Markets and operations

- *Bond and equity markets were buoyant in the first quarter of the year.*
- *Official interest rates were unchanged in most of the major industrialised countries, including the United Kingdom.*
- *Short-term interest rate expectations were also broadly unchanged.*
- *Foreign exchange markets were active: sterling and the dollar rose, and the yen was volatile.*

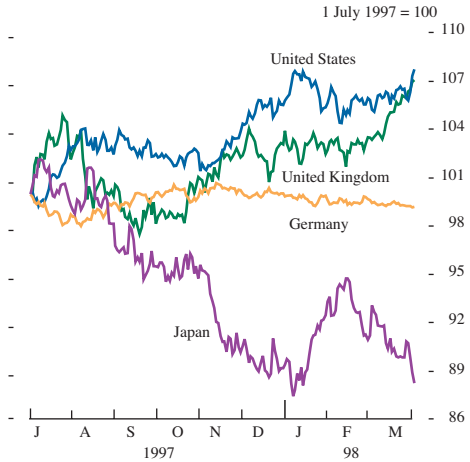
Overview

After the volatility of the final quarter of 1997, markets were generally more stable in the first quarter of this year. Equity markets in the major countries rose to new highs during March. This partly reflected lessening concern about the effects of the Asian crisis, though other institutional and liquidity factors were also important.

Bond markets in the major countries, which had benefited in 1997 Q4 as investors sought the security of highly-rated government paper, gave up only a little ground in 1998 Q1. Yields in the United Kingdom and United States reached historic lows in January; real interest rates and inflation expectations fell in both countries.

Foreign exchange markets were also active in the first quarter of 1998, with sterling rising to its highest against the Deutsche Mark since May 1989. The dollar strengthened modestly against the Deutsche Mark. The yields available in sterling and dollar markets were seen as attractive relative to lower-yielding currencies such as the yen and Swiss franc. Market expectations about the likelihood of Economic and Monetary Union (EMU) involving eleven countries were, if anything, strengthened following the Irish punt's realignment. Foreign exchange volatility fell, with the exception of the yen (see Chart 1), which was affected principally by news about Japanese fiscal policy and associated weakness in the stock market. East Asian currencies recovered from their lows of the previous quarter.

Chart 1
Effective exchange rate indices: United Kingdom, United States, Germany and Japan

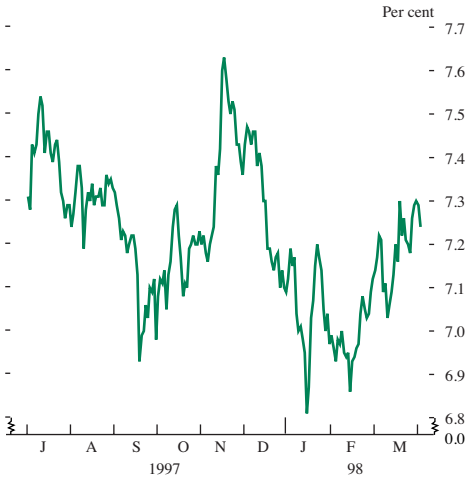


Market developments

Short-term interest rates

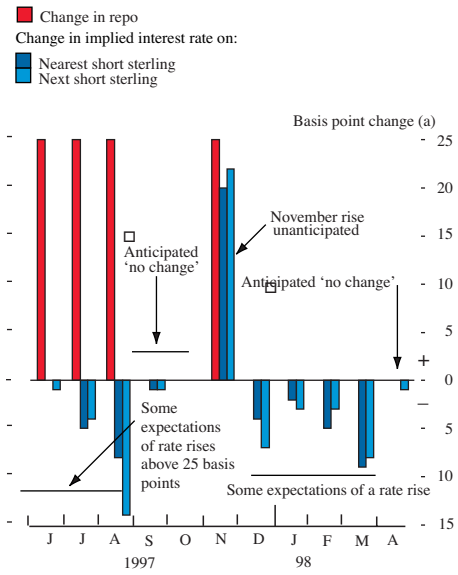
Short-term official interest rates in the United Kingdom were unchanged during the first quarter of the year. Short-term interbank rates, to which some corporate borrowing rates are linked, also remained broadly unchanged during the quarter. Despite no change in official rates, the three-month London interbank offered rate (Libor) had risen towards the end of last year, partly affected by credit concerns during the Asian crisis, and reached a peak of 7.6% in December. It fell a little in early January, as the effect of the Asian crisis on short-term funding rates

Chart 2
Short sterling: December 1998(a)



(a) Three-month Libor rate implied by short sterling futures price.

Chart 3
MPC decisions and the change in short sterling implied interest rates



(a) Close of business Wednesday to close of business Thursday on day of MPC announcement.

eased. But for most of the first quarter, three-month Libor was at, or around, 7.5%.

Although shorter-term cash money-market rates were broadly unchanged during the quarter, interest rate expectations further along the money-market curve fluctuated quite sharply. In the early part of the quarter, interest rate expectations fell; Chart 2 shows this for the December 1998 three-month sterling interest rate future. Rate expectations for the end of 1998, according to this measure, reached a low in early January of 6.8%, as markets became more worried about potentially large effects on growth from the Asian crisis. US markets became concerned about the possibility of deflation, following a speech by Federal Reserve Board Chairman Greenspan on 3 January. As a result, US short-rate expectations fell sharply, and the effect was to some extent transmitted to UK markets.

Rate expectations then began to rise gradually, as markets began to judge that the Asian crisis might affect growth less than previously expected. In the United Kingdom, continued uncertainty about the macroeconomic outlook, with generally weaker-than-expected manufacturing data being offset—in the market's view—by uncertainty about how much the personal sector was slowing down, also helped lead to firmer rate expectations. News that the Bank's Monetary Policy Committee (MPC) had recorded divided votes for the first time, with three and then four members voting for an immediate rise in rates, also underpinned rate expectations.(1) Some market commentators had also looked for measures to exercise more restraint on consumer demand growth in the Budget on 17 March.

Although the Bank's repo rate was unchanged during the quarter, the 'no change' decisions themselves generated changes in market interest rate expectations: the markets did not fully anticipate these decisions. To illustrate, Chart 3 shows the change in the nearest short sterling contracts on the day of each MPC announcement. Following the March MPC announcement, the implied interest rate on the contract expiring in March 1998 fell by 8 basis points on that day—suggesting that there had been some probability attached to a 25 basis point rise in the repo rate, though the size of the move in short sterling suggests that the probability attached to a rise was less than 50%.

Overall, sterling interest rate expectations, measured by short sterling futures prices, rose during the quarter, though as Chart 4 shows, the money-market yield curve ended the quarter sloping downward. In other words, the markets still believed that the outlook was for flat-to-falling short-term interest rates. At the beginning of the quarter, short-term interbank rates were expected to fall to 7.15% by the end of 1998; by the end of the quarter, the rate expected for end 1998 was about 10 basis points higher, implying a fall of about 25 basis points from the end-March three-month rate.

