual maturity

Table G
Average daily money market shortages

£ millions		
1996	Year	900
1998	Year	1,400
2000	Year	2,000
2001	Jan.	2,500
	Feb.	2,900
	Mar.	2,000
	Apr.	2,300

on an outright basis, or can obtain overnight repo refinancing at a rate above the official two-week repo rate. Over the period, the Bank's OMO counterparties refinanced some 80% of the daily money market shortages at the 9.45 am and 2.30 pm rounds of operations (which largely have a two-week maturity) and some 20% at the late rounds, on an overnight basis (see Chart 36). Consequently, the average size of the daily shortages increased.

Chart 36
Refinancing provided in the Bank's open market operations

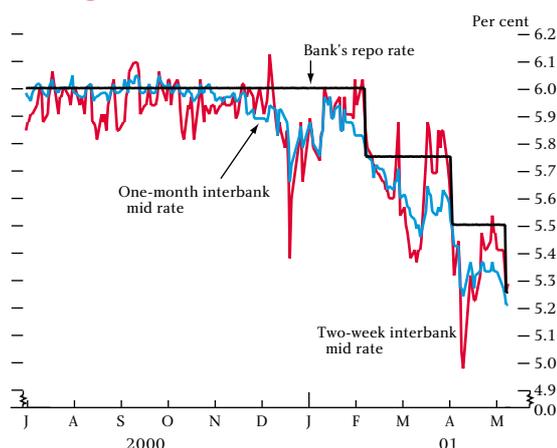


In advance of the reduction in the Bank's repo rate on 8 February, the Bank's counterparties chose to take refinancing from the Bank largely on an overnight basis (at a higher interest rate), in preference to taking refinancing at a two-week maturity (at the Bank's repo rate), because they expected the MPC to reduce the official rate. This led to a number of large daily shortages as refinancing was rolled over from day to day. Overnight market interest rates therefore traded above normal levels immediately prior to the expected repo rate reduction. A similar (though less marked) pattern occurred in advance of the repo rate cuts on 5 April and 10 May. More generally, however, interbank market rates at a two-week and one-month maturity have tended to trade below the Bank's repo rate since December (see Chart 37) and have been a little more volatile than usual.

There were two money market surpluses during the period, on 12 March and 30 April. This was the first time that the Bank had needed to absorb liquidity since the transfer of Exchequer cash management to the DMO.⁽¹⁾ The Bank's method of operating when there is a

(1) See page 132 of the May 2000 Quarterly Bulletin for a summary of the changes introduced when Exchequer cash management was transferred to the DMO.

Chart 37
Sterling interest rates



surplus is to absorb it by a gilt repo, executed by a competitive rate tender.

HM Treasury and Bank of England euro issues

The Bank of England continued to hold regular monthly auctions of euro-denominated bills during the period. Each month, €1 billion of bills were auctioned, comprising €200 million of one-month, €500 million of three-month and €300 million of six-month Bank of England bills. The stock of euro bills outstanding was therefore maintained at €3.5 billion throughout the period. Each monthly auction continued to be

oversubscribed, with auctions being covered an average of five times the amount on offer, and bids were accepted at average yields of Euribor minus 9.5 to 15.8 basis points.

On 17 April, the Bank reopened (for the first time) the Bank of England Euro Note maturing on 29 January 2004 with a further auction of €500 million, raising the total of this note outstanding with the public to €1 billion. The auction was covered 2.1 times the amount on offer and accepted bids were in a range of 4.55% to 4.61%.

Further auctions of Bank of England Euro Notes are scheduled for 17 July and 16 October 2001.

UK gold auctions

The programme of gold auctions held by the UK government continued in the period under review. Twenty five tonnes of gold were sold at the auction on 14 March. A price of \$266.00 was achieved and the auction was covered 2.2 times. Twenty tonnes of gold were sold at the auction on 15 May; a price of \$268.00 was achieved and the auction was covered 3.7 times. The next auction in the programme is planned for 11 July 2001.