

# 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 26 October 2001 to 15 February 2002.*

- *Dollar, euro and sterling money market yield curves steepened over the period.*
- *Long-term interest rates rose in the United States, the euro area and the United Kingdom.*
- *The effective exchange rates for sterling and the euro changed little during the period. The dollar continued to strengthen, while the yen depreciated.*
- *Most major international equity indices were broadly unchanged, while Japanese equity prices fell.*

## Macroeconomic background to market developments

Consensus surveys of economic growth presented a stronger picture for 2003 than for 2002 (see Table A). Between October and February, growth expectations for 2002 rose in the United States, but fell in the euro area; growth expectations for 2003 rose in the United Kingdom, but were little changed in the United States and the euro area. This followed sharp

**Table A**  
Expectations for GDP growth<sup>(a)</sup>

	2002 (b)		2003 (b)		Difference between 2003 and 2002 (c)	
	8 Oct.	11 Feb.	8 Oct.	11 Feb.	8 Oct.	11 Feb.
United States	1.2	1.6	3.6	3.6	2.4	2.0
United Kingdom	2.1	2.0	2.4	2.8	0.3	0.8
Euro area (d)	1.6	1.0	2.5	2.6	0.9	1.6

Source: Consensus Economics.

- (a) Means of survey samples.  
 (b) Per cent.  
 (c) Percentage points.  
 (d) Weighted average for Germany, France and Italy.

downward revisions in growth expectations for the major economies after 11 September. Consensus surveys suggested that among the three regions, the United Kingdom was still expected to be the fastest-growing economy in 2002 and the United States in 2003.

## Short-term interest rates

Monetary policy was eased further by the Federal Open Market Committee (FOMC), the European Central Bank (ECB), the Bank of England's Monetary Policy Committee (MPC) and the Bank of Japan (BoJ) (see Table B). The sterling, dollar and euro money market yield curves

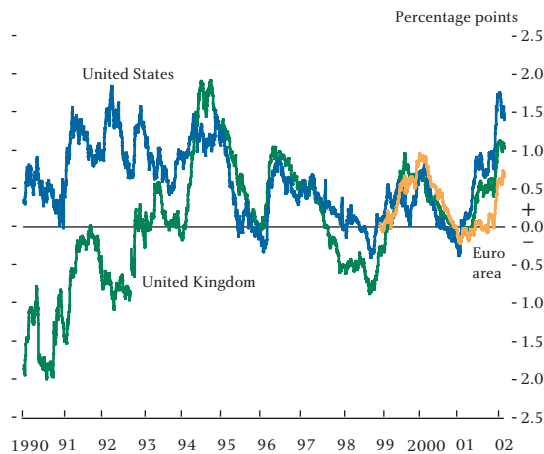
**Table B**  
Monetary policy changes

<b>FOMC</b>	Reduction in the Federal funds target rate by 50 basis points on 6 November	Reduction by 25 basis points on 11 December
<b>ECB</b>	Reduction in the main refinancing rate by 50 basis points on 8 November	
<b>BOJ</b>	Increase in target balances from above ¥6 trillion to ¥10 trillion–¥15 trillion on 19 December, and increase of Rinban operations from ¥600 billion to ¥800 billion per month	
<b>MPC</b>	Reduction in the repo rate by 50 basis points on 8 November	

became steeper over the period, as measured by the differences between three-month interbank rates implied for three and twelve months ahead, one example of the so-called term spread (see Chart 1). The market-based term spreads shown in Chart 1 are derived from bank liability curves (BLC).<sup>(1)</sup> US term spreads measured on this basis rose to levels last seen in 1994.

(1) See Brooke, M, Cooper, N and Scholtes, C, 'Inferring market interest rate expectations from money market rates', *Bank of England Quarterly Bulletin*, November 2000, for more details.

**Chart 1**  
Term spreads<sup>(a)</sup>



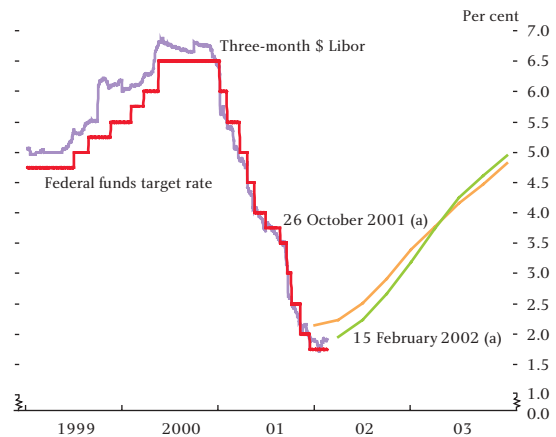
(a) Difference between three-month forward rates twelve months and three months ahead, derived using the Bank's BLC curve-fitting technique. The BLC is a yield curve derived from interbank money market interest rates and interest rate swaps. Five-day moving average (excluding the week of 14 September 1992).

Term spreads increased in mid-November, following signs that the war in Afghanistan might end earlier than was previously expected and also in light of stronger-than-expected US retail sales data. They increased again in early December, following better-than-expected US non-manufacturing Institute for Supply Management data. Unexpectedly strong UK average earnings data and publication of the *Inflation Report* in November also contributed to the rise in UK term spreads. The rise in US term spreads partly reflected a fall in near-term interest rate expectations, in contrast to the euro area and the United Kingdom (see Charts 2 to 4). US and UK term spreads fell back slightly in January. A time profile of changes in interest rates implied by money market futures contracts expiring in March 2003 is shown in Chart 5.

The rise in term spreads partly reflected market participants' expectations about future monetary policy, based on revisions of their expectations of economic growth and on their perceptions about the likely reactions of the FOMC, the MPC and the ECB. Growth expectations a year ahead appeared to rise compared with the near term as monetary easing and fiscal stimulus, particularly in the United States but also elsewhere, are expected to contribute to stronger economic growth. Official interest rates in the United States and the United Kingdom are currently at historically low levels, which market participants expect will contribute to stronger growth in the future, and which some do not expect to persist for much longer.

Other likely influences on the rise in term spreads were technical factors, including a reduction in liquidity in

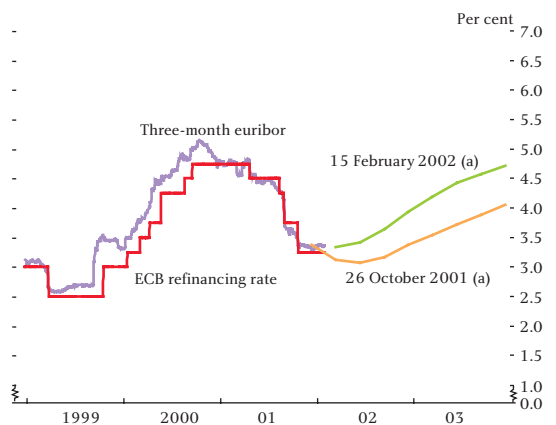
**Chart 2**  
US interest rates



Source: Bloomberg.

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

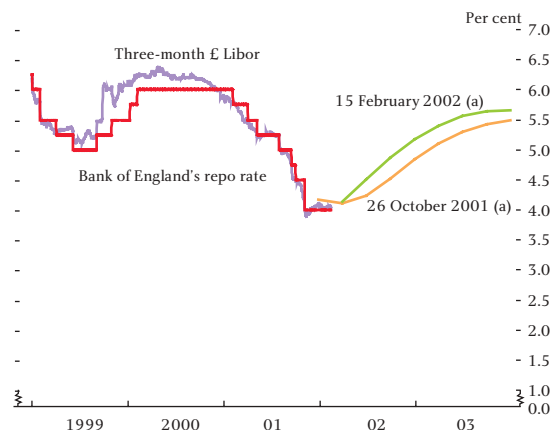
**Chart 3**  
Euro-area interest rates



Source: Bloomberg.

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

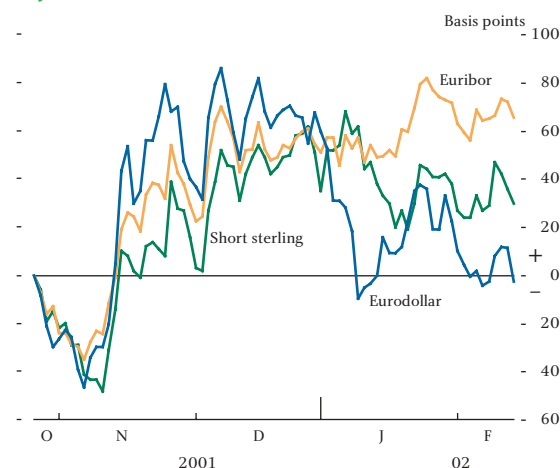
**Chart 4**  
UK interest rates



Source: Bloomberg.

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

**Chart 5**  
Cumulative changes in short-term interest rate expectations<sup>(a)</sup>



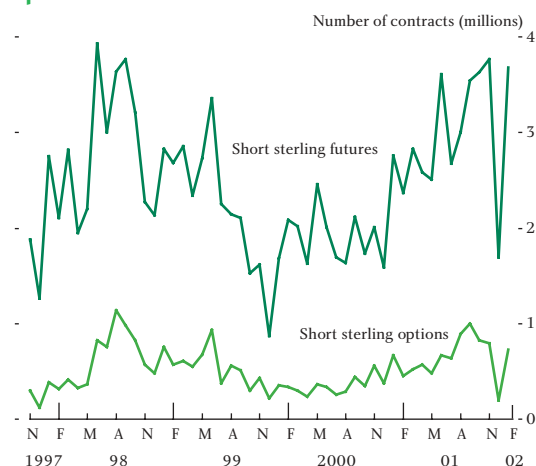
Source: Bloomberg.

(a) As indicated by changes in interest rates implied by futures contracts maturing in March 2003.

the money markets and closing out of long positions in order to protect profits ahead of the year-end, as described below. Forward rates also reflect term premia (see the box on page 9), which may have risen over the period.