US interest rate expectations, derived from futures prices, ended the quarter little changed (see Chart 5). Eurodollar futures rates for

(1) At the January meeting, a minority voted against the proposition that the Bank's repo rate be left unchanged, preferring an immediate increase in interest rates. At the February meeting, the committee was split evenly and the Governor used his casting vote in favour of the proposition that interest rates should be left unchanged.

Chart 4
UK three-month Libor cash and futures markets

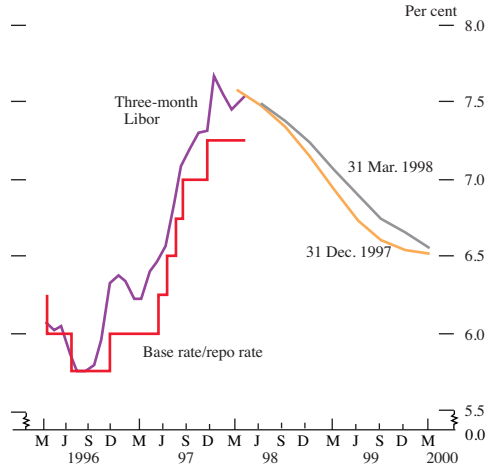


Chart 5
Changes between end December and end March in three-month interest rates implied by futures contracts

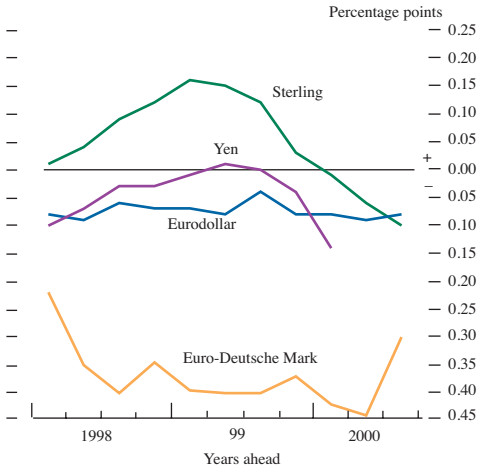
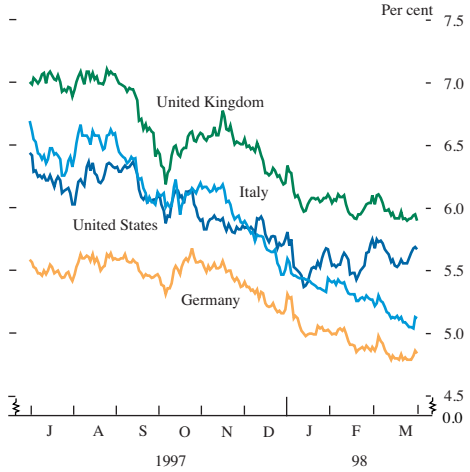


Chart 6
International ten-year bond yields



December 1998 fell by around 40 basis points in the days after the speech by Chairman Greenspan mentioning deflation, amid continuing concerns about the extent of the crisis in East Asia. Rate expectations then drifted upwards, as the market came to believe that its more extreme deflationary fears might not be valid, and growth and corporate earnings continued to be relatively strong.

In Japan, interest rate expectations also fluctuated during the quarter, reflecting views on the domestic economy. In early January, weakness in other East Asian markets—an important market for Japanese goods—reduced the implied rate of the June 1998 euroyen contract to around 0.65%, from around 0.8% in late December (the official discount rate was 0.5% during the quarter). Between mid January and 25 February, the recovery of the East Asian markets, and the prospect of a Japanese fiscal stimulus, helped to raise the implied rate to 0.87%. However, the market was rather sceptical of the potential for fiscal policy to stimulate demand and euroyen futures prices later rose, as the markets expected accommodative monetary policy to continue for longer.

In the exchange rate mechanism countries, there was a broad decline in short-term interest rate expectations. The nearer end of the euro-Deutsche Mark futures curve fell by around 20 basis points during the quarter, with the longer end falling by around 45 basis points. This downward shift reflected expectations that interest rates in the ERM countries would converge at the lower rates of Germany and France next year, rather than the average rates for the group (see the box on page 104). As part of the move to convergence of official interest rates, Portuguese rates were cut by 20 basis points during the quarter.

Long-term interest rates

After the turbulence of the final quarter of 1997, when government bond markets were seen as a safe haven and bond yields fell sharply, government bond markets were generally much calmer in the first quarter of this year (see Chart 6). Nevertheless, in the United States and United Kingdom, bond yields reached historic lows during the quarter, and yield curves continued to flatten or invert (see the box on page 105).

In the United States, bond yields ended the quarter little changed, with the par yield on the long bond at 5.95% at the end of the quarter. At the beginning of January, however, US yields reached a low of 5.7%. That was mainly driven by the market's fear that the Asian turbulence might lead to a more pronounced slowdown in growth, or even deflation. As those fears faded, US yields drifted higher later in the quarter.

In the ERM countries, long-term interest rates declined steadily during the quarter, with further convergence of core and non-core countries' bond yields. For example, German ten-year bond yields fell by 44 basis points during Q1, finishing the quarter at 4.91%, and Spanish ten-year yields fell by 50 basis points, to end the quarter at 5.09%.

Gilt-edged market

The gilt-edged market reached historic levels in the first quarter. Gilt yields fell during the quarter as a whole, in contrast with

European short-term rates

The path of European short-term interest rates and exchange rates in the run-up to the end of 1998 will affect monetary conditions in Europe. What changes in market views were embodied in the market in Q1, and what might the implications be? (This box covers developments up to the end of the first quarter and so does not include any assessment of developments during, or immediately after, the 'convergence weekend' of 2–3 May.)

Table 1
Official interest rates in EMU countries at 31 March

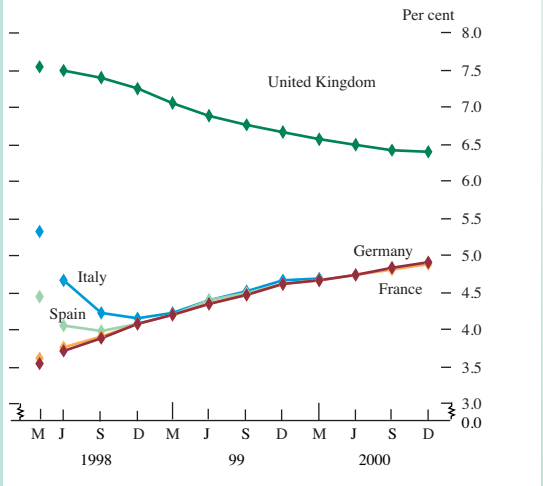
Per cent

Austria	3.2	Ireland	6.75
Belgium	3.3	Italy	5.5
Finland	3.25	Portugal	4.7
France	3.3	Spain	4.5
Germany	3.3		
Luxembourg	3.3		
Netherlands	3.3		

Table 1 shows that among the countries likely to enter EMU in 1999, there was a group whose policy rates were close to 3¼%, and a group whose rates were much higher.

