Operation of monetary policy

- *Figures published in the fourth quarter of 1994 showed a continuation of low current retail price inflation but developing inflationary pressures in the early and intermediate stages of production.*

- *Data also showed output continuing to grow faster than the productive capacity of the economy, reducing the margin of unused resources. The contrast between strong external demand and relatively subdued domestic demand became more pronounced.*

- *At his meeting with the Governor on 7 December, the Chancellor decided that official interest rates should be raised by ½% to 6¼%; the change was implemented immediately by the Bank to remove market uncertainty.*

- *Financial markets reacted positively to the move, appearing to view it as evidence of the authorities' continuing commitment to price stability. Sterling strengthened and long-term bond yields fell.*

- *International bond markets were more stable in the fourth quarter. Gilts performed well in relation to other markets, and the required pace of funding was fully maintained.*

Overview

Decisions on monetary policy are based on a wide range of indicators. The Bank's current assessment is given in the February *Inflation Report*; this article reviews the operation of monetary policy in the fourth quarter of 1994.

Statistics published during the quarter showed that economic activity was accelerating in the major industrialised countries. The US economy showed no evidence of the slowdown that had been widely expected; GDP growth for the third quarter in Germany maintained the pace set in the second; and there were further signs of recovery in Japan. In the United Kingdom, GDP growth in the third quarter was strong and earlier data were generally revised upwards. Output continued to grow faster than the productive capacity of the economy, reducing the margin of unused resources; unemployment continued to fall steadily.

The data showed that the profile of this UK growth was similar to that seen in previous quarters, but that the contrast between strong external demand and relatively subdued domestic demand had become more pronounced. Helped by the buoyancy of overseas economies, net external trade made a large contribution to growth in the third quarter. Manufacturing investment also remained robust and although total investment slowed, it was depressed by sectoral factors; the underlying trend was stronger and survey evidence suggested increases in the following months. In contrast, consumer spending was subdued, possibly reflecting the increases in taxation, a weak housing market and continued uncertainty about employment prospects. Confidence remained quite low and retail sales growth slowed in the fourth quarter. Slower M0 growth was consistent with this.

Current inflation remained low, but there was further evidence of incipient cost and price pressures. Raw material and other producer input prices continued to rise, although the latter's annualised three-month rate of increase moderated from 10.3% in September to 7.0% in October and November. Falling unit labour costs helped to attenuate the impact of rising input costs on output and retail prices, although surveys suggested increasing capacity utilisation and that an increasing balance of firms expected to raise prices in the months ahead. The annualised increase in output prices (excluding food, beverages, tobacco and petroleum) in the three months to November rose to 4.3%, from 4.0% in October and 2.6% in September.

Labour market conditions tightened, delivery times lengthened and reported industrial capacity utilisation rose to the same level as its cyclical peak in the previous cycle. Taken with firm commodity prices and rising intermediate product prices, this underlined the concern about rising output prices.

Against this background, the Chancellor decided at his meeting with the Governor on 7 December that interest rates should be raised by ½% to 6¼%. The Bank implemented the change immediately both to remove the uncertainty surrounding the meeting following the Government's defeat on VAT the previous evening, and because of the gilt auction being held that morning. The interest rate announcement was made some 20 minutes before the deadline for bids so that the auction could take place on the basis of full information. The immediate reaction was positive: sterling rallied, long bond yields fell and short-term interest rates beyond the three-month maturity held steady or declined. Market commentators viewed the move as fully justified on economic grounds.

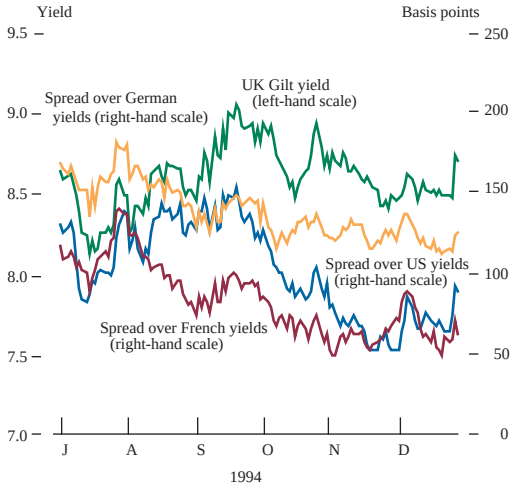
Over the fourth quarter as a whole, ten-year gilt yields fell by 23 basis points to 8.69% and the differential over equivalent US and German bonds narrowed by 31 and 6 basis points respectively. Positive perceptions about the economic situation appeared to be enhanced by the further tightening of policy at an earlier point than in previous cycles, reflecting the authorities' continuing commitment to price stability.

Data releases in the United States confirmed that output and employment continued to rise quickly; labour market conditions also tightened further, and primary and intermediate product prices accelerated. This led the Federal Reserve to raise interest rates by ¾% on 15 November, increasing the target federal funds rate to 5½% and the discount rate to 4¾%. This sustained a rally in US Treasuries and a recovery in the dollar. A number of other countries —including Australia, Sweden and Finland—also raised interest rates during the quarter (see Table A).

In Germany, GDP growth in the third quarter rose to 1.3%, inflation edged below 3% and growth in M3 (which does not include money-market funds) slowed to the upper end of the 4%–6% target range. The developments left market expectations of German interest rates largely unchanged; the Bundesbank held its repo rate fixed at 4.85%.

Sterling was steady throughout the period, with fluctuations against the dollar broadly offset by movements against the Deutsche Mark:

Ten-year gilt yield[a] and differentials over US, German and French yields[b]



(a) Gross redemption yield on semi-annual basis.
(b) Differentials with yields on comparable US Treasuries, German Bunds and French OATs.