Among the technical factors, long positions in dollar, euro and sterling interest rate futures contracts had been profitable earlier in 2001, as official interest rates were reduced, and the implied rates of the futures contracts had fallen.<sup>(1)</sup> As implied future interest rates started to rise in mid-November, market participants reported widespread sales of these contracts, in order to lock in profits (see also the section on the sterling money market on page 19). The sale of futures contracts in turn would have contributed to further rises in implied interest rates, especially as money markets became less liquid for seasonal reasons in December. The number of short sterling futures contracts traded on the London International Financial Futures and Options Exchange (LIFFE) fell by around 55% in December compared with the previous month (see Chart 6), which was the largest monthly fall (in percentage terms) since 1985. Open interest in short sterling futures contracts also fell in December, by around 20%. This pattern is consistent with a closing out of long positions ahead of the year-end. The fall in short sterling futures turnover was mostly reversed in January, and the open interest in these contracts rose by around 20%, as market participants entered into new positions.

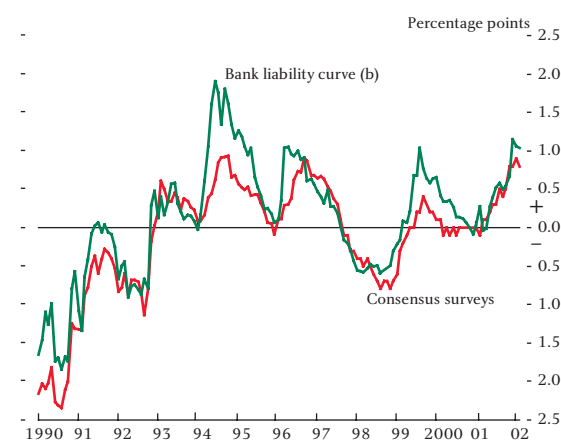
**Chart 6**  
Monthly turnover of short sterling futures and options contracts



Source: LIFFE.

Comparing the term spreads derived from market interest rates with those from surveys of economists can illustrate how much market term spreads may reflect interest rate expectations. Chart 7 compares UK term spreads derived from the BLC with economists' term spreads since 1990. The term spreads of economists surveyed by Consensus Economics are calculated as the difference in their mean expectation of the three-month sterling interbank rate twelve months ahead and three months ahead. The market and survey term spreads are compared on the survey dates each month.<sup>(2)</sup> Economists' UK term spreads have risen since October, and have remained close to the term spreads observed in the sterling money markets:

**Chart 7**  
UK term spreads<sup>(a)</sup>



Sources: Consensus Economics and Bank of England.

(a) Spreads between three-month sterling interbank rates twelve months and three months ahead.

(b) Derived using the Bank's BLC curve-fitting technique.

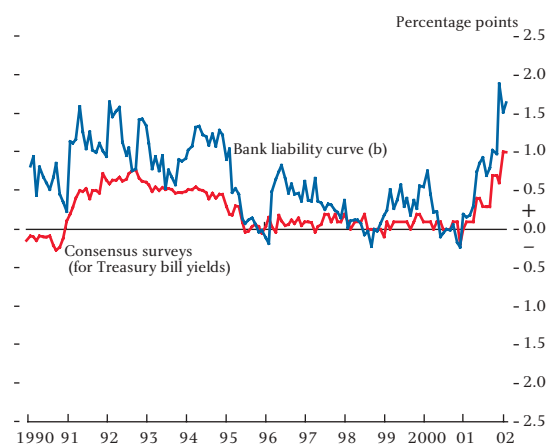
(1) The purchase of a contract is said to create a 'long' position.

(2) If the BLC data were not available on that date, data for the previous trading day were used.

on 11 February, the survey date of the Consensus Economics survey, the economists' UK term spread was 80 basis points, compared with 103 basis points for market rates, a difference that is not unusually large by historical standards. The recent closeness of market and survey-based UK term spreads suggests that technical factors have not driven a large wedge between the two. As can be seen from Chart 7, the two measures have sometimes been quite different in the past.

A comparison of US market and survey-based term spreads is shown in Chart 8. The market-based term spreads are derived from the BLC curves, which are based on unsecured interbank rates, as in the case of the United Kingdom. By contrast, Consensus survey expectations are available only for US Treasury bill yields. A larger difference has opened up between market and survey-based term spreads in the United States than in the United Kingdom, although some of this may be due to the mismatch in the instruments used. In the euro area, the difference between market and survey-based term spreads has increased in the past few months, but as in the United Kingdom it is not currently at an unusually high level.

**Chart 8**  
US term spreads<sup>(a)</sup>



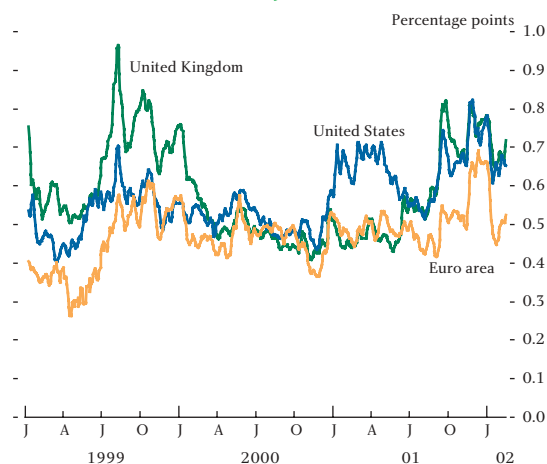
Sources: Consensus Economics and Bank of England.

- (a) Spreads between three-month interest rates twelve months and three months ahead.
- (b) Derived using the Bank's BLC curve-fitting technique.

Interest rate uncertainty in the United States, the United Kingdom and the euro area at the six-month horizon, as implied by options on money market futures, rose to relatively high levels in November and December (see Chart 9). The rise in sterling implied volatilities probably partly reflected higher actual volatilities of the underlying futures rates, as well as increased

uncertainty about future official interest rates, as market participants began to speculate about a turning-point in the rate cycle. It is also likely to have reflected the reduction in liquidity ahead of the year-end noted above (see Chart 6). Some of the fall in implied volatilities in January may have been due to an increase in liquidity, as well as greater convergence of views by market participants about future official interest rates.

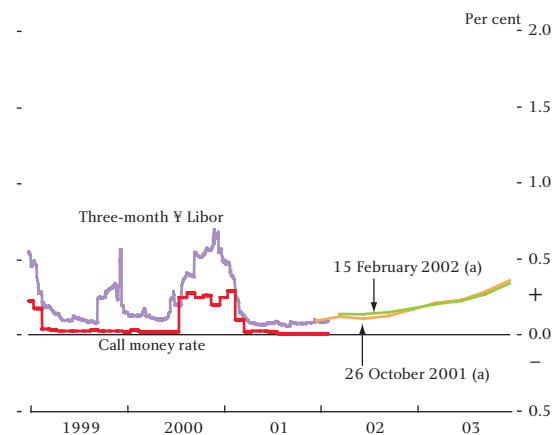
**Chart 9**  
Interest rate uncertainty<sup>(a)</sup>



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

Japanese short-term interest rate expectations were little changed over the period (see Chart 10). In addition to easing monetary policy (see Table B), the BoJ made a number of changes to its open market operations, which included loosening the criteria for the bonds accepted in its Rinban operations.

**Chart 10**  
Japanese interest rates



Source: Bloomberg.

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

## Interest rate term premia

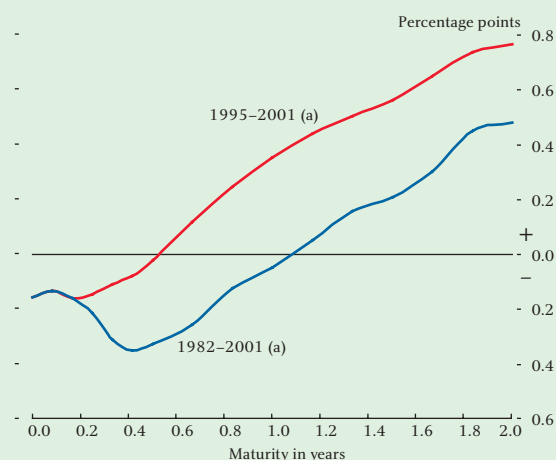
Forward interest rates derived from financial market prices are routinely used as an indicator of market views about future policy rates. But care is required when interpreting such rates.<sup>(1)</sup> A number of factors can drive a wedge between forward rates and expected future policy rates, including liquidity, credit risk premia, inflation risk premia and institutional factors.

There may also be 'term premia', which vary according to maturity and reflect uncertainty about future interest rates. If interest rates rise unexpectedly, investors holding longer-dated securities will suffer capital losses. They may fear these losses more than the possible gains should rates turn out to be less than expected, and hence require compensation for bearing this risk. Such concerns are most likely in circumstances where investors' planned holding periods are short (less than the maturity of the asset) or if the holding period is uncertain.<sup>(2)</sup>

One approach to estimating the extent of such term premia for the short end of the yield curve is to compare forward rates with market expectations for policy or future short-term rates derived from surveys, as noted in the main text (see page 7). Another approach is to compare outturns for the policy rate directly with earlier forward rates. At any particular date, these *ex post* differences may mainly reflect errors in predictions of the policy rate. But over long periods we might expect these errors to be unbiased, in other words to average around zero. Hence, the average *ex post* difference gives us an estimate of the average term premium over the sample period, once we have corrected for any technical differences.

The chart shows average estimates based on the forward curve derived from gilt prices and general

### Average differences by maturity between UK gilt/general collateral repo two-week forward curve and subsequent policy rate



(a) For maturities up to three months, the sample period is 1997-2001.

collateral repo contracts, for maturities up to two years. The estimated term premia are small at shorter maturities,<sup>(3)</sup> but rise quite rapidly, reaching around 0.5 or more percentage points at the two-year maturity. This is true both for the average estimated using outturns of the policy rate from 1982 to 2001, and for the more recent period from 1995 to 2001. Note that since these historic estimates are long period averages, they do not take account of what could be substantial variations in term premia over time, for example according to the degree of uncertainty attached to future rates or attitudes to risk.

These estimates are broadly similar to those made by Brooke, Cooper and Scholtes of an average bias in interbank rates of some 0.2 percentage points at a one-year maturity, rising to more than 0.8 percentage points at two years (based on a sample for 1993-2000, and adjusting for credit risk). Similar analysis for the United States and euro area suggests the existence of term premia in these markets too, of a broadly similar order of magnitude.

(1) See Brooke, M, Cooper, N and Scholtes, C, 'Inferring market interest rate expectations from money market rates', *Bank of England Quarterly Bulletin*, November 2000, for an extensive discussion.