The chart shows three-month futures rates for four prospective (1999) EMU countries and the United Kingdom. During the past year, short-rate expectations have converged considerably. A year ago, French and German futures rates did not fully converge by the beginning of 1999. The gap between them was about 15 basis points, probably reflecting residual uncertainty about the probability of EMU going ahead. Data for Italy and Spain were at that time available only up to 1998; they showed that by June 1998, those countries' short-term interest rates were expected to be considerably above those in Germany—by more than 2 percentage points in the case of Italy, and 1 percentage point in the case of Spain. By the end of the first quarter, though actual short-term rates in the four countries were still different, the market expected them to converge by the beginning of 1999.

Three-month futures rates (March 1998)



In 1997 Q4, markets appeared to be affected frequently by changing views and rumours about the level at which short-term interest rates might converge. The rise in the Bundesbank's repo rate announced on 9 October was an important factor. At the height of the speculation (around mid to late October), futures rates for March 1999 implied German three-month interest rates of 5.1%, a rise of 100 basis points from three-month rates at the time. So at that point, the market was discounting higher short rates at the start of EMU. Since then, however, there has been a growing view that interest rates will converge at lower levels.

By the end of the first quarter, implied futures rates for March 1999 for participant EMU countries were around 4¼%. That does not mean that official rates were expected to converge at that level—futures rates are of different maturity than official rates and also include credit and liquidity premia. For example, at the end of March, three-month rates in Germany were around 3.6%, so the expected rise in three-month rates was about 65 basis points. By contrast, the market expected a fall of, for example, 100 basis points in Italy and 200 basis points in Ireland. If covered interest rate parity is to hold, while a country's interest rates are above those in the DM bloc, its currency would need to depreciate toward its expected EMU conversion rate.

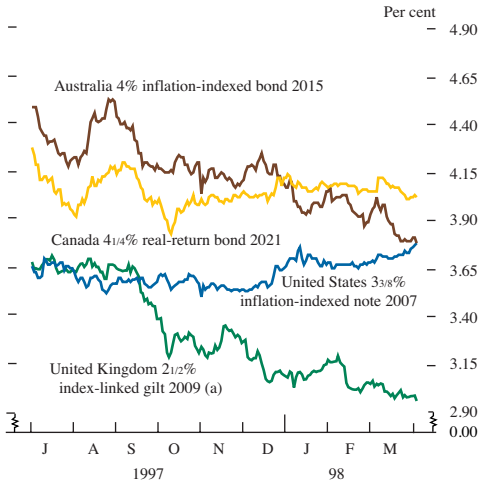
Forward exchange rates at the end of March showed that EMU countries' exchange rates were moving closer to their central rates as the start of EMU approached. Table 2, for example, shows the spot rates, central rate and nine-month forward rates for EMU countries. The realignment of the Irish punt on 14/15 March moved the central rate up by 3%, closer to market levels.

Table 2
Spot and forward exchange rates against the Deutsche Mark at 31 March

	Spot	Nine-month forward	Deutsche Mark central rate
Belgium	20.63	20.63	20.63
Finland	3.035	3.035	3.04
France	3.35	3.35	3.35
Greece	173.1	182.2	180.5
Ireland	2.51	2.49	2.48
Italy	985	992	990
Netherlands	1.13	1.13	1.13
Portugal	102.4	102.7	102.5
Spain	84.87	85.12	85.07

On domestic demand management grounds, some countries might wish to maintain their interest differential with Germany for as long as possible. In Ireland and Spain, for example, GDP grew by 7.5% and 3.2% in 1997 and is forecast to grow by 7.3% and 3.6% in 1998, according to the OECD's December *Economic Outlook*. Asset markets also seem to be pricing in strong growth in such countries: equity indices in Italy and Spain, for example, have risen by more than in Germany during the past year, perhaps as investors favour equities as a protection against potential inflation risks; and house prices in some European countries have also been rising rapidly.

Chart 7
Real yields on index-linked securities



(a) Assuming 3% inflation.

US Treasuries: ten-year par gilt yields fell by 41 basis points, to 5.88%. So the spread between gilts and Treasuries narrowed by about 35 basis points. The gap between gilts and Bunds was broadly unchanged during the quarter, at around 100 basis points.

Two factors accounted for gilts' modest outperformance of Treasuries: a fall in relative UK inflation expectations and a fall in relative real interest rates. Relative inflation expectations can be measured by comparing breakeven inflation rates in the two countries. The breakeven inflation rate is the inflation rate at which investors are indifferent between holding nominal and index-linked bonds of the same maturity. UK ten-year breakeven rates continued to be well above US rates during the quarter, but fell by more (UK rates fell by about 0.3 percentage points, US rates by about 0.1 percentage point). Relative real interest rates, measured by the yield on index-linked bonds, also fell in the United Kingdom, as Chart 7 shows.

Lower prospective gilt supply and the strength of sterling were additional factors underpinning the gilt market. In January, there was a record public sector debt repayment, and in February the public sector also repaid debt (£2.1 billion), compared with a market expectation of a borrowing requirement of around £2.2 billion. The Budget on 17 March confirmed the view that gilt supply was falling rapidly: it forecast that more gilts would be redeemed than issued in the 1998/99 fiscal year. But this did not

Shape of the yield curve

The slope of the yield curve, in the form of the gap between ten-year bond yields and three-month interest rates, is a useful summary statistic that the markets—and some academics—sometimes use as a potential indicator of future economic growth. These indicators are used more widely in the United States than in the United Kingdom, and there is also reason to be sceptical of their predictive power if there has been a change in monetary regime. Nevertheless, the shape of the curve is a useful 'real-time' measure of market views.

Yield curve slopes compared (basis points)

	Late 1980s		1997–98	
	Peak of upward slope	Trough of downward slope	Peak of upward slope	March 1998
United Kingdom	+130	-510	+260	-150
United States	+190	-100	+150	0
Germany	+270	-60	+270	+140
Japan	+60	-40	+210	+70

Note: Slope is defined as ten-year minus three-month rates. Positive number implies upward slope.

The table shows how a number of countries' yield curves have flattened recently. The UK yield curve has become steadily more inverted during the past six months. The US yield curve has moved from upward-sloping to flat.