Table A
Changes in official interest rates

Country	Interest rate	Date	Change (basis points)	New level
Australia	Official cash rate	24 October	+100	6.50
Sweden	Repo rate	2 November	+20	7.40
United States	Federal funds rate	15 November	+75	5.50
	Discount rate	15 November	+75	4.75
United Kingdom	Minimum lending rate	7 December	+50	6.25
Finland	Tender rate	9 December	+49	5.50
Australia	Official cash rate	13 December	+100	7.50
Sweden	Repo rate	14 December	+20	7.60

Table B
Interest rates, gilt yields and exchange rates; selected dates[a]

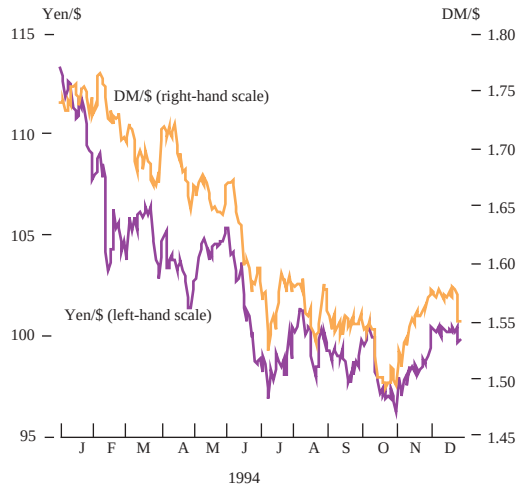
	Interest rates (per cent per annum)					Gilt yields [b] (per cent per annum)				Exchange rates		
	Sterling interbank rates [c]				Short sterling future [d]	Conventionals			Index-linked			
1994	1 month	3 months	6 months	12 months	3 months	Short	Medium	Long	Long	ERI	$/£	DM/£
3 October	5 1/2	5 31/32	6 19/32	7 17/32	7.76	8.73	8.92	8.74	3.90	80.1	1.5755	2.4554
17 October	5 17/32	5 29/32	6 5/16	7 3/32	7.17	8.31	8.46	8.34	3.84	79.7	1.6060	2.4151
26 October	5 1/2	5 31/32	6 1/2	7 3/8	7.47	8.81	8.92	8.75	3.93	80.7	1.6353	2.4472
28 November	5 17/32	6 1/32	6 17/32	7 1/4	6.99	8.26	8.40	8.30	3.83	79.9	1.5610	2.4441
6 December	5 27/32	6 3/8	6 15/16	7 23/32	7.50	8.53	8.60	8.43	3.91	80.0	1.5572	2.4471
7 December	6 5/32	6 13/32	6 15/16	7 11/16	7.44	8.51	8.58	8.39	3.91	80.1	1.5627	2.4475
30 December	6 3/32	6 19/32	7 3/32	7 29/32	7.38	8.66	8.70	8.54	3.88	79.7	1.5645	2.4245

(a) Close-of-business rates in London.
(b) Gross redemption yield. Representative stocks: short—6% Treasury 1999; medium—6 3/4% Treasury 2004; long—8% Treasury 2013; index-linked—2 1/2% Index-Linked Treasury 2016 (real yield assuming 5% inflation).
(c) Middle-market rates.
(d) Implied future rate: March 1995 contract.

Sterling's effective index[a]

(a) Calculated using the 1985 weights in operation during the fourth quarter.

Dollar exchange rates



the effective rate index remained around 80.[1] The dollar encountered a renewed bout of weakness at the beginning of the period, mainly on concerns that US bonds would suffer in an environment of rising inflation and interest rates. But intervention by the Federal Reserve in early November, backed up by the rise in US interest rates in mid-November, led sentiment to turn in favour of the dollar. The Mexican peso was devalued by about 15% on 20 December and its peg to the dollar was subsequently abandoned, which triggered volatility among the major currencies in thin Christmas markets.

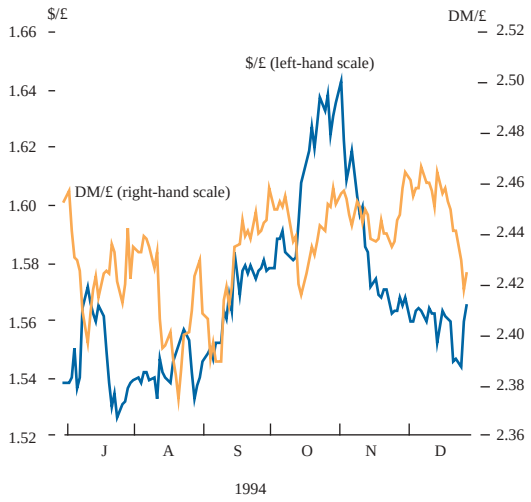
Foreign exchange markets

Sentiment turned sharply against the dollar at the beginning of October, as markets judged that there would be no early monetary tightening by the Federal Reserve despite renewed evidence of continuing strong growth and a gradual emergence of input-price inflation. The dollar touched a two-year low against the Deutsche Mark of DM 1.4853 on 25 October, following the return to power of the ruling coalition in the German elections; it also fell back against the yen, to a new record low of ¥96.0 on 2 November on news that trade talks with Japan were faltering. But substantial intervention by the Federal Reserve on 2/3 November—coupled with statements from the US Treasury in support of a stronger dollar—arrested its slide. Market sentiment changed as the forceful nature of the intervention persuaded many that the authorities were serious about stopping the depreciation and would raise interest rates at the Federal Open Market Committee (FOMC) meeting on 15 November. The dollar rose further following the Congressional elections on 8 November, when the clear Republican victory was seen as reducing uncertainty about Federal Reserve policy.

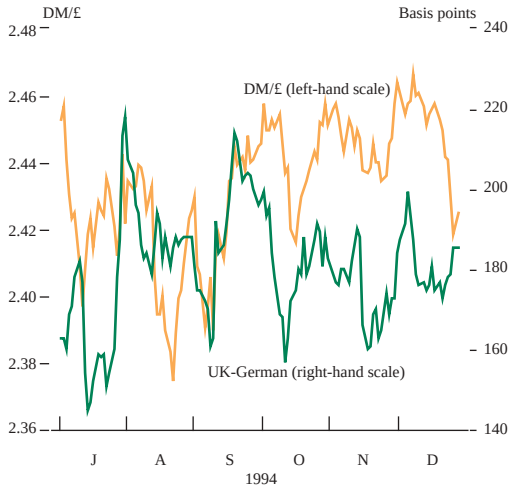
Consequently, the 3/4% rise in US interest rates was greeted positively by the markets and triggered a rally in late November. The dollar reached a high for the quarter of DM 1.5834 on 9 December before retreating to around DM 1.57 in the run-up to Christmas. The decision to leave interest rates unchanged at the FOMC on 20 December caused little surprise, with the market looking to further rises in 1995. Over the Christmas period, the dollar was volatile following the large devaluation of the Mexican peso, appreciating initially—as investors viewed it as a safe haven—but then retreating equally sharply on fears that Mexico

(1) Since 1 February, the Bank has updated its calculation of sterling's effective rate index (ERI)—see the note on the new calculation on pages 24–25. Because it was being used at the time of the events described, this article refers to the old ERI.