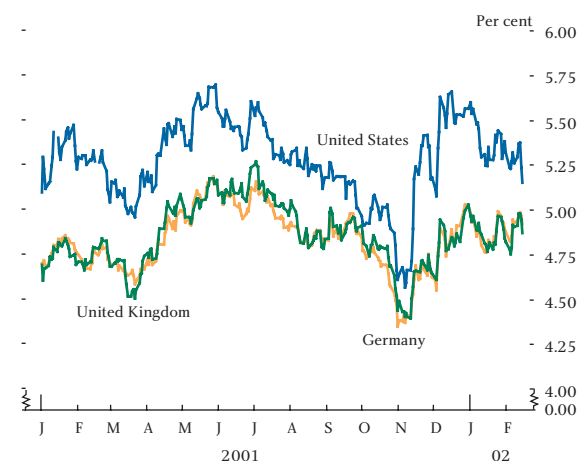
(2) Term premia could be negative for some maturities, reflecting the relative weight of underlying supply and demand. Some investors such as pension funds wish to hold long-term assets to match their liabilities. If supply is low, for example if the government is running a budget surplus, this would tend to put downward pressure on forward rates. This is an example of the 'preferred habitat' theory of the yield curve (see Modigliani, F and Shiller, R (1973), *Economica*, Vol. 40, pages 12-45).

(3) The spot two-week general collateral repo rate is on average around 15 basis points lower than the spot two-week policy rate for technical reasons (see Brooke, Cooper and Scholtes, *op cit*). This explains why the forward rate is below the outturn policy rate at very short maturities. Longer-maturity forward rates are estimated from gilt prices, so this spread is not relevant for them.

## Longer-term interest rates

Ten-year government bond yields have risen in the United States, Germany and the United Kingdom, after falling to their lowest levels on 1 November since the start of 2000 (see Chart 11). Between 26 October and 15 February, ten-year US, German and UK government bond yields rose by around 25, 35 and 20 basis points respectively. Bond yields were highly correlated over the period, suggesting that factors common to all markets were important (see Chart 11 and Table C). Changes in government bond forward yield curves over the period are shown in Charts 12 to 14.

**Chart 11**  
International ten-year government bond yields<sup>(a)</sup>



(a) Derived using the Bank's VRP curve-fitting technique. For further details see Anderson, N and Sleath, J, 'New estimates of the UK real and nominal yield curves', *Bank of England Quarterly Bulletin*, November 1999.

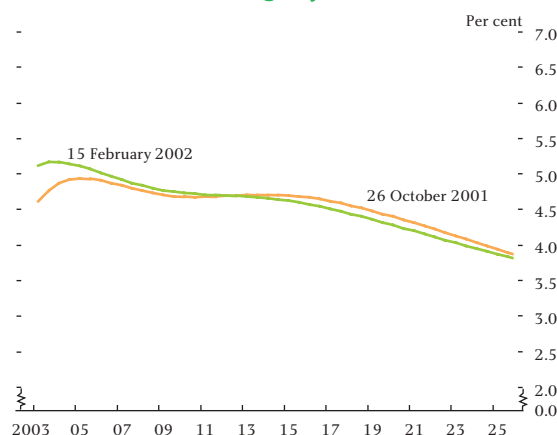
**Table C**  
Correlations of daily changes in ten-year government bond yields<sup>(a)</sup>

	Gilts-US Treasuries	Gilts-Bunds	US Treasuries-Bunds
1998-2001	0.48	0.72	0.51
2001	0.49	0.73	0.61
2001 Q4 (b)	0.61	0.87	0.63

(a) Derived using the Bank's VRP curve-fitting technique.  
(b) 26 October 2001 to 15 February 2002.

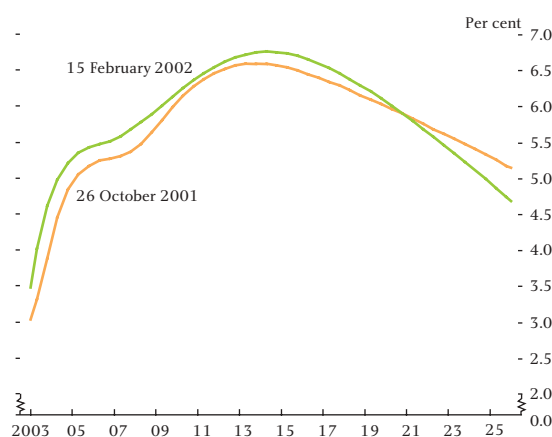
Revisions to the economic outlook and expectations for future official interest rates were important for government bond yield movements during the period. Ten-year spot government bond yields internationally rose strongly in mid-November and early December, for similar reasons to money market interest rates, in particular stronger-than-expected US economic data and news about the war in Afghanistan. Ten-year government bond yields internationally reversed some of their rise in the first half of January, and did not show a clear trend thereafter.

**Chart 12**  
Three-month forward gilt yields<sup>(a)</sup>



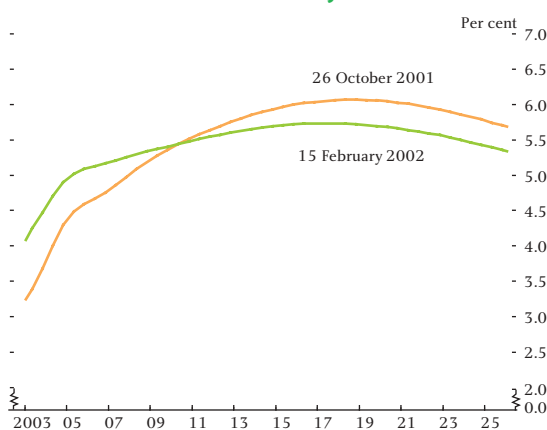
(a) Derived using the Bank's VRP curve-fitting technique.

**Chart 13**  
Three-month forward US Treasury yields<sup>(a)</sup>



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

**Chart 14**  
Three-month forward Bund yields<sup>(a)</sup>



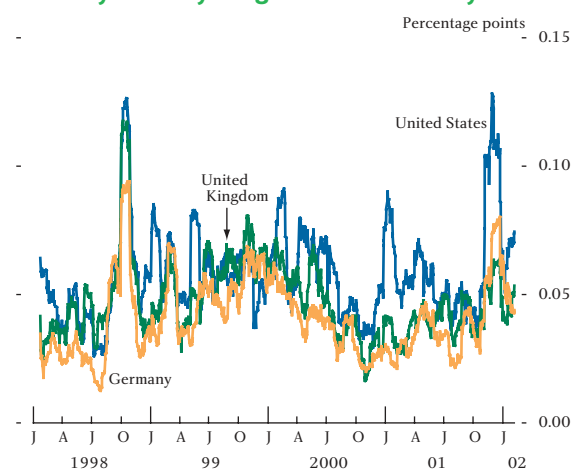
(a) Derived using the Bank's VRP curve-fitting technique.

While changes in perceptions about the economic outlook and monetary policy are likely to have been the most important factors behind ten-year government bond yield movements, other factors may have amplified these yield movements during the period. These factors include supply considerations, positioning, profit-taking



and liquidity, as well as hedging of mortgage prepayment risk in the United States, and are described below. They seem to have contributed particularly to the volatility of ten-year US Treasury yields, which rose strongly in November and December, to levels last seen following the Long Term Capital Management crisis (see Chart 15).

**Chart 15**  
Volatility of ten-year government bond yields<sup>(a)</sup>



(a) Twenty-day rolling standard deviations of daily yield changes. Derived using the Bank's VRP curve-fitting technique.

Revisions to expected government budget balances, and associated expectations of increased government bond supply, may have contributed to the rise in ten-year government bond yields over the period. According to Consensus surveys, economists became more pessimistic about the budget positions in all three countries between October and February (see Table D). In January, the Congressional Budget Office (CBO) documented a sharp deterioration in the US government's fiscal position, forecasting annual deficits for 2002 and 2003. Between January 2001 and 2002, the CBO revised down its projection for the cumulative fiscal surplus for the years 2002 to 2011 inclusive by \$4 trillion, to a total of

**Table D**  
Forecasts for government budget positions<sup>(a)</sup>

	United States (\$ billions) 2001/02	Germany (€ billions) 2002	United Kingdom (£ billions) 2002/03
October 2001	+17	-38.9	-3.3
November 2001	-40	-46.7	-4.7
December 2001	-23	-50.5	-5.1
January 2002	-18	-52.3	-7.5
February 2002	-38	-54.9	-9.1

Source: Consensus Economics.

(a) Survey means.

\$1.6 trillion. About 60% of that decline resulted from legislation, including tax cuts and additional discretionary spending, and the remaining 40% was due to other factors, including changes in the economic outlook.<sup>(1)</sup>

The announcement in December of heavy issuance of ten-year German government bonds in January may have contributed to the rise in ten-year Bund yields in December. Some of this effect was reversed in January as the issuance of €20 billion was absorbed by the market. High issuance of sterling-denominated non-government bonds in November and early December put upward pressure on medium and long-maturity gilt yields. However, the effect was offset by strong demand for bonds from pension funds in anticipation of the introduction of a new financial reporting standard, FRS17 (see the section on bond issuance on page 13).

As in the money market, positioning and profit-taking ahead of the year-end are likely to have amplified government bond yield movements during the period. Many market participants in the United States were said to be long of US Treasuries relative to their benchmarks at the start of the period, both relative to other fixed-income and equity markets and also in duration terms—the securities they held were of longer maturities than their benchmarks. Such positions proved very profitable for much of 2001, as interest rates and US Treasury yields fell. From early November onwards, however, market participants were said to have begun to unwind those long positions, not only because of changing views on the future path of interest rates, but also in order to lock in profits.<sup>(2)</sup> This put further upward pressure on Treasury yields. Similarly, positioning and profit-taking were thought to have exaggerated the rises in gilt yields in November and December. As in the money markets, a reduction in liquidity is also likely to have amplified government bond yield movements ahead of the year-end (see Charts 16 and 17, which show how turnover in cash and futures markets fell sharply in December). Some of the fall in government bond yields in the first half of January may have been due to an increase in liquidity.