In Germany and Japan, yield curves are still upward-sloping, though they have flattened moderately. The last time that yield curves in the G3 countries (and the United Kingdom) all flattened was in the late 1980s/early 1990s, towards the end of a long period of global expansion. There are two major differences now:

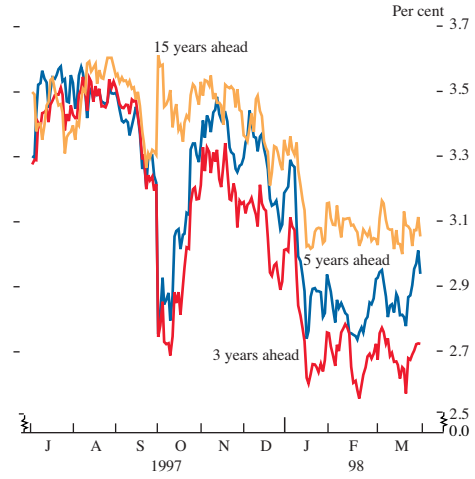
- The recent flattening has been less marked than in the late 1980s.
- The recent flattening has largely been caused by a fall in long-term rates. More typically, yield curve flattening in the United Kingdom and United States has been due to the short end rising.

The recent flattening of yield curves is consistent with the view that the international economic outlook is at an interesting balance, with an unusual blend of factors influencing market views: the effect of the Asian crisis; uncertainty about whether previous output-inflation trade-offs have changed permanently; and the run-up to EMU. The markets are uncertain how to weight these various factors. The modest flattening in yield curves during the past six months might suggest that, overall, markets are taking a view that there will be a gentle slowdown during the coming year.

Chart 8
Implied forward interest rates(a)

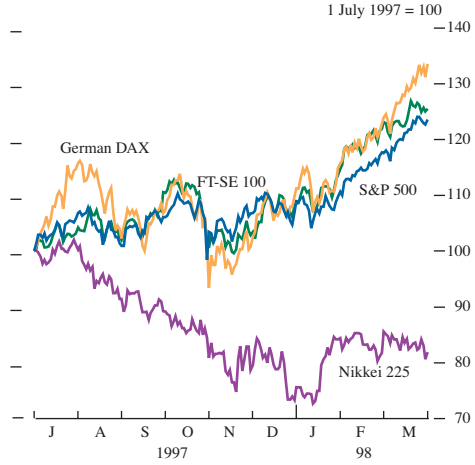
(a) Nominal six-month annualised interest rates, derived from the zero-coupon yield curve.

Chart 9
Implied forward inflation expectations(a)



(a) Six-month annualised inflation rates, derived by comparing yields on conventional and index-linked bonds.

Chart 10
Equity indices



lead to an immediate or obvious 'supply effect' on yields. Gilt yields rose initially in response to the Budget, as the market seemed to interpret the Budget as a whole as leaving some likelihood of a further interest rate rise. Separately, the continuing strength of sterling also attracted some international interest in the gilt market.

Credit indicators and spreads

Credit spreads tended to narrow somewhat in the first quarter, as the worst fears about the consequences of the Asian crisis receded. East Asian countries' bond yields widened to about 500 basis points over Treasuries during 1997 Q4, but narrowed to around 200–300 basis points during 1998 Q1. In the United Kingdom and the United States, corporate bond spreads were roughly unchanged during the quarter—the spread of a typical AAA-rated eurosterling bond fluctuated around 35 basis points over gilts, with A-rated eurosterling bonds trading at around 90 basis points over gilts. Credit spreads in the sterling interbank market narrowed during the quarter, as the premia paid by Japanese banks relative to other banks fell.

Equities

Equity markets in the major countries, except Japan, rose sharply in the first quarter, as Chart 10 shows. In the quarter as a whole, the FT-SE 100 rose by about 15%, the Dow Jones by 11%, and the German DAX by 20%. Price/earnings ratios reached their highest levels for four or five years in the United Kingdom and United States.

The rise in equity markets reflected a number of factors: lower long-term real interest rates; a recovery in East Asian markets; continued growth in the United Kingdom and United States, with little sign of inflationary pressure; rising equity markets in ERM countries, which benefited from lower interest rate expectations; actual and prospective merger and acquisition activity, particularly in the United Kingdom and United States, which helped to maintain interest from speculative buyers; and share buy-backs, which confirmed the healthy state of corporate finances. But not all of the UK news was positive for equities—a number of UK companies issued profit warnings, reflecting both the effects of the Asian crisis on future earnings and the impact of the high pound (other factors were also cited, such as slowing consumer demand around Christmas).

Foreign exchange

(i) International background

For much of the first quarter, the Japanese yen was at the centre of foreign exchange market developments (see Chart 11), reflecting news about the prospects for Japanese fiscal policy and the weakness of the Japanese stock market. Table A shows that the yen was relatively stable overall, though it traded in a wide range against the dollar from ¥123 to ¥135.

The dollar's steady appreciation against the yen was interrupted early in the New Year. The yen rallied in the first week of January, underpinned by market reports that the Bank of Japan had intervened, and by more stable East Asian currency markets. In the second half of January, the yen strengthened further on hopes that

Chart 11
Japanese yen exchange rates

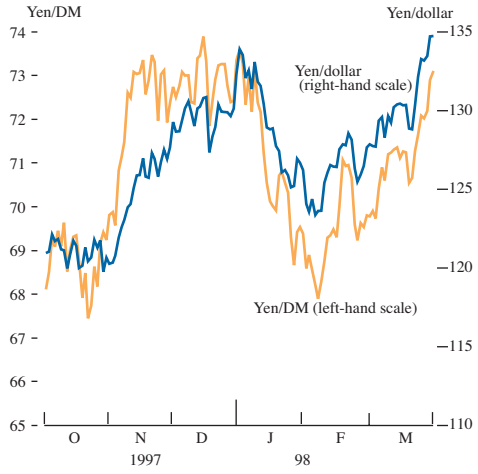


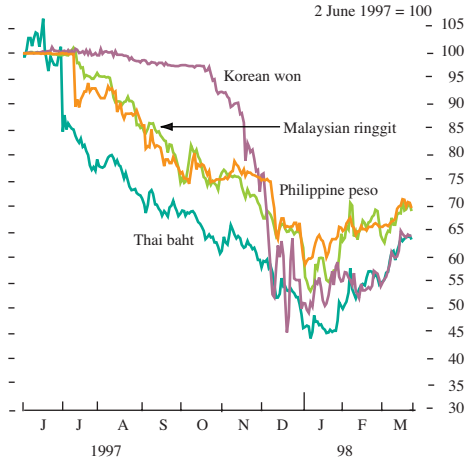
Table A
Exchange rates and effective exchange rate indices

	1992 15 Sept.	1996 1 Aug.	1996 31 Dec.	1997 31 Dec.	1998 31 Mar.	Percentage changes since 31 Dec. 1997
£ ERI	99.5	84.7	96.1	104.4	108.8	4.21
£/DM	2.78	2.29	2.64	2.96	3.10	4.75
£/$	1.89	1.56	1.71	1.65	1.67	1.77
$/DM	1.47	1.47	1.54	1.80	1.85	2.93
$/Yen	123.80	106.75	116.05	130.12	133.28	2.43
$ ERI	93.7	95.6	98.4	109.1	110.7	1.47
¥/ERI	113.5	135.6	125.6	118.9	117.2	-1.43
DM ERI	103.1	109.5	107.1	103.1	102.4	-0.68