Sterling exchange rates

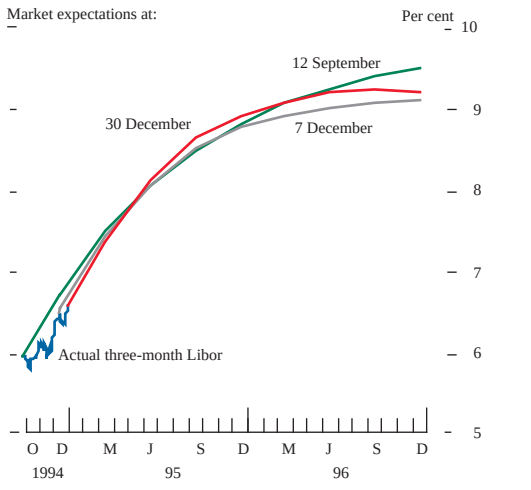


DM/£ exchange rate and expected UK-German interest rate differential(a)



(a) Spread of UK over German three-month futures rates (March 1995 short-sterling and euromark contracts traded on LIFFE).

Short-sterling futures rate curves(a)



(a) Three-month Libor discounted by short-sterling futures contract.

might draw on swap lines to generate dollars to sell in support of the peso. It ended the year at DM 1.5497 and ¥99.72.

Sterling also depreciated against the Deutsche Mark at the beginning of the period, falling to a low for the quarter of DM 2.4130 on 17 October. It recovered quickly, however, helped by continued healthy economic data. Sterling tracked the Deutsche Mark throughout November, decoupling somewhat from the dollar and rising with other European currencies to a high for the year—of $1.6439 on 2 November—before falling back as the dollar strengthened. Around the middle of November, it found strong support at around $1.56 to $1.57. UK interest rate expectations firmed in late November following an estimate of GDP growth of 0.9% for the third quarter, at the same time as a sharp rise in US interest rate expectations. Increases in the differential between UK and German expected three-month interest rates tended to underpin sterling against the Deutsche Mark.

The market reacted positively to the ½% interest rate rise on 7 December. Sterling rose to DM 2.4686 on 8 December, before trading in a range around DM 2.455 and $1.56 until just before Christmas. From 20 December onwards, it suffered from the dollar's volatility after the Mexican peso devaluation, falling to $1.5645 and DM 2.4245 by the year-end. Its effective rate index moved in a narrow range around 80 throughout the quarter, as its movements against the dollar and the Deutsche Mark were generally offsetting.

After a quiet start to the period, the ERM grid gradually widened as a result of a strengthening of the Deutsche Mark. The German currency benefited from a gentle firming of interest rate expectations, with the March 1995 euromark futures rate beginning to reflect a belief that the next interest rate move would be upward. The French franc, Italian lira, Spanish peseta and Portuguese escudo all encountered periods of pressure. Uncertain political environments were a factor in France and Italy, as well as a sharp rise in interest rate expectations as investors demanded a higher risk premium. The lira fell back consistently to reach a post-war low of L1,049 against the Deutsche Mark on 20 December; the Spanish peseta also weakened in December on domestic political concerns.

Official money-market operations

Money-market rates were steady in the first few weeks of the period, following the interest rate rise on 12 September. One-month rates stayed close to 5½% and three-month rates just higher than base rates, at around 5⅞%; 12-month rates and the three-month rates implied by short-sterling futures contracts were more volatile, as is often the case as expectations about the path of official interest rates evolve. Short-sterling futures then rallied from the start of October until late November, suggesting some moderation in expectations of further interest rate rises. But then the mood changed: GDP figures were revised upwards, and showed growth in the year to the third quarter to be around 4%; the November CBI monthly trends survey pointed to continued increases in output and no change in the balance of firms expecting to raise prices in the months ahead. The Budget on 29 November also had an impact: the higher forecast for GDP growth for 1995, together with the

broadly neutral nature of the Budget in its effects on public finances, led to increased expectations that interest rates might need to be raised further.

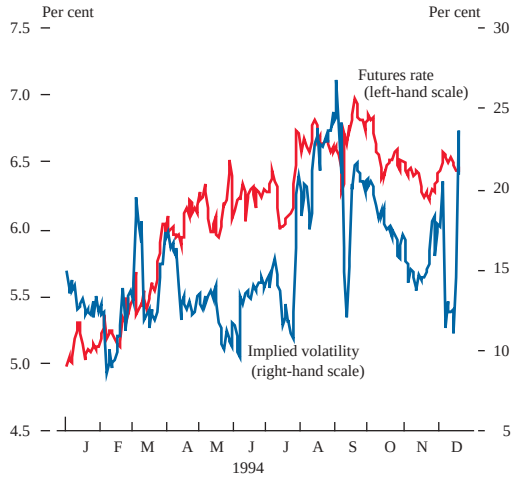
These market expectations intensified during the week leading up the monthly Chancellor/Governor meeting on 7 December. The prices component of the Purchasing Managers Index had risen and political events were dominating the news, culminating in a Government defeat on the eve of the meeting on a procedural motion on the proposed introduction of standard rate VAT on domestic fuel. On the day of the vote, the Governor asked for the meeting to be brought forward from 9.30 am to 8.45 am on 7 December, so that if a decision were made to change interest rates, it could be implemented before the deadline for bids at the gilt auction that morning. The Bank recommended that interest rates should be raised by ½% and the Chancellor agreed.