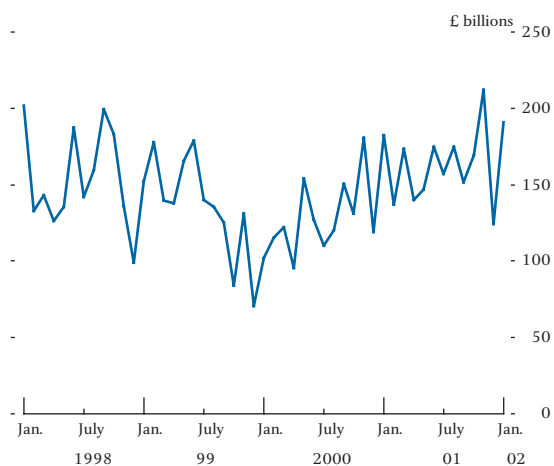
Moreover, hedging of mortgage prepayment risk by holders of mortgage-backed securities (MBS)<sup>(3)</sup> was

(1) See 'The Budget and economic outlook: fiscal years 2003–2012', statement before the Committee on the Budget, United States Senate by Crippen, D, Director, CBO, 23 January 2002.

(2) Many of the major US investment houses have a 30 November financial year-end.

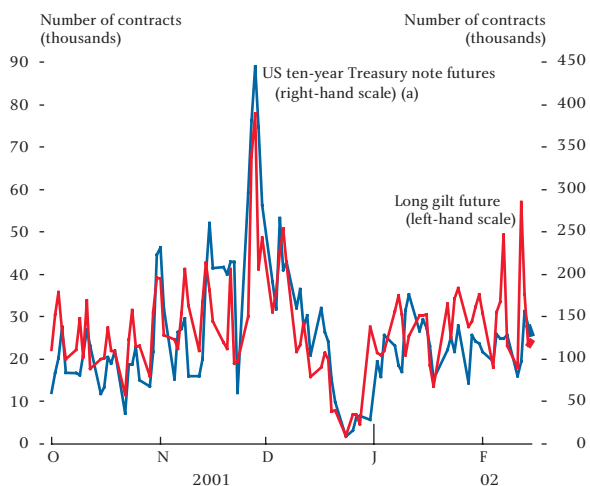
(3) For details about MBS and modelling of mortgage prepayment risk, see, for example, Fabozzi, F (ed), *Handbook of mortgage-backed securities*, Probus Publishing Company, 1995.

**Chart 16**  
Monthly LSE conventional gilt turnover by value



Source: London Stock Exchange.

**Chart 17**  
Daily turnover of government bond futures contracts



Sources: Bloomberg, LIFFE and Chicago Board of Trade.

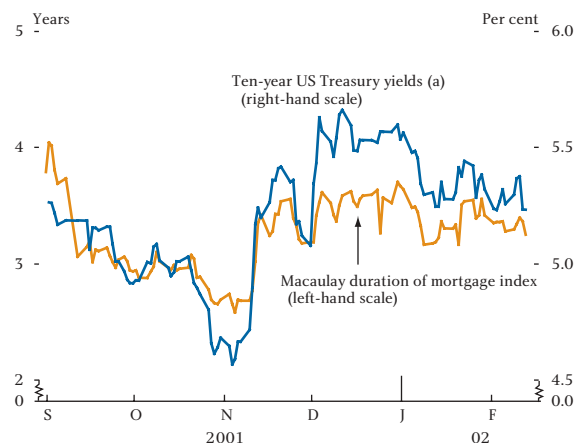
(a) Pit volumes.

thought by market participants to have amplified US Treasury yield movements, particularly at medium maturities. Given that bond yields have historically been correlated internationally (see Table C), some of the effect on US Treasury yields from this hedging activity may have spilled over to the gilt and Bund markets, also amplifying yield movements there to some extent.

MBS investors receive the cash flow from mortgage repayments. As yields rose, it became less likely that mortgage holders would decide to invoke the prepayment clause in their contracts in order to refinance their mortgages. The decreasing likelihood of prepayment increased the duration of MBS investors' portfolios. In order to remain duration-neutral, they needed to sell some of the US Treasuries that they had previously bought as hedges against prepayment risk, as

yields had fallen earlier in 2001. These sales would have tended to lead to further rises in Treasury yields. Indeed, the duration of Merrill Lynch's Mortgage index increased by about 0.4 years over the period, reversing part of its previous fall following 11 September (see Chart 18). As Chart 18 shows, the duration of the mortgage index showed a large degree of co-movement with ten-year US Treasury yields.

**Chart 18**  
Macaulay duration of Merrill Lynch Mortgage index



Sources: Merrill Lynch and Bank of England.

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

Forward government bond yields in the United States, Germany and the United Kingdom have fallen or remained little changed at maturities of 20 years and above since 26 October (see Charts 12 to 14), even though they have risen at short maturities. This was partly since forward yields at long maturities are less affected by short-term cyclical considerations, and it also partly reflected supply considerations. On 31 October, the US Treasury announced the suspension of thirty-year US Treasury bond sales. Following the announcement, thirty-year US Treasury yields fell sharply, by 33 basis points on the day. Long-maturity gilt and Bund yields also fell, but by less than US Treasury yields. On 31 October, thirty-year dollar swap spreads widened by around 15 basis points, while ten-year swap spreads remained little changed. These yield changes are consistent with expectations of a reduction in long-maturity US Treasury supply. Given that thirty-year US Treasury bond issuance was being suspended, revisions to expectations of government budget positions (see Table D) and expectations of increased government bond supply may have affected ten-year bond yields more than they would have done if issuance had not been suspended at the thirty-year maturity.



Yields on Japanese government bonds (JGBs) changed little until mid-December, with the government reassuring investors that it would continue to adhere to the policy of capping net JGB issuance at ¥30 trillion a year. In addition, the decision by the three credit-rating agencies, Fitch, Moody's and Standard & Poor's, to downgrade Japan's sovereign rating by only one notch led market participants to believe that credit concerns might not be so much of an issue in the near term. However, a series of high-profile bankruptcies at the end of the year led to increased concerns about the stability of the financial system with the approach of the financial year-end. This, together with a fall in Prime Minister Koizumi's popularity and Moody's announcement that it would be undertaking a review of Japan's sovereign credit rating, led to a further rise in JGB yields.

## Bond issuance and credit spreads

The nominal value of the outstanding stock of gilts fell by about £8 billion in the fourth quarter, to £275 billion, having fallen by £2.8 billion in Q3. About £13 billion of gilt-edged stock was redeemed, and the Debt Management Office (DMO) held two auctions of new stock during the quarter (see Table E).

Issuance of sterling-denominated bonds other than gilts increased in Q4 to about £22.5 billion (see Chart 19 and Table E), with issuance remaining fairly low in October, but more than doubling in November, and remaining high in December. The increase was mainly accounted for by a large increase in fixed-rate issuance, up to almost £17 billion from less than £9 billion in 2001 Q3.

**Table E**  
**Sterling bond issuance in 2001 Q4**

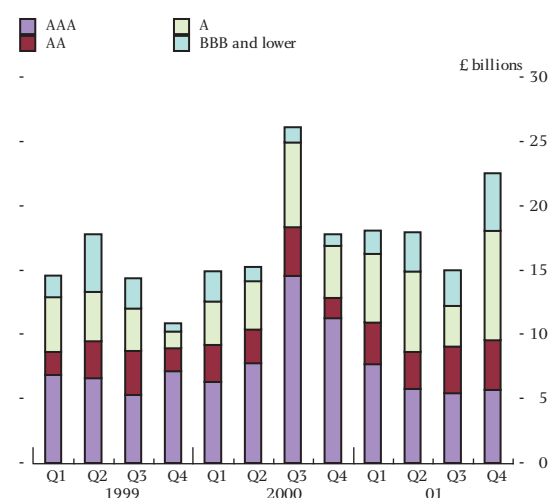
### DMO gilt auctions (£ millions)

<b>Conventional</b>	Date	Amount issued	Stock			
	06.12.01	2,750	5% Treasury Stock 2025			
<b>Index-linked</b>	Date	Amount issued	Stock			
	24.10.01	425	2 <sup>7</sup> / <sub>2</sub> % Index-linked Stock 2016			
<b>Non-government bond issuance</b>	Amount (£ billions)					
Number of issues	Total (a)	By credit rating:				
		AAA	AA	A	BBB and lower	
<i>Fixed-rate issues</i>						
UK corporates	32	8.2	1.0	1.7	3.2	2.3
UK financials	11	3.1	0.0	0.8	2.2	0.1
Supranationals	8	1.3	1.3	0.0	0.0	0.0
Overseas borrowers	25	4.2	0.6	0.7	1.5	1.4
<b>Total (a)</b>	<b>76</b>	<b>16.8</b>	<b>2.9</b>	<b>3.1</b>	<b>6.9</b>	<b>3.8</b>
<i>FRNs</i>						
UK corporates	10	1.7	0.5	0.3	0.6	0.3
UK financials	32	2.8	1.4	0.4	0.7	0.3
Supranationals	0	0.0	0.0	0.0	0.0	0.0
Overseas borrowers	11	1.1	0.9	0.0	0.2	0.0
<b>Total (a)</b>	<b>53</b>	<b>5.6</b>	<b>2.8</b>	<b>0.7</b>	<b>1.5</b>	<b>0.6</b>

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

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

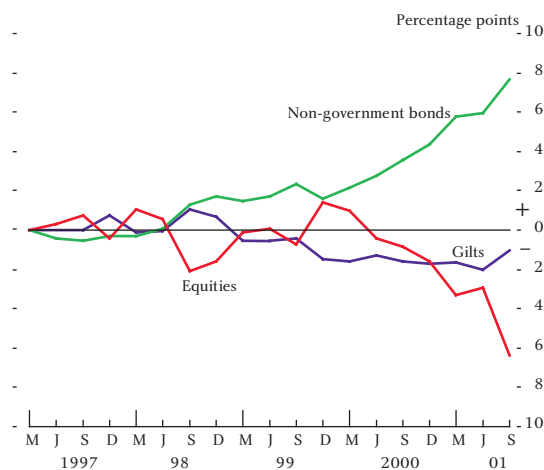
**Chart 19**  
**Sterling-denominated non-government bond issuance**



Fixed-rate borrowing by A-rated issuers rose sharply, and was the main component of the increase in fixed-rate issuance in 2001 Q4. By contrast, AAA-rated fixed-rate issuance in 2001 Q4 was less than half of the 2000 Q4 total (see Chart 19). Issuance of non-government bonds rated BBB and below also increased in 2001 Q4. UK corporates accounted for a higher proportion of issuance in 2001 Q4, which largely explains the relative rise in A and BBB-rated bonds, while issuance by overseas entities, particularly supranational organisations, halved in comparison with 2000 Q4, partly accounting for the fall in AAA-rated issuance. The strong increase in new issues by UK corporates in the fourth quarter of 2001 after a fall in Q3 partly reflected some being postponed following 11 September.