Table B
Emerging market currencies versus US dollar

	1997 1 July	1997 31 Dec.	1998 31 Mar.	Percentage changes since 31 Dec. 1997
Indonesian rupiah	2,432	5,402	8,500	-36
Thai baht	24.4	47.0	38.9	21
Korean won	888.0	1,600.0	1,384	16
Malaysian ringgit	2.53	3.88	3.64	7
Philippine peso	26.4	39.5	37.7	5
Singapore dollar	1.43	1.68	1.61	4

Chart 12
Emerging market currencies versus the US dollar



an income tax cut might be introduced, and finished the month at ¥126, up ¥8 from its weakest point. Its steady appreciation continued until 12 February, when sentiment changed after the US Treasury criticised Japanese policy, ahead of the announcement of the latest fiscal package on 20 February. The yen weakened sharply in those eight days, from ¥122½ to more than ¥128 against the US dollar, and from ¥67½ to ¥71½ against the Deutsche Mark. During March, a similar pattern was evident. Optimism that Japanese fiscal policy would be relaxed before the end of the financial year supported the yen for a period. But the dollar appreciated to a new seven-year high at ¥135 in early April.

Japan's foreign exchange laws were relaxed on 1 April. Previously, non-financial institutions and individuals had to seek prior approval to transfer more than ¥5 million abroad. Similar changes occurred in France and Italy in the early 1980s, and foreign currency deposits as a proportion of the narrow money supply rose in both countries from around 2% to more than 6% between 1989–96. In Japan, foreign currency deposits represent 1% of the narrow money supply. A comparable increase in Japanese foreign currency deposits would lead to a marked rise in capital outflows from Japan, to levels that were last evident in the mid 1980s.

Table B shows that East Asian currencies, except the Indonesian rupiah, strengthened during the first quarter. A number of factors lay behind this. Thailand removed restrictions that had created an offshore market between foreign banks in its currency; Korea renegotiated the terms of its private sector debt; and the IMF expressed satisfaction at the progress that a number of countries had made in the implementation of structural reforms. Some private sector economists concluded that the depreciations had overshot estimates of equilibrium real exchange rates. The belief that the currencies of the region were undervalued at the start of 1998 contributed to the nominal appreciation. Chart 12 shows that all the currencies recovered at a similar time (the Indonesian rupiah was an exception for a period).(1)

The US dollar traded in a relatively narrow range against the Deutsche Mark, between DM 1.79–DM 1.84 for most of the first quarter. Chart 13 shows that the relative stability of the exchange rate was associated with a fall in implied volatility, as derived from currency option prices, to its lowest since late 1996. Periodically, the market rate was influenced by heightened political risk (such as tensions between the United States and Iraq in the Gulf, and US domestic politics). In late March, the US dollar briefly broke out of this range, reaching DM 1.85, a move that was accompanied by a flattening of the US money-market curve. For much of the period, the US money-market curve had been inverted, reflecting the view that US official interest rates were likely to be lowered (see money-markets section).

The Canadian dollar weakened by almost 4% against the US dollar in the fourth quarter of 1997, despite a tightening of Canadian monetary policy in December 1997. Chart 14 shows that the Canadian dollar continued to weaken during January, and it fell to an historic low of $0.6821 against the US dollar on 29 January. The Bank of Canada responded by raising its target range for the

(1) 'The International environment' article on pages 123–35 discusses macroeconomic developments in East Asia.

Chart 13
Deutsche Mark/dollar one-month implied volatility derived from currency options prices

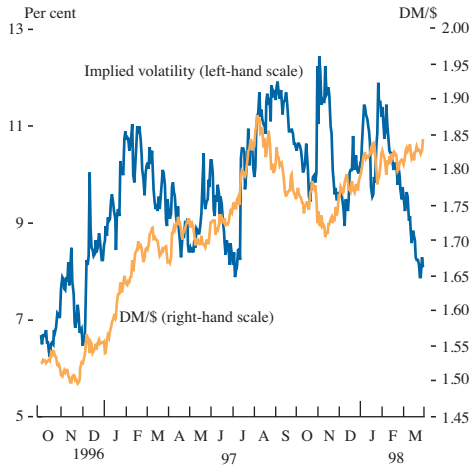


Chart 14
Canadian dollar and overnight interest rates

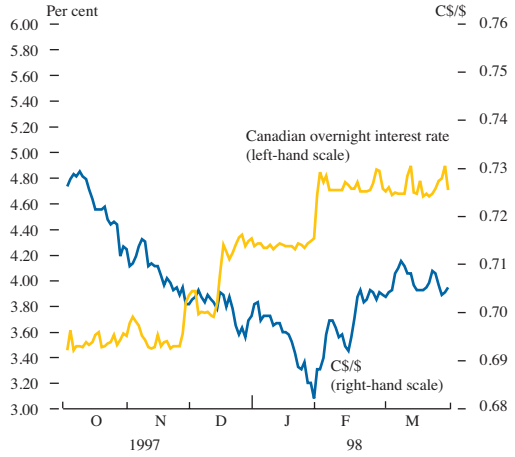
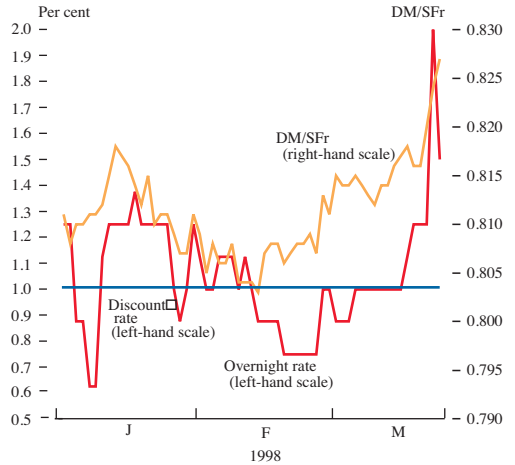


Chart 15
Deutsche Mark/Swiss franc and Swiss interest rates



overnight rate by a further 50 basis points to 4.5%–5%; the exchange rate recovered, and finished the first quarter little changed.

Within the ERM, the Irish punt's bilateral central rate against the Deutsche Mark was raised by 3% from DM 2.44105 to DM 2.48338 with effect from 16 March—the first such realignment of the ERM since the Spanish peseta and Portuguese escudo's central rates were reset in March 1995.(1) The Greek drachma joined the ERM on 16 March, and its Ecu central rate was set at 357 Greek drachma per Ecu. Minor technical changes were made to the bilateral central rates of various currencies. The Irish punt's revaluation brought its central rate more closely into line with its spot market rate at the time. Although its spot exchange rate remained above its central rate, its forward exchange rate for January 1999 was brought closer to its new ERM bilateral parity against the Deutsche Mark. The European Monetary Institute and the European Commission released their convergence reports(2) on 25 March. Neither report appeared to disturb the market view that eleven countries would enter EMU at the beginning of 1999.