The Bank decided to implement the change immediately in order to remove the market uncertainty that would otherwise have followed the meeting. Official rates were raised by ½% via the reintroduction for one day of Minimum Lending Rate at 6¼% at 9.40 am. The reaction—observable in both prices and comment—suggested that the reasons for the rate increase were fully understood, with the market's view of the overall economic environment and the associated balance of risks to the inflation outlook in accord with the authorities' judgment. The increase was absorbed smoothly: one-month money-market rates rose by only 5/16%, rates beyond three months held steady or fell and the rates implied by short-sterling futures contracts fell at all maturities. This suggested that there was considerable relief following the announcement, given the background of uncertainty. The move appeared to be viewed by the market as evidence that the authorities would continue to act prudently and would—by acting in good time—need to raise rates by less overall to contain inflation.

One measure of uncertainty is implied volatility, which can be derived from the prices of options on futures contracts. Changes in implied volatility may indicate a change in market expectations of fluctuations in the price of the underlying asset or in uncertainty about the future level of these prices. Implied volatility on the March short-sterling contract fell from 19.3% on 6 December to 17.4% on 17 December, while implied volatility on the December contract fell from 20.4% to 11.7% after the rate rise. (This contract settled two weeks later, so implied volatility was almost bound to drop significantly once the outcome of the meeting was known.) The implied volatility on the December contract was quite closely related to the December futures rate. It is possible that central forecasts of future interest rates were relatively stable, with some of the movement in futures (and cash) rates attributable to changes in the uncertainty attaching to these forecasts.

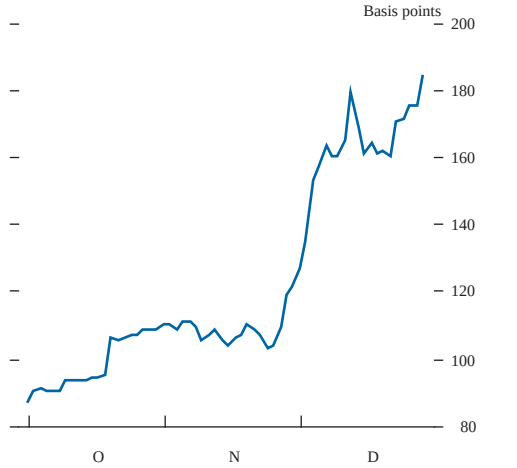
International influences on the sterling money market were mixed. Strong US economic data strengthened expectations of rising short-term interest rates there. In Germany, the Bundesbank held its repo rate steady at 4.85% throughout the period. Although official pronouncements continued to emphasise that rates could move in either direction, market hopes for a further cut in German interest rates diminished, while the expected timing of any eventual increase was pushed back.

Short-sterling futures[a] and implied volatility[b]



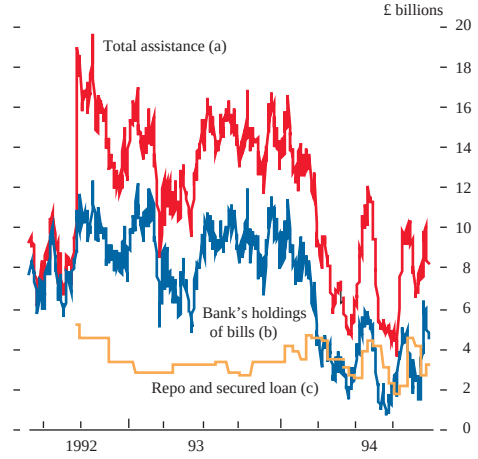
(a) Rate implied by the December 1994 short-sterling futures contract.
(b) The expected standard deviation of annualised price movements in the December 1994 short-sterling futures contract.

Degree of US monetary policy tightening expected in the first half of 1995[a]



(a) Differential between December 1994 and June 1995 federal funds futures prices.

Money-market assistance



(a) Bank of England's holdings of bills, market advances and—until 19 January 1994—funds supplied under the temporary facilities; since that date, under the repo and secured loan facilities.
(b) Bank of England's holdings of eligible bank and sterling Treasury bills outright and on a repurchase basis.
(c) Bank of England's holdings of gilt-edged stocks on a repurchase basis, and loans made against export and shipbuilding credit-related paper under temporary and repo and secured loan facilities.

Table C
Influences on the cash position of the money market

£ billions; *not seasonally adjusted*
Increase in bankers' balances (+)

	1994/95			
	Apr.–Sept.	Oct.	Nov.	Dec.
Factors affecting the market's cash position				
Under/overfunding (+/-) (a)	7.4	-4.6	2.9	-1.7
Other public sector net borrowing from banks and building societies (-) (b)	0.3	0.4	0.1	-0.1
of which, local authorities' deposits with banks and building societies (+)	—	*0.1*	*0.2*	—
Currency circulation (-)	—	1.0	-0.4	-2.4
Other	4.9	-2.5	-0.1	2.3
Total	**12.5**	**-5.7**	**-2.7**	**-2.0**
Increase (+) in the stock of assistance	-8.3	5.1	-2.7	1.5
Increase (-) in £ Treasury bills outstanding (c)	4.2	-0.7	-0.2	-0.5
Increase in bankers' balances at the Bank	—	0.1	-0.1	0.1

(a) From 1993/94, net purchases of central government debt by banks and building societies are included in funding. Purchases by banks and building societies in 1992/93 are counted as funding in 1994/95.
(b) From 1993/94, banks' and building societies' purchases of local authorities' and public corporations' listed sterling stocks and bonds are included in funding.
(c) Other than those held outright by the Bank and government accounts, but including those purchased by the Bank on a repurchase basis.

The stock of assistance rose sharply in October (from £4.3 billion to £9.4 billion)—in part because of receipts of advance corporation tax and privatisation proceeds—and remained relatively high for the rest of the period. Average daily money-market shortages accordingly increased during the quarter, to £900 million from around £650 million in Q3 and £600 million in Q2. The Bank held an early round of operations on days of large shortage and on each occasion a bill repo was also included (although sometimes no offers were received).