UK pension funds have increased their holdings of non-government bonds. As shown in Chart 20, non-gilt holdings as a proportion of insurance companies' and pension funds' asset portfolios have increased by almost 8 percentage points since 1997, with more than 16% of their assets now being held in non-government bonds. In contrast, equity holdings have fallen by more than 6 percentage points to 61%. An example of this change is that made by Boots plc which, over the 15 months following April 2000, switched the equity portion of its pension fund, worth an estimated £1.7 billion, to non-government bonds and invested in AAA-rated bonds issued by supranational organisations. Demand from

**Chart 20**  
Insurance corporation and pension fund financial asset allocation<sup>(a)</sup>

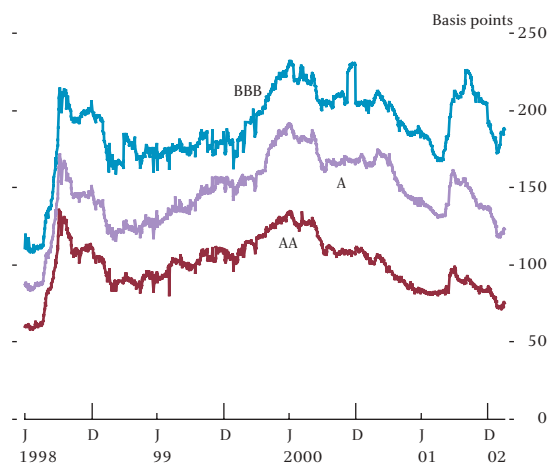


Source: ONS.

(a) Figures given are cumulative percentage point changes as a percentage of funds allocated to each asset.

other pension funds for non-government bonds, in anticipation of the abolition of the Minimum Funding Requirement (MFR) and introduction of the FRS17<sup>(1)</sup> accounting standard, has encouraged increased issuance. This strong demand may account, in part, for the fall in UK corporate bond spreads over the period (see Chart 21), although the fall could additionally reflect a reduction in the gilt premium as the influence of the MFR has decreased. Anticipation of the abolition of the MFR may also account for the greater fall in ten-year sterling swap spreads (the difference between swap rates and government bond yields) compared with euro and US dollar swap spreads (see Chart 22). Since the end of January corporate bond spreads have

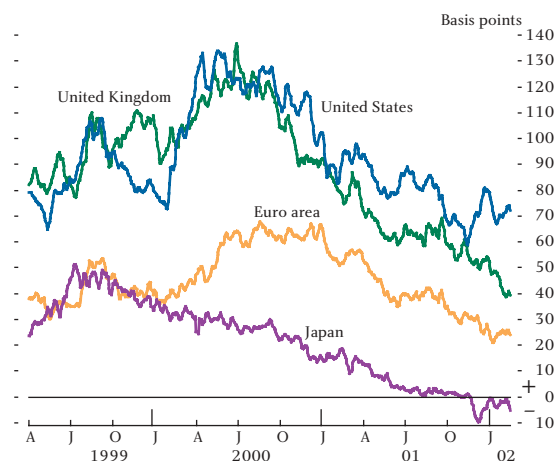
**Chart 21**  
Spreads of corporate yields over gilts



Source: Merrill Lynch.

risen slightly, which may partly be due to credit concerns in light of questions raised about accounting practices following investigations into Enron in the United States.

**Chart 22**  
Ten-year swap spreads<sup>(a)</sup>



Source: Bloomberg.

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

Total issuance of dollar-denominated non-government bonds decreased slightly in 2001 Q4 compared with Q3, but the amount issued was higher than in 2000 Q4. Euro-denominated non-government bond issuance showed an increase in 2001 Q4 on both 2001 Q3 and 2000 Q4. Ten-year euro-denominated swap spreads continued to narrow during the period, declining by

(1) Financial Reporting Standard 17 requires that companies' defined benefit pension scheme assets are measured at fair value, and that liabilities are discounted to present value using the prevailing yield on an AA-rated corporate bond with a maturity of similar term to the scheme liabilities. The net surplus or deficit is recorded in the balance sheet and ongoing service costs (including the basic cost of pension provision) are recorded in the profit and loss statement. Other surpluses and deficits arising from the fluctuating market values of fund assets (ie where fair/market value differs from the actuaries' predicted value) will be recognised in the statement of total recognised gains and losses (STRGL). There is a transition period prior to full adoption of the standard for accounting periods ending on or after 22 June 2003.

4 basis points. This narrowing partly reflected ongoing demand from the French government to receive fixed in longer-maturity interest rate swaps, so as to shorten the average duration of its debt portfolio. It also partly reflected some rise in ten-year European government bond yields, given strong government bond issuance in January. In contrast, ten-year dollar swap spreads have risen slightly. They rose sharply in November, and also in December following concerns about the Enron bankruptcy, but then fell back, reaching a low in mid-January. They then rose again when credit concerns re-emerged following speculation about the accuracy of corporate accounts in the wake of the Enron bankruptcy. In Japan, swap spreads have become negative, partly due to ratings concerns about JGBs, and also because swaps continue to be exempt from marking-to-market accounting rules for banks introduced in Japan this financial year, unlike JGBs, which are now covered by the new rules. The net effect is that receiving the fixed rate in swaps has become a more attractive investment for banks than holding JGBs, and this has contributed to negative swap spreads.

## Equity markets

Most major international equity indices were broadly unchanged over the period (see Table F and Chart 23). There was little contagion from the events in Argentina and most of the major indices are close to levels reached just prior to 11 September. But there were large falls in equity prices in Japan.

**Table F**  
International equity market performance

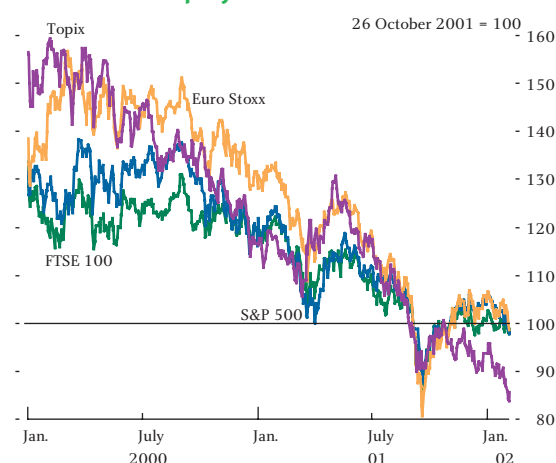
Percentage changes between start and end of period in local currencies

	2001 Year	2001 1 Aug. to 26 Oct.	2001/2002 26 Oct. to 15 Feb.
<b>United States</b>			
S&P 500	-13.0	-9.2	0.0
Wilshire 5000	-12.1	-9.5	1.3
<b>Europe</b>			
Euro Stoxx	-19.7	-12.5	0.6
CAC 40	-22.0	-12.4	-2.3
DAX 30	-19.8	-17.4	0.9
FTSE All-Share	-15.4	-7.2	0.8
FTSE 100	-16.2	-6.5	-0.1
<b>Japan</b>			
Topix	-19.6	-8.8	-10.8
<b>Technology</b>			
Nasdaq Composite	-21.1	-14.5	2.0
FTSE techMARK 100	-42.6	-11.2	-10.1
Neuer Markt	-60.2	-16.2	-7.2

Source: Bloomberg.

Correlations between the weekly changes in the FTSE All-Share and other major international indices increased over the period (see Table G), suggesting

**Chart 23**  
International equity indices<sup>(a)</sup>



Source: Bloomberg.

(a) In local currencies.

increasing international interdependence, as in fixed-income markets (see Table C). While most major indices were broadly unchanged over the period, the Japanese Topix fell by more than 10%. The fall coincided with increasing concern over Japanese banks' bad loan problems, and indeed the banking sector sub-index fell by almost 25%. By contrast, the DAX rose by 0.9% despite continued weakness in all sectors of the German economy.

**Table G**  
Correlations between the FTSE All-Share and other equity indices<sup>(a)</sup>

	S&P 500	Euro Stoxx	Topix
Since 1992	0.60	0.78	0.29
2001	0.83	0.95	0.46
2001 Q4 (b)	0.95	0.95	0.61

(a) Correlations between weekly percentage changes in the FTSE All-Share and other equity indices.

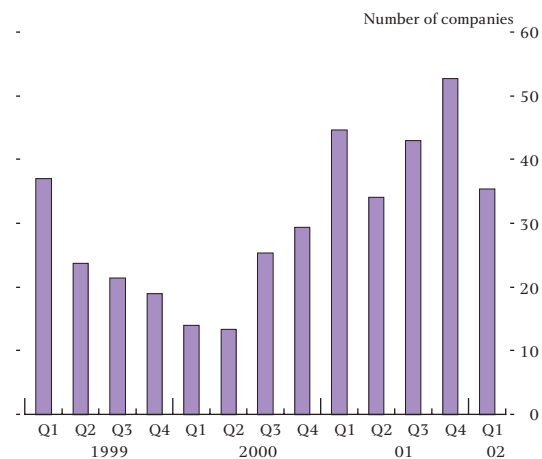
(b) 26 October 2001 to 15 February 2002.

Conceptually, changes in equity prices can be decomposed into changes in current and projected profitability, risk-free interest rates and equity risk premia.<sup>(1)</sup> Indicators of expected profitability in the United Kingdom deteriorated over the period. The number of profit warnings was unusually high. In the fourth quarter of 2001, 158 UK firms issued statements warning that they would not meet profit expectations, the highest total since the Bank began collecting data in 1997 (see Chart 24). The figures for January were lower than in the October peak, but were still higher than in January 2001. The very high number in October may have been affected by the Financial Services Authority's reminder in late September of its powers to fine companies that delayed issuing profit warnings. Firms in

(1) See, for example, the box on decomposing equity price movements in the *Bank of England Quarterly Bulletin*, Winter 2001, page 378.

the cyclical services sector accounted for more than a third of the warnings over the period, while information technology and general industrials companies also reported a disproportionately high number.