Outside the ERM, European exchange rates were more volatile. Chart 15 shows that the Swiss franc appreciated against the Deutsche Mark towards SFr 0.80 during February (close to its all-time high, reached in September 1995). In the second half of February, the Swiss National Bank subsequently allowed overnight interest rates to fall below its key official rate. During the first quarter as a whole, the Deutsche Mark strengthened by 1.6% to SFr 0.8243. In Norway, official interest rates were raised from 5.50% to 5.75% on 18 March. After the announcement, the Norwegian krone strengthened modestly. However, during the first quarter, the Norwegian krone weakened by 3.2% against the US dollar, from NOK 7.38 to NOK 7.62, following weaker oil prices.

(ii) Sterling

Sterling rose by 4% to 108.8 on the effective exchange rate index between the end of 1997 Q4 and 1998 Q1. The rise was again more marked against the Deutsche Mark than against the US dollar (see Table A), with sterling peaking (intraday) against the Deutsche Mark at almost DM 3.11 on 31 March, its highest since May 1989. Chart 16 shows sterling against the Deutsche Mark and US dollar over the longer term; it rose by 36% and 9% respectively between 2 August 1996, when it started its recent appreciation, and 31 March 1998.

Sterling's first-quarter appreciation against the Deutsche Mark was steady. As a result, the volatility of the DM/£ spot exchange rate fell: DM/£'s rolling 30-day standard deviation fell to its lowest since late 1996. This partly reflected the relative stability of the DM/$; Chart 17 shows that DM/£ and DM/$ implied volatility also fell.

Sterling was supported during the quarter by the view that the level of UK interest rates was likely to be sustained. More generally, currencies such as sterling, the US dollar, and the Swedish krona

(1) Italy resumed its participation in the ERM in November 1996, and Finland joined in October 1996.
(2) As required by Article 109j of the Treaty establishing the European Community.

Chart 16
Sterling exchange rates

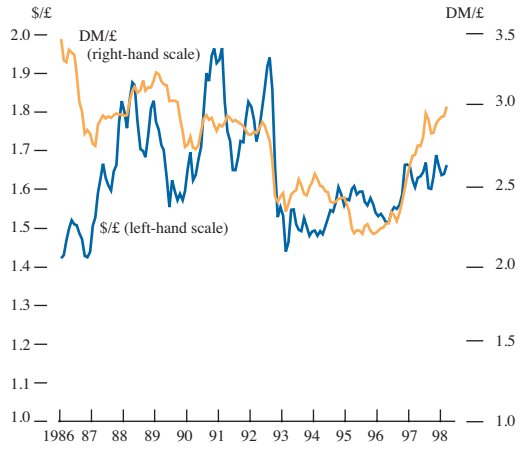
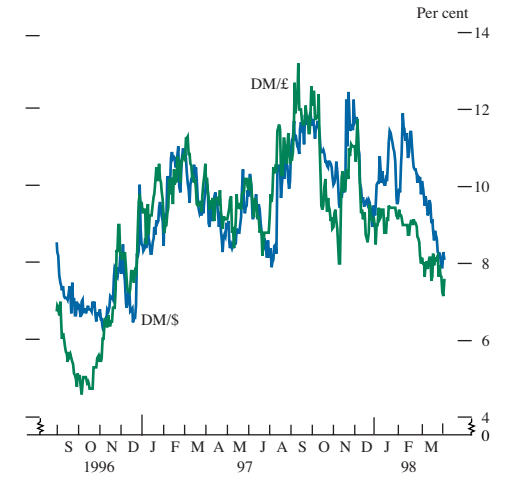


Chart 17
Deutsche Mark/sterling and Deutsche Mark/dollar one-month implied volatility(a)



(a) Derived from options prices.

Table C
Average daily money-market shortages

£ millions

1996	Year	900
1997	Year	1,200
1998	January	1,400
	February	1,800
	March	1,600

strengthened during the first quarter. By contrast, currencies with interest rates below US levels, such as the Japanese yen, Swiss franc, and Deutsche Mark, tended to weaken (the Canadian dollar was under pressure until the spread between Canadian and US official short-term interest rates was reduced). So it was more profitable than usual to borrow in a lower-yielding currency and to invest in a higher-yielding currency, assuming no exchange cover.

Expectations about sterling's longer-term prospects influenced the market during the first quarter. For example, at the start of the year, market forecasts suggested that sterling was likely to depreciate during 1998. A range of private sector forecasts predicted a fall in sterling's effective exchange rate of around 7% in the year to 1998 Q4 (financial market economists expected a slightly greater depreciation). This may have encouraged longer-term investors to establish bearish sterling positions at the start of the new year. Sterling's appreciation during the first quarter appeared to persuade some longer-term investors to close these short positions towards the end of the period. This may help to explain the pattern of sterling's movements, and the extent of its appreciation during March.

The market impact of publication, on 11 February, of the minutes of the MPC's January meeting was obscured by the release of weaker-than-expected UK data (for unemployment and average earnings) on the same day. Overall, sterling strengthened slightly, and it rose further an hour later, after the *Inflation Report* was published. Sterling closed up by 1% on the exchange rate index at ERI 104.4 on 11 February. During the next four weeks, sterling remained steady against the US dollar between $1.63–$1.65, but it rose with the US dollar against the Deutsche Mark from DM 2.93 to DM 3.00. At times, sterling strengthened independently, against both the US dollar and Deutsche Mark, for example following the release of the February MPC minutes on 11 March. Following the release of strong RPIX data and the Budget on 17 March, sterling rose by 0.8% on the ERI, to ERI 107.5, between the start of trading on 17 March and the close on 18 March. Sterling peaked (intraday) at ERI 109.3 on 31 March, its highest since January 1986.

Open market operations and gilt repo

Operations in the sterling money market

The stock of money-market refinancing held by the Bank was very high during the first quarter, reaching a peak of around £15.3 billion, at end February. The stock was high because gilt maturities and government spending were bunched toward the end of the financial year, whereas the gilt funding programme had been carried out at a relatively even pace through the year; the overfund of gilt sales over the year as a whole also contributed to the high stock of refinancing. This high stock of refinancing led to large daily money-market liquidity shortages, as Table C shows. The average daily shortage of £1,800 million in February was the highest since the reform of the OMOs in March 1997.