Except in the run-up to the December Chancellor/Governor meeting, the maturity of bills offered to the Bank over the period was usually short. Late lending was often used to remove any residual shortage when the market was reluctant to part with bills, which also reduced the average maturity of the total assistance provided by the Bank. This increased average daily shortages, as assistance provided via outright purchases of short maturity bills and overnight late lending rolled over.

The twice-monthly gilt repo facility continued to act as a 'self-correcting' mechanism; take-up by the market both influenced and was influenced by the pattern of daily shortages and short-term interest rates. For example, there was a run of 12 days in early November when the shortage was at least £1 billion, taking two-week and one-month rates $^{1}/_{8}$% higher than the prevailing repo rate of $5^{21}/_{32}$%. The take-up at the repo on 9 November increased to £4.4 billion and, when the result was published, 2–4 week rates fell back by around $^{3}/_{32}$%, as pressure was taken off the Bank's daily operations.

At the weekly Treasury bill tenders for three-month bills, on two occasions when money-market rates were relatively firm, the yield paid at the tender exceeded base rate but, unlike on 29 July, this did not disturb the market. The amount on offer was reduced from £500 million to £350 million on 4 November to offset a projected increase in the stock of assistance in the period immediately thereafter, arising from the seasonal pattern of government revenue and expenditure flows. (It was subsequently restored to £500 million on 13 January to help address the run-down in the stock of assistance in the final months of the financial year—see the box on pages 12–13.) Reflecting the reduced supply of Treasury bills, the yield discount relative to one to three-month commercial bills widened by around $^{3}/_{8}$% during the quarter.

Gilt-edged funding

The gilt market steadied in the fourth quarter. Gilts outperformed most other government bond markets over the period, with the spread between ten-year gilt yields and their US and German equivalents narrowing by 31 and 6 basis points respectively. The yield curve flattened, with the differential between ten-year and two-year yields falling from 77 basis points to 57 basis points over the quarter, and the differential between 20-year and two-year yields narrowing from 62 to 45 basis points.

Gilt prices rose in the first half of October, allowing some tap sales, but subsequently fell back in renewed international bond market weakness (the US 30-year bond yield rose above 8%). Domestic data added to concern about the pace of growth (notably upward revisions to GDP figures for the first and second quarters, strong

Table E
Issues of gilt-edged stock

	Amount issued (£ millions)	Date announced	Date issued	Method of issue	Price at issue (per £100 stock)	Details of payment	Yield (a) at issue	Yield (a) when exhausted	Date exhausted
6% Treasury 1999	250	10.10.94	10.10.94	Tap	90.12500	Fully paid	8.53	8.51	11.10.94
6% Treasury 1999	100	10.10.94	10.10.94	To CRND					
8% Treasury 2009	250	10.10.94	10.10.94	Tap	94.53125	Fully paid	8.66	8.64	11.10.94
8% Treasury 2009	100	10.10.94	10.10.94	To CRND					
2½% Index-Linked 2024	150	10.10.94	10.10.94	Tap	109.12500	Fully paid	3.89 (b)	3.89 (b)	11.10.94
8½% Treasury 2007	200	13.10.94	13.10.94	Tap	99.81250	Fully paid	8.52	8.50	17.10.94
8% Treasury 2013	250	13.10.94	13.10.94	Tap	96.18750	Fully paid	8.40	8.40	14.10.94
2½% Index-Linked 2013	150	13.10.94	13.10.94	Tap	130.00000	Fully paid	3.82 (b)	3.83 (b)	14.10.94
8% Treasury 2000	2,500	18.10.94	27.10.94	Auction	96.03125 (c)	Fully paid	8.84 (d)	8.84	27.10.94
8½% Treasury 2005	250	4.11.94	4.11.94	Tap	99.12500	Fully paid	8.61	8.59	10.11.94
8½% Treasury 2005	150	4.11.94	4.11.94	To CRND					
8¾% Treasury 2017	250	4.11.94	4.11.94	Tap	102.75000	Fully paid	8.47	8.46	15.11.94
8¾% Treasury 2017	150	4.11.94	4.11.94	To CRND					
2½% Index-Linked 2009	100	4.11.94	4.11.94	Tap	152.50000	Fully paid	3.86 (b)	3.85 (b)	9.11.94
2½% Index-Linked 2024	100	4.11.94	4.11.94	Tap	110.31250	Fully paid	3.85 (b)	3.85 (b)	16.11.94
7% Treasury 2001	200	21.11.94	21.11.94	Tap	92.00000	Fully paid	8.55	8.53	22.11.94
7% Treasury 2001	150	21.11.94	21.11.94	To CRND					
9% Treasury 2008	200	21.11.94	21.11.94	Tap	103.87500	Fully paid	8.52	8.43	23.11.94
9% Treasury 2008	100	21.11.94	21.11.94	To CRND					
9% Treasury 2012	200	21.11.94	21.11.94	Tap	104.68750	Fully paid	8.48	8.42	23.11.94
2½% Index-Linked 2003	150	21.11.94	21.11.94	Tap	162.37500	Fully paid	3.81 (b)	3.79 (b)	23.11.94
8% Treasury 2000	200	28.11.94	28.11.94	Tap	98.68750	Fully paid	8.27	8.62	11.01.95
8% Treasury 2000	100	28.11.94	28.11.94	To CRND					
8% Treasury 2003	200	28.11.94	28.11.94	Tap	97.25000	Fully paid	8.46	8.77	11.01.95
8% Treasury 2003	100	28.11.94	28.11.94	To CRND					
8% Treasury 2013	200	28.11.94	28.11.94	Tap	97.25000	Fully paid	8.29	8.53	11.01.95
8% Treasury 2013	100	28.11.94	28.11.94	To CRND					
2½% Index-Linked 2001	100	28.11.94	28.11.94	Tap	167.18750	Fully paid	3.73 (b)		On tap
2½% Index-Linked 2016	100	28.11.94	28.11.94	Tap	139.25000	Fully paid	3.83 (b)	3.84 (b)	28.12.94
8½% Treasury 2005	2,000	30.11.94	8.12.94	Auction	98.81250 (e)	Fully paid	8.66 (d)	8.66	8.12.94

(a) Gross redemption yield, per cent.
(b) Real rate of return, assuming 5% inflation.
(c) Lowest-accepted price for competitive bids. The non-competitive allotment price was £96.15625.
(d) Yield at lowest-accepted price for competitive bids.
(e) Lowest-accepted price for competitive bids. The non-competitive allotment price was £98.9375.