**Chart 24**  
Profit warnings by UK firms<sup>(a)</sup>



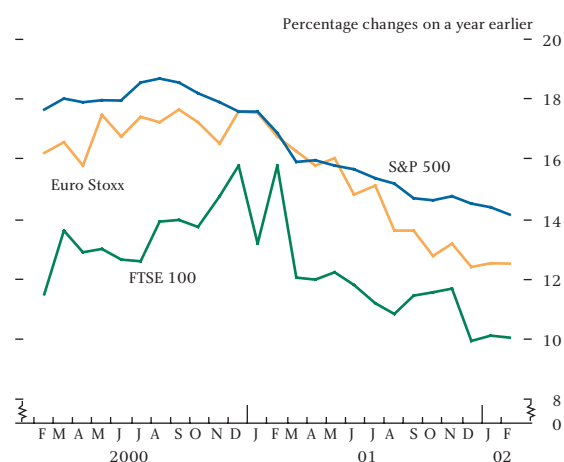
Source: Reuters.

(a) Monthly average number of UK firms listed on the FTSE All-Share index issuing a profit warning or negative trading statement. 2002 Q1 covers 1 January to 15 February.

Analysts have revised their expectations of equity earnings growth downwards since October, providing further evidence of a weaker outlook for profit growth. IBES (Institutional Brokers Estimate System) forecasts for earnings per share growth in 2002 fell for both the FTSE 100 and the S&P 500 indices between the 18 October 2001 and 14 February 2002 surveys. Expectations over the long term, which IBES defines as three to five years, are lower by 1.5 percentage points for the FTSE 100 and by 2.3 percentage points for the Topix. But expectations over the long term have fallen less for the S&P 500 and the Euro Stoxx (see Chart 25). These changes in earnings expectations have depressed equity prices.

Equity prices also depend on the rate at which future profits (and hence dividends) are discounted. Nominal ten-year government bond yields have risen over the period (see the section on longer-term interest rates). The correlation between movements in equity prices and long-term interest rates varies (see Chart 26), and depends on the underlying reason behind changes in interest rates (for example prospects of higher growth may increase expectations of future interest rates). But for given expectations about dividend growth, higher long-term interest rates will reduce equity prices by raising the discount factor.

**Chart 25**  
Long-term earnings per share growth forecasts



Source: Institutional Brokers Estimate System.

**Chart 26**  
FTSE 100 and ten-year spot yields



Sources: Bloomberg and Bank of England.

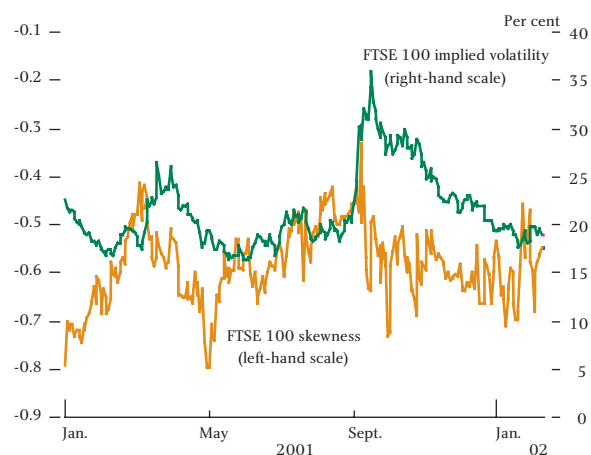
(a) Derived using the Bank's VRP curve-fitting technique using index-linked gilts.

The discount rate will also depend on the equity risk premium. There are indications that the premium required by investors to hold equities may have fallen over the period. On the basis of the changes in IBES forecasts of earnings expectations and risk-free interest rates, the equity risk premium for the FTSE 100 calculated from the three-stage dividend discount model<sup>(1)</sup> fell by around 1.1 percentage points between 18 October and 14 February. A fall in the equity risk premium would be consistent with options data, which suggest that investors have become less uncertain about short-term equity price developments. The implied volatility of equity returns has declined significantly for both the FTSE 100 and the S&P 500 (Chart 27), and the historical volatility, calculated as the standard deviation of returns, has also fallen for the FTSE 100. Investors also appear to attach a lower probability to large falls

(1) See Panigirtzoglou, N and Scammell, R, 'Analysts' earnings forecasts and equity valuations', on pages 59–66 of this Bulletin.

in equity prices. This may be partly due to the faster-than-expected resolution of the conflict in Afghanistan. The skewness of the distribution of returns, which is a measure of the balance of risk attached by the market, has become less negative for the FTSE 100, but is little changed for the S&P 500.

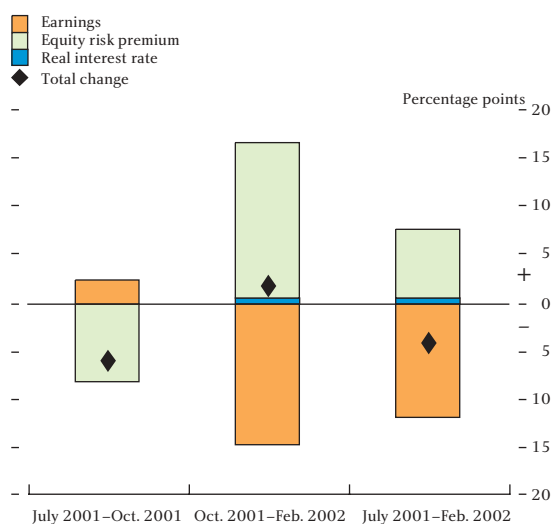
**Chart 27**  
FTSE 100 three-month skewness and implied volatility<sup>(a)</sup>



(a) Derived from options on FTSE 100 futures.

The dividend discount model is a framework for quantifying these influences. Chart 28 suggests that the relative stability of the FTSE 100 may have reflected a fall in uncertainty counterbalanced by lower earnings expectations. Looking at the seven-month period spanned by the IBES surveys of 19 July 2001 to 14 February 2002, most of the fall in equity prices can be ascribed to lower current and projected profits, with no substantial effect from changes in long-term interest rates and a positive effect from a fall in the equity risk premium.

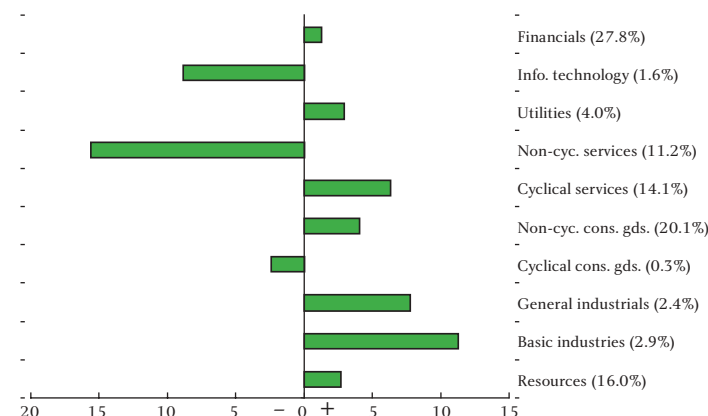
**Chart 28**  
Decomposition of changes in the FTSE 100<sup>(a)</sup>



(a) Change due to real interest rate in the first column is negligible.

Within the FTSE All-Share index, the best-performing sectors were basic industries and general industrials (see Chart 29), even though manufacturing output fell in December to its lowest level since April 1996. Basic industries, which includes the construction industry, may have benefited from an increase in public sector construction projects. Technology shares have remained volatile and fell overall over the period.

**Chart 29**  
Changes in FTSE sectoral equity indices between 26 October 2001 and 15 February 2002<sup>(a)</sup>



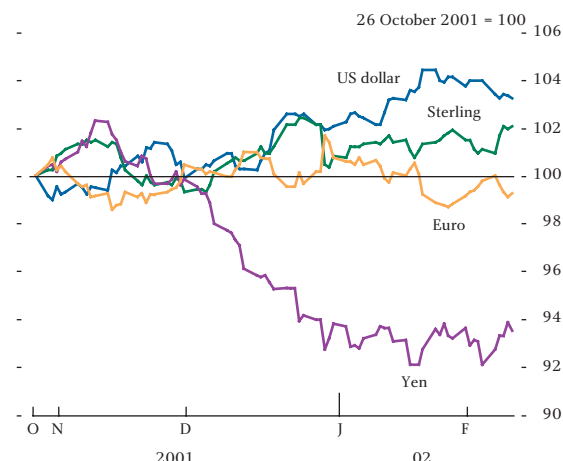
Source: Thomson Financial Datastream.

(a) Weights as of 15 February are in parentheses.

### Foreign exchange markets

Over the period as a whole, the effective exchange rates of sterling and the euro have changed little (see Chart 30). The dollar continued to strengthen, while the yen depreciated significantly. Between 26 October and 15 February, the sterling trade-weighted exchange rate index (ERI) appreciated by 2.1%, while the euro ERI depreciated by 0.7%. The euro-sterling bilateral exchange rate fluctuated within a narrow range of 2.3 pence. The US dollar effective exchange rate index

**Chart 30**  
Effective exchange rate indices



(ERI) appreciated by 3.3%, to a new 16-year high at the end of January, while the yen ERI depreciated by 6.5% over the period.

The appreciation of the dollar between 26 October and 15 February was fairly broad-based, with the dollar gaining 2.2% against the euro and 7.7% against the yen, while being unchanged against sterling. This was not well correlated with changes in short-term interest rates over the period; these fell in the United States, whereas euro short-term rates rose—nevertheless the euro fell against the dollar.