This high stock of refinancing, combined with retail banks' continuing need to hold sterling stock liquidity for supervisory purposes, meant that eligible collateral remained in short supply relative to its demand. Partly as a result, the large average daily liquidity need was occasionally difficult to relieve through regular

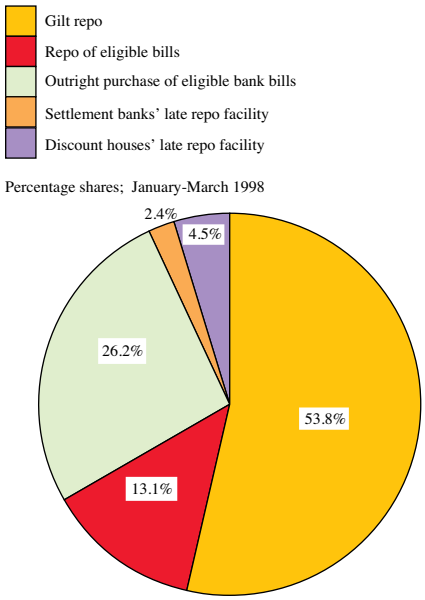
Table D
Influences on the cash position of the money market

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

	1997/98	1998		
	Apr.–Dec.	Jan.	Feb.	Mar.
CGBR (+)	9.4	-10.0	-1.2	5.3
Net official sales of gilts (-) (a)	-12.4	0.9	0.1	5.2
National Savings (-)	-1.1	-0.3	-0.2	0.0
Currency circulation (-)	-1.0	0.7	-0.1	1.3
Other	3.7	1.3	-2.2	-5.9
Total	**-1.4**	**-7.4**	**-3.6**	**5.9**
Outright purchases of Treasury bills and Bank bills	0.1	0.2	-0.2	0.4
Repos of Treasury bills, Bank bills, and British Government stock and non-sterling debt	-1.7	5.4	2.3	-4.2
Late facilities (b)	0.0	0.6	-0.4	0.0
Total refinancing	-1.7	6.3	1.7	-3.7
Foreign exchange swaps	0.0	1.0	2.0	-2.3
Treasury bills: Market issues and redemptions (c)	-2.8	-0.1	0.0	0.0
Total offsetting operations	**1.1**	**7.4**	**3.7**	**-6.0**
Settlement banks' operational balances at the Bank	-0.3	-0.1	0.1	-0.1

(a) Excluding repurchase transactions with the Bank.
(b) Since 3 March 1997, when the Bank introduced reforms to its daily money-market operations, discount houses and settlement banks have been eligible to apply to use the late facilities.
(c) Issues at weekly tenders plus redemptions in market hands. Excludes repurchase transactions with the Bank (market holdings include Treasury bills sold to the Bank in repurchase transactions) and tap Treasury bills.

Chart 18
OMOs—instrument overview



OMOs and there was occasionally a larger-than-usual resort to overnight repo after the last round of OMOs. The short-dated money markets were also occasionally under sharp upward pressure, with spikes in the overnight interbank and GC repo rates late in the money-market day. As an illustration, the sterling overnight index average (SONIA) was, on average, 9 basis points above the Bank's repo rate during the quarter, compared with 2 basis points in the previous quarter.

In view of the larger stock of money-market refinancing that was likely to build up in Q1, the Bank announced on 29 January that it would supplement its usual money-market techniques by providing sterling liquidity through conducting foreign exchange swaps. Foreign exchange swaps are used routinely by some other European central banks for money-market management; those undertaken by the Bank are purely for liquidity management, and have no monetary or foreign exchange policy significance. The amount of foreign exchange swaps outstanding at the end of March was £700 million.

Separately, and to deal with the £8.2 billion redemption of 7¼% Treasury Stock on 30 March 1998, the Bank announced two further adaptions to its normal money-market operations on 9 March:(1)

- On appropriate days, the Bank would include invitations of repo to 30 March, either separate from, or combined with, its normal invitation of repos of approximately two weeks.

- From 10 March, up to and including 19 March, the Bank was prepared to buy the next-maturing stock in its daily money-market operations. (In the event, some £800 million was bought in OMOs.)

Chart 18 shows how the Bank's daily refinancing was provided during the quarter. The shares of different instruments was broadly similar to most of last year. Gilt repo relieved more than half of the daily shortage, with about a quarter provided through outright purchases of bills. Gilt repo now seems to be the swing element in the OMOs. In other words, when the stock of refinancing increases sharply (as in the first quarter), gilt repo tends to fill the refinancing gap. Before the reforms of last year, bills had performed that role. One reason for this may be that the supply of gilts for repo can be generated relatively quickly through specialist intermediaries, which borrow the stock from institutional investors collateralised by CDs (collateral swaps). The alternative—drawing extra bills for repo purposes—would take much longer.

Gilt repo market

The gilt repo market continued to expand sharply from its low last August (see Table E). According to the data supplied to the Bank, gilt repo outstanding was £83 billion at the end of February, compared with £72 billion three months earlier. Gilt reverse repo also rose, to £91 billion at the end of February. At least two factors boosted the repo market during the three months to February: the high stock of refinancing and the 'special' status of 9% Treasury 2008.

(1) These are similar to the adjustments made in the announcement on 13 August, described on page 337 of the November 1997 *Quarterly Bulletin*.

Table E
Maturity breakdown of outstanding repo and reverse repo over time[a]

		Total (per cent)						Total
		On call and next day	2–8 days	9 days to 1 month	1–3 months	3–6 months	Over 6 months	£ billions
Repos								
1996	Feb.	41	24	16	14	3	0	37
	May	20	34	23	15	7	1	35
	Aug.	19	33	33	11	4	1	56
	Nov.	19	36	22	19	2	2	68
1997	Feb.	20	29	33	15	3	0	71
	May	27	23	27	18	4	1	79
	Aug.	25	21	24	24	4	1	67
	Nov.	22	22	19	22	11	4	72
1998	Feb.	15	23	25	19	11	7	83
Reverse repos								
1996	Feb.	41	21	13	21	4	0	34
	May	20	30	20	23	6	2	34
	Aug.	22	29	29	14	5	1	54
	Nov.	21	34	21	20	3	2	60
1997	Feb.	18	32	26	21	3	0	67
	May	23	21	30	20	6	1	71
	Aug.	17	20	26	26	6	1	63
	Nov.	17	25	17	25	11	5	71
1998	Feb.	14	29	23	19	10	5	91

(a) From the data reported under the voluntary quarterly arrangements.

The high stock of refinancing and accompanying shortage of collateral meant that participants in the money market needed to 'reverse in' greater amounts of collateral in the form of gilts. The increased repo activity was also related to the delivery of 9% Treasury 2008 into the March long gilt futures contract: many of these positions would have been outstanding at the end of February. Looking at the maturity of the repos, much of the increase was in maturities out to one month. This is consistent with the two factors that boosted activity. Participants in the OMOs may have reversed in collateral for term, to cover what they saw as potentially large money-market shortages during most of March. And those reversing in the 9% Treasury 2008 stock would have wanted to span its long gilt futures delivery period, which ran until 9 March (see below).