Gilt sales in January–March 1995

Funding policy is conducted on the basis set out in the 1994/95 Financial Statement and Budget Report, and the remit from the Chancellor of the Exchequer to the Bank published on 17 March 1994.(1) The PSBR was initially forecast at £37.9 billion but was revised downwards—to £36.1 billion in the Treasury's Summer Economic Forecast and to £34.3 billion following the November Budget. The table below updates the funding arithmetic and shows the consequent funding requirement for January–March 1995.

Forecast of funding requirement for 1994/95

	£ billion (a)
PSBR	34.3
Gilt redemptions	8.5
Less cumulative overfund and gilt purchases by the monetary sector in 1992/93	10.2
Funding requirement	32.6
Less expected net inflow from National Savings	3.5
Gilt sales required for full funding	29.1
Less gilt sales already made (April–December 1994)	22.7
Further gilt sales required (January–March 1995) for full funding	6.3

(a) May not sum exactly because of rounding.

(1) For further details, see the box on the funding remit in the May 1994 *Quarterly Bulletin*, pages 112–13.

industrial production, M0 growth over 7% and a buoyant CBI monthly trends survey). The October auction for £2½ billion of 8% Treasury 2000 was held against this background. It was the first time since February that more than £2 billion of a conventional stock had been offered, and continued the practice of creating current-coupon benchmark stocks at key maturities. The auction was satisfactory, though the market was a little disappointed with the cover of 1.2 times; the small tail of two basis points—the difference between the yields corresponding to the average and lowest-accepted prices—suggested fairly tight pricing of the bond, and there were large issues of overseas government bonds at the time. It marked a lowpoint for gilts, and after some uncertainty in the run-up to the 2 November Chancellor/Governor meeting, the market recovered. Good news on current inflation was coupled with a more supportive international environment, as US Treasuries rallied after the rise in US interest rates. The March gilt future encountered some resistance around par at the start of November, but once the contract had risen clear of this level it gained some upward momentum, which continued in the run-up to the Budget on 29 November.

The market did not gain further impetus from the Budget, as the fiscal stance presented was broadly in line with expectations, and in fact fell back on disappointment that the current year's PSBR projection was not revised down as much as expected, despite substantial downward revisions to PSBR forecasts for later years. Many had also anticipated an announcement about consultation on an open gilt repo market, and some were disappointed that trading would not begin imminently. Some analysts suggested that generalising the ability to take short positions might, if accompanied by tax changes, reduce spreads between high and low-coupon stocks, and between those which were and were not free of tax to residents abroad. These spreads did tighten before the announcement, but widened again shortly afterwards.

Money-market operations since September 1992

The stock of assistance and shortages

A key concept in the Bank's money-market operations is the 'stock of assistance'—the assets the Bank has acquired in providing liquidity to the money market. In its daily operations, the Bank acquires sterling commercial and Treasury bills, bought outright or on repo, and makes secured advances to the market. In its twice-monthly operations, it acquires gilts or other government securities on repo, and makes loans against government-guaranteed paper.

All of these assets (except Treasury bills owned outright) represent an obligation of the private sector to the Bank on maturity to redeem commercial bills, to repurchase assets repoed to the Bank or to repay borrowing. The stock of assistance is thus continually rolled over: as the private sector meets its obligations, cash is drained from it, which is normally sufficient to create a further shortage of cash in the money market; the Bank meets this shortage, at an official rate of interest, by providing renewed assistance, and so on. The stock of sterling Treasury bills in the market is maintained through the weekly tender held each Friday; when the purchasers pay for the Treasury bills in the following week, that also drains cash liquidity from the market.

The contribution of the stock of assistance to the size of daily cash shortages depends not only on its size but also on its maturity. Assistance provided via the repo facility is for a period of between two and five weeks—and bill repos are usually of two to three weeks maturity—whereas (recently at least) bills sold to the Bank often have less than a fortnight until they mature, and market advances are normally overnight. Increased use of market advances would thus tend to lower the average maturity of the stock of assistance and so raise the overall daily cash shortage. (If rolled over, market advances would reappear in the shortage on each successive day; bill repos would reappear only every two to three weeks.)

The size of each day's money-market cash shortage depends not only on maturing assistance, but also on any movements to or from the government's or other customers' sterling bank accounts at the Bank of England (and on any other transactions between the private sector and the Bank itself; the most important of these reflect changes in the note issue: a higher note issue drains liquidity, since the banks need to pay for the notes).

Any sterling payment to the government (eg of taxes or as subscription for government debt or for foreign exchange bought from the government's Exchange Equalisation Account) drains liquidity from the money market. Any sterling payment by the government (eg for public expenditure, the redemption of government debt or to purchase foreign exchange) puts liquidity into the market.

Over a financial year as a whole, the government aims to fund the public sector borrowing requirement (PSBR) (plus government debt redemptions and any underlying change in the foreign exchange reserves) through the sale of debt (other than Treasury bills)—the 'full-fund' policy. Over a financial year as a whole, therefore, public sector transactions will tend largely to offset each other in their impact on money-market liquidity (although the activities of local authorities and public corporations that do not have their accounts with the Bank of England can have an effect).

The note issue has a distinct weekly and annual pattern (with a marked peak at Christmas). And it normally rises from year to year, resulting in a persistent small drain of liquidity and a slight upward trend in the stock of assistance (depending on the scale of any change in the note issue).

Within the year, there will usually be a mismatch between the seasonal patterns of government expenditure and of tax receipts and debt sales, resulting in seasonal movements in the size of daily shortages and in the stock of assistance. These are, however, offset in part by officially managed variation through the year of the size of the weekly Treasury bill tender.