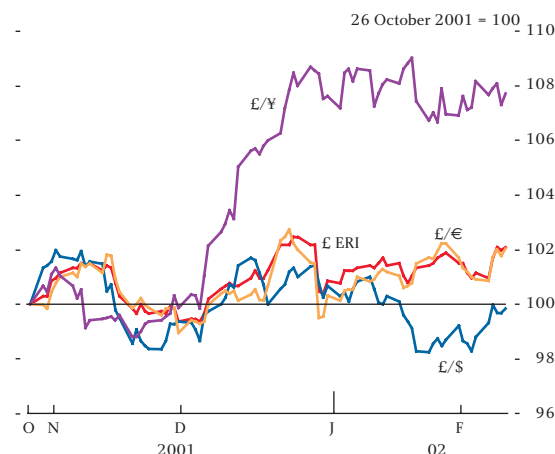
Despite the low correlation between short-term interest rates and exchange rates over the period, there was a stronger correlation with changes in relative growth prospects in the major economies. During the period there were a number of positive surprises in US data and survey releases, which the market interpreted as suggesting that activity was likely to rebound somewhat earlier and more strongly than had previously been expected. Also over the period, the Consensus Economics survey of growth expectations for 2002 was revised up for the United States, but down for the euro area (see Table A). Furthermore, according to the January Consensus survey, the balance of risks around the central expectation appeared fairly balanced for the United States. By contrast, growth expectations for Germany and France<sup>(1)</sup> were skewed downwards around the mean expectation.

The Japanese yen depreciated sharply over the period—in contrast with the previous quarter, during which the Bank of Japan intervened to limit the appreciation of the yen. By the start of December the yen had gradually depreciated to ¥124 against the US dollar, as economic prospects continued to deteriorate. The yen's depreciation accelerated during December. The start of the depreciation coincided with the release of Q3 GDP, which showed a fall of 0.5%, following a downwardly-revised Q2 number of -1.2%. The depreciation gained momentum as the dollar-yen exchange rate moved through the ¥125 level, and as official comments were interpreted by the market as indicating some willingness to see the yen fall further. Market commentators also emphasised concerns over financial fragility, reflected in falls in Japanese asset prices. Towards the end of the period, the dollar-yen exchange rate stabilised within the ¥130–¥135 range.

The issue of capital flows generated much debate in the foreign exchange market around the turn of the year. A number of market commentators and press stories suggested that, on average, there is typically a net repatriation of capital to Japan during the first quarter of the year as investors (mainly financial institutions) adjust their balance sheets going into the fiscal year-end—and that this net inflow causes the yen temporarily to appreciate. Given the weakening condition of the financial sector, this effect was expected by many to be greater than usual this year. However, studies of the data since 1990 show that while there has on average been a net inflow of capital to Japan in the first quarter, this does not happen every year, and furthermore there is not, on average, an appreciation of the yen in the first quarter. Despite this, the perception that repatriation flows were likely to occur may have contributed to the stabilisation of the yen towards the end of the period.

Between 26 October and 15 February sterling appreciated by 2.2% and 7.7% against the euro and yen respectively, and was unchanged against the dollar (see Chart 31).

**Chart 31**  
Sterling bilateral exchange rates



Sterling's movements too were not well correlated with changes in short and medium-term interest rates, but were more consistent with changes in relative growth prospects. Consensus surveys suggest that the United Kingdom is expected to be the fastest-growing G7 economy in 2002, and UK growth prospects have been revised down by less than those of the euro area over the period. Sterling's appreciation against the euro was also consistent with the historical correlation between the euro-sterling and euro-dollar exchange rates. When the

(1) The distribution of forecasts around the mean expectation is available from the January Consensus Economics survey for the individual countries, but not for the euro area as a whole.

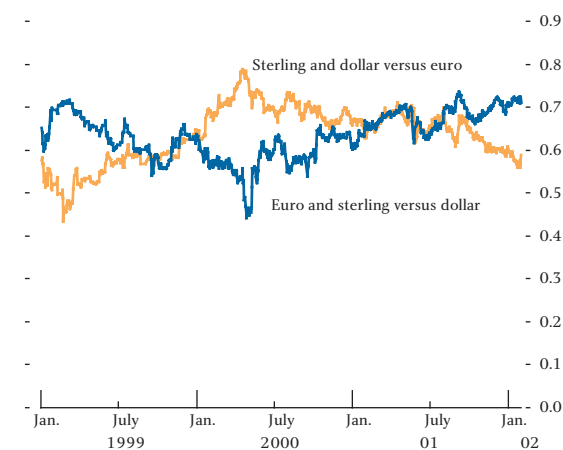


dollar appreciates against the euro, sterling tends also to appreciate against the euro.

The possibility that the United Kingdom might at some point enter EMU was again the subject of market commentary during the period, particularly in the period leading up to and immediately after the successful launch of euro notes and coins at the start of 2002. Over the period as a whole sterling appreciated against the euro, even though most market participants believe that if the United Kingdom were to enter EMU it would be at a weaker exchange rate than currently.

Looking forward, option prices can give an indication of how closely correlated the euro and sterling exchange rates are expected to be over the next year.<sup>(1)</sup> On this measure (see Chart 32), the implied correlation of sterling with the euro (against the dollar) is currently higher than the implied correlation of sterling with the dollar (against the euro). For much of 2001 the market generally expected sterling to be roughly equally correlated with both the euro and the dollar, but since August the implied correlations have diverged. Some in the market have interpreted this as implying that the market attaches a greater probability to sterling entering EMU, although the majority of the divergence derives from a fall in the sterling-dollar correlation, rather than a rise in the euro-sterling correlation. In contrast to the forward-looking implied correlations, backward-looking actual correlations show that sterling moved more closely with the dollar than with the euro over the past year.

**Chart 32**  
One-year exchange rate implied correlations



(1) This methodology is set out in Butler, C and Cooper, N, 'Implied exchange rate correlations and market perceptions of European Monetary Union', *Bank of England Quarterly Bulletin*, November 1997.

(2) For gilt repo, data are available only to end-November.

Viewing the foreign exchange market as a whole, uncertainty does not appear to have changed significantly. Implied volatilities for most currencies are at or close to historically low levels (see Chart 33). Events in Argentina caused virtually no contagion to other currencies, or indeed other financial markets more generally. The price of gold did rise temporarily, perhaps indicating a short-term rise in risk-aversion, but it then fell back to its late-October levels. In February, however, the price of gold rapidly increased from a London fixing of \$282.30 on 31 January to a high of \$304.30 on 8 February. Whether this was a reflection of gold's role as a safe-haven asset and therefore symptomatic of an increase in risk-aversion is not clear. The rise was prompted by a series of announcements, including by the largest gold producer, AngloGold, that gold producers would reduce the extent to which they hedged gold production by selling it forward, prospectively reducing supply to the market in the near term.

**Chart 33**  
Exchange rate uncertainty<sup>(a)</sup>



(a) Twelve-month implied volatilities derived from foreign exchange option contracts.

## The sterling money market

The amount outstanding in the sterling money market fell by £14 billion to £541 billion in 2001 Q4, having risen by £12 billion in the previous quarter (see Table H). Much of this change can be accounted for by movements in gilt repo,<sup>(2)</sup> but there were also falls in certificates of deposit, stock lending and interbank deposits. These decreases were partly offset by a rise in Treasury bill issuance, its outstanding stock having risen by £8.6 billion since September to £11.2 billion. Following the Chancellor's November Pre-Budget Report, the Debt Management Office announced a further

## Table H 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
2000 Q1	156	132	100	51	14	15	6	474
Q2	159	135	124	54	12	16	7	507
Q3	162	125	127	55	12	16	7	502
Q4	151	130	128	62	11	18	9	509
2001 Q1	171	141	126	67	13	19	7	544
Q2	177	131	128	67	12	22	6	543
Q3	187	134	144	52	11	21	6	555
Q4	185	131	130	48	11	20	16	541

(a) Reporting dates are end-quarters.

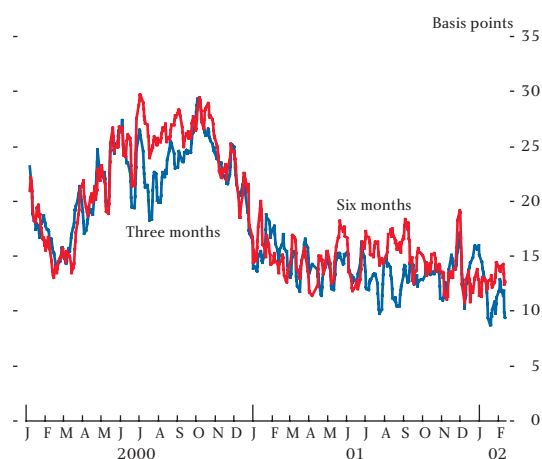
(b) Reporting dates are end-February for Q1, end-May for Q2, end-August for Q3, end-November for Q4 and end-year.

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

increase of £1.4 billion to the planned end-March 2002 stock of Treasury bills, bringing it to a total of £9.7 billion.

Nominal amounts outstanding in gilt repo at end-November fell by about £14.5 billion from end-August, having risen by £16 billion in the previous quarter. The strongest fall occurred in overnight repos. This fall appears to have been the result of a switch from secured to unsecured finance, with the interbank market growing by £9.7 billion between August and November before contracting in December. Spreads of unsecured interbank rates over secured general collateral (GC) repo rates were little changed on the previous quarter, although they have fallen since late 2000 (see Chart 34).

### Chart 34 Spreads between three and six-month interbank and GC repo rates<sup>(a)</sup>



(a) Interbank is the offer rate, GC repo is the bid rate; five-day moving averages.

Average daily turnover in gilt repo contracts rose to £20.0 billion in the quarter to end-November from £18.2 billion in the previous quarter (see Table I), despite the decline in amounts outstanding, which may reflect the closing out of positions towards the end of the year. Anecdotal evidence suggests that the increase in activity occurred mainly in GC repo; 'specials' activity

remained focused on stocks that were cheapest to deliver into the long gilt futures contracts. While other gilts have traded at a premium to GC repo, volumes were lower than in the past and no use was made of the Debt Management Office's standing repo facility.

### Table I Turnover of money market instruments

Average daily amount, £ billions

	2000	2001			
		Q1	Q2	Q3	Q4
Short sterling futures (a)	45.0	60.0	66.0	71.5	69.6
Gilt repo (b)	17.8	15.7	17.9	18.2	20.0
Interbank (overnight) (c)	10.4	10.3	11.1	9.3	10.8
CDs, bank bills and Treasury bills	n.a.	11.8	12.4	11.4	11.7

n.a. = not available.