The stock of assistance since September 1992

Before the suspension of sterling's membership of the Exchange Rate Mechanism (ERM) on 16 September 1992, the Bank (acting for the Exchange Equalisation Account) made large-scale purchases of sterling from the market. During the month of September, the net flow of

Influences on the cash position of the money market

£ billions; *not seasonally adjusted*
Increase in bankers' balances (+)

			1994		
	1992/93	1993/94	Q2	Q3	Q4
Factors affecting the market's cash position					
Under/overfunding (+/-) (a)	0.7	-3.6	5.8	1.5	-3.5
Other public sector net borrowing from banks and building societies (-) (b)	-1.5	2.6	-0.2	0.5	0.3
of which, local authorities' deposits with banks and building societies (+)	*0.4*	*2.3*	*-0.4*	*0.4*	*0.2*
Currency in circulation (-)	-0.9	-2.9	1.2	-1.2	-1.8
Other (a)	-4.2	-2.2	3.2	1.7	-0.2
Total	**-6.0**	**-6.2**	**10.0**	**2.5**	**-5.2**
Increase (+) in the stock of assistance	1.9	-4.2	-7.6	-0.8	3.8
Increase (-) in £ Treasury bills outstanding (c)	-4.2	-1.7	2.4	1.8	-1.4
Increase in bankers' balances at the Bank	0.1	-0.2	—	—	0.1

(a) From 1993/94, net purchases of central government debt by banks and building societies are included in funding; in 1992/93 such transactions are included in 'other'. Purchases by banks and building societies in 1992/93 are counted as funding in 1994/95.
(b) From 1993/94, banks' and building societies' purchases of local authorities' and public corporations' listed sterling stocks and bonds are included in funding.
(c) Other than those held outright by the Bank and government accounts, but including those purchased by the Bank on a repurchase basis.

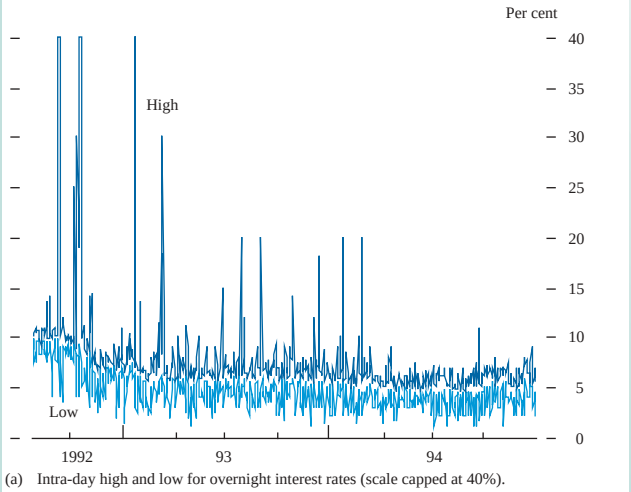
sterling from the market to the Bank was £12.3 billion. Because most of the Bank's foreign exchange intervention was undertaken on 16 September itself, a significant part of the flow of funds from the money market was concentrated into one day (18 September) when the transactions settled.

The large shortage which resulted would have been difficult to relieve using bill purchases alone. The Bank therefore offered temporary facilities on 18 September 1992, whereby it purchased gilts for future resale and provided finance against export credit and shipbuilding paper.(1) The residual shortage on the day was £3 billion; this was relieved without difficulty through normal operations.

The stock of assistance rose from £8 billion at the end of August 1992 to £18.9 billion on 18 September. Despite the introduction of the temporary facilities, the Bank's eligible bill holdings increased sharply, to £10.8 billion on 18 September (about half of the total eligible bills outstanding at that time). The repo and secured loan facilities were originally in place for one week only, but they were subsequently re-offered 13 times over the next 16 months. They were successful in enabling money-market participants to cope with the potentially disruptive impact of the large rise in the stock of assistance without placing undue pressure on the bill market. Because of their success and additional flexibility, it was felt desirable to maintain them even as the stock of assistance declined.

The repo and secured loan facilities were made permanent in January 1994, and a Master Agreement governing their use—formalising the legal arrangements and incorporating margin requirements—was introduced in April 1994.(2) The facility has proved a useful 'safety valve', helping to reduce the volatility of very short-term interest rates.

High and low overnight interest rates(a)



(a) Intra-day high and low for overnight interest rates (scale capped at 40%).

When participation in the repo increases (usually following a period of relatively high short-term market interest rates), the average daily shortage in the following weeks will be lower than otherwise and short-dated interest rates will tend to moderate as a result. Conversely, when very short-term rates are low (below the repo rate), the relative attractiveness of the repo falls and participation tends to moderate. Average daily cash shortages are then higher than otherwise and short rates may rise to the point where the repo becomes more attractive. So the repo facility has a stabilising influence on short-term interest rates, and this has helped to reduce volatility. The chart below shows the daily high and low for the overnight rate since August 1992. It can be seen that since the repo facility was made permanent in January last year, volatility has moderated.

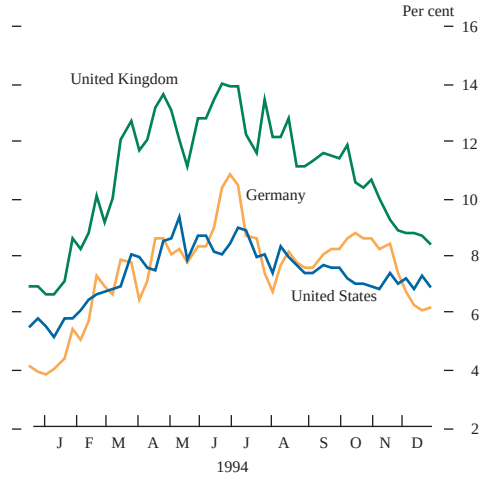
The effect of the full-fund policy

The operation of the full-fund policy means that, over a financial year as a whole, public sector finances have no significant net effect on the money market. If the public sector has a deficit—entailing net payments from its accounts at the Bank, adding to market liquidity—it also has a borrowing programme to fund the deficit, entailing offsetting flows from the market to its accounts at the Bank over the year as a whole. Similarly any underlying change in the reserves is in principle reflected in government borrowing within each financial year.