Sources: CrestCo, LIFFE, Wholesale Markets Brokers' Association and Bank of England.

(a) Sum of all 20 contracts extant, converted to equivalent nominal amount.

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

(c) Brokered values.

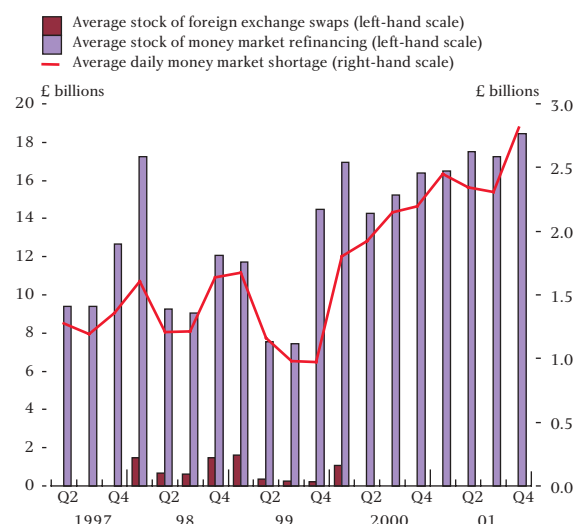
As in previous years, activity in sterling money markets fell in the run-up to the year-end. This partly reflected balance sheet restrictions imposed by some banks prior to the calendar year-end and accounting or regulatory reporting deadlines. As might be expected, the fall in liquidity caused by such restrictions appeared to contribute to an increase in price volatility, which reportedly also deterred otherwise unconstrained players from actively participating at the year-end. The contraction that took place in UK resident banks' sterling balance sheets totalled £42 billion. In cash markets the year-end was marked by tight overnight rates. During December the sterling overnight index (SONIA) averaged 4.55%, 55 basis points above the Bank's repo rate. This compares with a Bank repo to SONIA spread of -29 basis points in December 2000 and -76 basis points in December 1999.

### Open market operations

The stock of money market refinancing held on the Bank's balance sheet (which comprises the short-term

assets acquired via the Bank's open market operations) averaged £19 billion over November, December and January (see Chart 35). This was some £2 billion higher than over the previous three-month period, reflecting the temporary growth of the bank note circulation at Christmas (which is the principal sterling liability on the Bank's balance sheet).

**Chart 35**  
Stock of money market refinancing and daily shortages



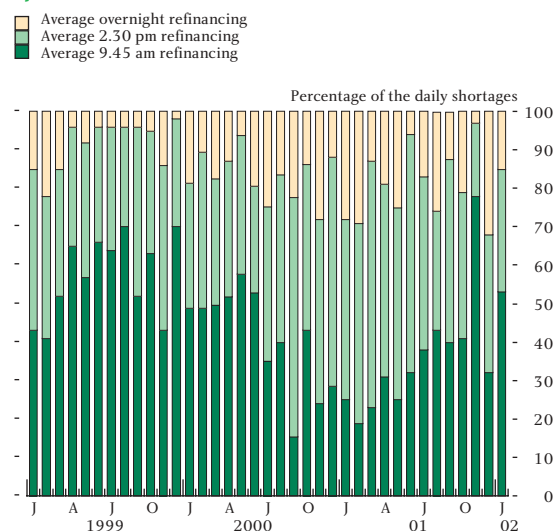
During November, December and January, daily money market shortages averaged £2.7 billion, compared with £2.4 billion over the previous three-month period (see Table J). This rise reflected larger-than-normal shortages in December (averaging £4.2 billion) as the rate of turnover in the stock of refinancing rose.<sup>(1)</sup> This was because the Bank's open market operations (OMO) counterparties chose to refinance as much as 32% of the month's daily money market shortages in the late rounds of operations, on an overnight basis (see Chart 36). Typically, less than 20% of the refinancing is undertaken on an overnight basis. When counterparties choose to obtain a higher proportion of the refinancing on an

**Table J**  
Average daily money market shortages

£ billions		
1996	Year	0.9
1998	Year	1.4
2000	Year	2.0
2001	Q1	2.5
	Q2	2.3
	Q3	2.3
	Oct.	2.5
	Nov.	1.9
	Dec.	4.2
2002	Jan.	2.1

(1) 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 is usually around seven to eight working days. This is because the Bank's counterparties can choose to obtain refinancing by selling eligible bills with less than a two-week residual maturity on an outright basis, or can obtain overnight repo refinancing at a penal interest rate if they choose.

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

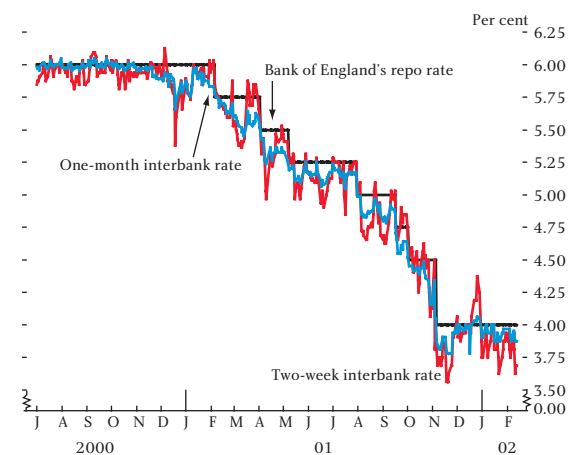


overnight basis, the turnover of the stock of refinancing rises and, consequently, the average size of the shortages increases.

Some of the rise in counterparties' use of overnight refinancing in December may have been related to reduced demand for two-week refinancing relating to year-end balance sheet considerations.

Chart 37 shows various short-dated money market interest rates and the Bank's repo rate. The increased use of the Bank's overnight, penal facilities (and consequent tightness in overnight market interest rates) was reflected in the two-week interbank rate trading above normal levels for much of December. During December and January, the one and three-month

**Chart 37**  
Bank's repo rate and interbank rates



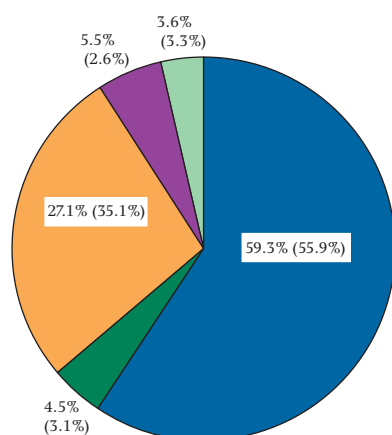
interbank rates traded nearer to the Bank's repo rate than had been the case in previous months, as market expectations of further interest rate cuts by the MPC diminished.

Counterparties made use of the Bank's deposit facility on five days during the review period. In order to leave the market square by close of business, the Bank increased the amount of refinancing available at the 4.20 pm late repo facility by the size of the deposit on each occasion that the facility was used, and the settlement banks borrowed the full amount of the refinancing available. The deposit facility has continued to fulfil its objective of providing a 'floor' to the interbank overnight rate, and consequently to other short-dated market interest rates.

The Bank wrote to its OMO counterparties on 19 November 2001 to inform them that, from 10 December, it may, on a more frequent basis, scale down an individual counterparty's bid for OMO liquidity. This measure was intended to reduce what the Bank might consider to be an undue concentration of its operations in the hands of a few of its counterparties and so help to ensure that access to the liquidity provided by the Bank was available as smoothly as possible to all market participants. Individual counterparties can continue to make significant contributions to OMOs and, indeed, the Bank expects

**Chart 38**  
**OMO—instrument overview<sup>(a)</sup>**

■ Gilt repo  
■ Bill repo  
■ Repo of euro-denominated securities  
■ Outright purchases of Treasury bills/eligible bank bills  
■ Overnight repo facilities



(a) This chart shows the average shares of the various instruments held by the Bank as collateral for open market operations from November 2001 to January 2002. Figures in brackets relate to August to October 2001. Figures may not sum to 100% because of rounding.

that it is unlikely that there will be any direct effect on the scale of most counterparties' money market operations with the Bank. The subject was discussed at the Sterling Money Market Liaison Group's meeting of 10 December 2001.<sup>(1)</sup>

Gilts accounted for around 59% of the stock of collateral taken by the Bank in its open market operations during November, December and January (see Chart 38). Euro-denominated eligible securities<sup>(2)</sup> (issued by EEA governments and supranational bodies) accounted for around 27% of the collateral, compared with 35% in the previous three-month period.

### HM Treasury and Bank of England euro issues

The Bank of England continued to hold regular monthly auctions between November 2001 and February 2002. €1 billion of Bills were auctioned in November and December, comprising €200 million of one-month, €500 million of three-month and €300 million of six-month Bank of England Bills. In January 2002, the Bank of England announced that the amount of Bills to be issued would be reduced to €900 million of Bills per month, comprising €600 million of three-month and €300 million of six-month Bills. Auctions held during the period continued to be oversubscribed, with issues being covered an average of 6.3 times the amount on offer. Bids were accepted at average yields of between euribor minus 16.6 and euribor minus 9.3 basis points.

The first auction of the Bank of England Euro Note to mature in January 2005 was held on 22 January 2002. The auction for €1 billion of Notes was oversubscribed, with bids of 3.6 times the amount on offer. Bids were accepted in a range of 4.135%–4.175%; the coupon for the issue was set at 4.00%. Two reopening auctions of the 2005 Bank of England Euro Notes are scheduled for 19 March and 16 April 2002.

### UK gold auctions

The programme of gold auctions held by the UK government continued in the period under review. Twenty tonnes of gold were sold at each of two auctions. On 27 November 2001 a price of \$273.50 per ounce was achieved and the auction was covered 2.6 times. On 16 January 2002 a price of \$283.50 was achieved and the auction was covered 1.4 times. The final auction in the programme will be held on 5 March 2002.

(1) Minutes of this meeting are available on the Bank's web site at [www.bankofengland.co.uk/markets/money/smmlg.htm](http://www.bankofengland.co.uk/markets/money/smmlg.htm)

(2) A list of eligible securities is available on the Bank's web site at [www.bankofengland.co.uk/markets/money/eligiblesecurities.htm](http://www.bankofengland.co.uk/markets/money/eligiblesecurities.htm)