Two small exceptions to the full-fund policy have already been noted. One arises from any public sector banking transactions which are not with the Bank. The second is that sales of Treasury bills do not count as funding so that, even if the PSBR is fully funded, any increase in the Treasury bill issue will drain liquidity from the system and add to the stock of assistance. Until the 1992/93 financial year, there was a third exception: gilt purchases by banks and building societies were also not counted as funding. As a consequence, any net purchases of gilts made by them had to be matched by sales to the non-bank sector, leaving the government overfinanced and so draining liquidity from the money market and adding to the stock of assistance. In 1992/93, such purchases amounted to £6.8 billion. They were an important factor in the increase in the stock of assistance over that financial year, putting pressure on the bill market and increasing volatility.(3) From 1993/94, the definition of funding has been changed to include banks' and building societies' purchases; moreover, funding in the current financial year is being adjusted to reflect the £6.8 billion of purchases made in 1992/93. Together with an adjustment for overfunding in 1993/94, this means that there is expected to be an underfund of £10.2 billion in the current financial year (on the revised definition of funding). Other things being equal, this will permanently reduce the stock of assistance by that amount.

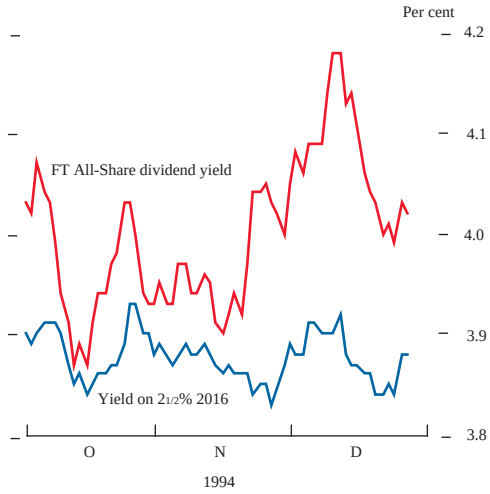
(1) For details, see the article on the operation of monetary policy in the November 1992 *Quarterly Bulletin*.
(2) For further details of this, see the article on the operation of monetary policy in the May 1994 *Quarterly Bulletin*.
(3) A chart showing changes in the stock of assistance since 1992 (and within this the Bank's holdings of bills and amounts provided under the repo facility) is shown on page 10.

Implied volatility on government bond futures(a)



(a) The expected standard deviation of annualised price movements in the underlying government bond futures (nearest maturity contract).

Index-linked yield(a) and dividend yield(b)



(a) Index-linked gilt yield (2½% Index-Linked Treasury 2016).
(b) FT-SE All-share dividend yield.

Table F
Official transactions in gilt-edged stocks

£ billions: *not seasonally adjusted*

	1994/95 (a)			
	Apr.–Sept.	Oct.	Nov.	Dec.
Gross official sales (+) (b)	14.6	4.1	1.9	2.1
Redemptions and net official purchases of stock within a year of maturity(-)	4.3	—	1.7	—
Net official sales (c)	10.3	4.1	0.1	2.1
of which net purchases by:				
Banks (c)	-0.3	0.6	0.2	0.4
Building societies (c)	-0.1	0.3	-0.5	0.7
Overseas sector	-2.8	—	-0.1	—
M4 private sector (c)	13.4	3.0	0.6	1.0

(a) Later instalments are included in the month when they fall due; not in the month when the sale is secured.
(b) Gross official sales of gilt-edged stocks are defined as official sales of stock with over one year to maturity net of official purchases of stock with over one year to maturity apart from transactions under purchase and resale agreements.
(c) Excluding transactions under purchase and resale agreements.

One feature of the outperformance of gilts during the fourth quarter was an apparent reduction in uncertainty, which may have been reflected in a reduction in the risk premium element in gilt yields relative to other markets. Between October and December, the implied volatility on the March gilt future fell relative to that on the equivalent contracts for the United States and Germany.

There was no auction in November because of the timing of the Budget, but £3 billion (nominal) of tap stocks were brought during the month, enabling the Bank to satisfy demand in a rising market. The 7 December auction (£2 billion of 8½% Treasury 2005) was timed between the Budget and the expected slowdown in market activity before the Christmas break. It came, however, on the same morning as the Chancellor/Governor meeting. Once the decision to raise interest rates had been taken, the Bank felt that the least disruptive and most equitable of the options available was to announce the rate increase before the deadline for bids at 10.00 am. Participants could then place their bids in full knowledge of the adjustment to monetary policy, although the Bank recognised that this timing was problematic from the gilt-edged market-makers' perspective. The interest rate announcement was made at 9.40 am. The auction itself was 1.34 times covered and priced to yield 8.64% with a tail of two basis points.

Index-linked gilts were stable over the period, with the yield moving within a five basis-point range around 3.85% for the majority of stocks. The conventional yield curve flattened after the interest rate rise, but the real yield curve was already flat and did not react. Tap sales of index-linked gilts were made on five occasions in the quarter. Some commentators inferred a link with the White Paper on pension fund asset allocation (following the Goode report in June) which recommended an increase in the exposure of pension funds to 'capital-certain' assets such as index-linked gilts.

The two auctions were supplemented with tap sales and small amounts were also sold from official holdings; the Bank kept well up with the required pace of funding. Total gilt sales of £8.1 billion were made during the quarter, bringing the total for the financial year to £22.7 billion, and leaving £6.3 billion of gilts to be sold in the first quarter of 1995 to meet the revised funding target for the year of £29.1 billion (see the box on page 11).

In the fourth quarter, large purchases continued to be made by the M4 private sector (which includes pension funds and insurance companies); the sector was also the largest net purchaser in the second and third quarters, adding to holdings as gilt prices fell. Banks were modest net purchasers of gilts, having kept their holdings steady or been net sellers in the previous two quarters.(1)

(1) For further details on the flow of funds in the gilt market, and estimated holdings of gilts by sector, see the article on developments in the gilt market during 1994, on pages 66–71.