In principle, repo and reverse repo activity should be identical. Why were they so different in February? It is likely that those reversing in gilts for the two reasons cited above were from the professional market, which is well covered by the Bank's survey. On the other side of these deals, some of the counterparties repoing the gilts may have been gilt custodians or others who may be less well covered in the Bank's survey.

Gilt repo data are also reported to the Bank for monetary statistics purposes. These data measure activity only by banks and building societies in the United Kingdom, and so are not directly comparable with the quarterly data (the quarterly data include securities houses and institutional investors, for example). Nevertheless, they show a similar sharp increase in repo and reverse repo activity in the three months to February. In February alone, gilt repo contributed £4.9 billion to M4 and gilt reverse repo £3 billion to M4 lending. In March, the monetary data showed that total repo and reverse repo activity fell from its highs in February.

One of the major features of the repo market in the first quarter was the 'special' status of 9% Treasury 2008. Specials trading is a normal repo market mechanism. The Bank welcomes the specials market, if it arises from the natural interaction of supply and demand for gilts. If conditions in the repo market become, or are likely to become, disorderly, the authorities reserve the right to reopen or repo a stock for market management purposes. As part of its routine monitoring of the market, the Bank also notes the stocks it receives in the course of its money-market operations and can, at its discretion, require counterparties to replace stock.

On 16 February, the Bank announced for the first time that it was prepared to repo a particular stock to facilitate orderly trading. The facility was for 9% Treasury 2008 in overnight repo at 0%. It was to be offered to GEMMs where they, or their customers, had experienced failed repo returns or failed deliveries in the cash market. The facility was kept open just beyond the period that 9% Treasury 2008 was deliverable into the March long gilt future on LIFFE.

Why did the Bank do this? The stock was by far the cheapest stock to deliver into the March LIFFE long gilt future contract.[1] Its price would have needed to rise by more than £1 per £100 relative to the

(1) Although the stock was 'dear' to the yield curve, the inversion of the curve and the fact that the notional coupon on the future was higher than prevailing market rates meant that it was still the cheapest to deliver into the futures contract.

other stocks in the basket for it to lose this status. The market was concerned that the stock might be squeezed around the delivery period, making it unobtainable or very expensive in the cash and repo markets. It was feared that some institutions might then deliberately fail to return stock on repo, in the hope that they would force their counterparties to deliver the other more expensive stocks into the futures contract. This would benefit those with long positions in the future, since they would receive the more expensive stocks.

Failures to return stock on repo might have spread, as the victims of failed trades were unable to return stock that they had borrowed. Speculation about deliveries of the more expensive stocks in the futures basket would have caused sharp movements in the futures price. These movements would have been out of line with prices in the gilt market more generally, potentially undermining the value of the future as a hedge (to some extent this had happened). This in turn might have reduced the willingness of dealers to go short, causing them to increase spreads and affecting liquidity in the cash market. And the risk of failed returns was likely to deter holders of the stock from repoing it out across the delivery period to those who were short.

The facility was intended to provide market participants with an alternative source of stock for onward delivery, if they experienced a failure by a counterparty delivering stock to them. Setting the repo rate at 0% ensured that there was no incentive for market participants to use the Bank's facility if 9% Treasury 2008 was available in the repo market. The facility removed the possible incentive for deliberate failure, by ensuring that those short of the stock as a consequence would still have 9% Treasury 2008 available to deliver into the future. As a condition for access to the facility, the Bank asked for details of the failed trades, including the identity of the counterparty. It stated its willingness to pass these details to UK or overseas regulators.

The market welcomed the announcement of this facility, particularly for the contribution it made to removing a source of uncertainty. The immediate reaction to the Bank's announcement was a reversal of the previous out-performance of the March futures contract compared with the June contract, and of 9% Treasury 2008 relative to neighbouring stocks. Thereafter, the existence of the facility brought some stability back to the relative values of the March contract and 9% Treasury 2008. Although two-week repo rates for the stock tightened a little in the approach to the delivery period, the facility gave holders of 9% Treasury 2008 the confidence to lend their stock, and the market remained liquid. Consequently, the facility was not used, and it expired on 13 March.

There was limited other specials activity in the first quarter. The ten-year benchmark, 7¼% Treasury 2007, was intermittently in demand in the specials market, influenced by the amount of non-government sterling bond issuance during the quarter. Several players used it as a hedge against such issuance. Limited strips activity meant that those strippable bonds that had traded at special premia toward the end of last year in anticipation of the strips market, such as 8% Treasury 2015 and 8% Treasury 2021, lost their value in the specials market.

During the past few months, market associations and their firms have been consulted about the redrafting of the Gilt Repo Code of Best Practice. The Stock Lending and Repo Committee will publish a final version of the Code shortly, in the light of their comments.

Gilt financing

Gross sales of gilts during the final quarter of 1997/98 amounted to £4.8 billion, bringing the total for the financial year to £25.8 billion. This represented a small overshoot of £0.4 billion of the £25.4 billion target for gilt sales announced following the *Pre-Budget Report* in November. Following the Budget in March 1998, the gilt sales requirement for the financial year 1997/98 was reduced to £20.6 billion, reflecting a significantly lower CGBR forecast of £6.1 billion, and implying an overshoot of gilt sales for the year of £5.1 billion. About £21 billion of the total was raised by conventional gilt sales, with the rest by index-linked gilts. Within conventionals, the distribution of sales across maturities was close to the target set in the 1997/98 Remit (28%/24%/28%), with shorts accounting for 27.4%, mediums 24.7% and longs 29.3% of total sales. Index-linked comprised 18.5% of total gilt sales, just below the Remit target of 20%.

Auctions

There were two auctions during the final quarter of the financial year: a new 30-year benchmark in January and the current ten-year benchmark in March. The auction schedule was announced on 30 December, following the usual consultation with market participants.

The auction of 6% Treasury 2028 in January reflected market demand for a new long bond, expressed at the Bank's quarterly meetings. The market generally felt that liquidity in the then-longest strippable bond, 8% Treasury 2021, had been built up sufficiently, with more than £16 billion outstanding; and there was a desire for a broader range of choice in maturities beyond 15 years. The selection of the 30-year maturity was consistent with issuance practice in other major government bond markets, allowing investors to compare long bond yields in the United States, France and Germany directly. It would also enable investors to extend the duration of their assets, especially when the stock became strippable. It was decided, however, to delay strippability until the outstanding nominal issue had reached £5 billion, to safeguard liquidity in the new long benchmark principal and coupon strips. The auction achieved an average price yielding just below 6%, though the cover, at 1.25 times, was lower than usual (some market participants attributed this to the difficulty of hedging because of the prevailing volatility of the long gilt future—see earlier); there was a 2 basis point yield tail.

For the March auction, the Remit clearly pointed to a medium-dated stock, and the market consensus was that the $7^{1}/_{4}$% Treasury 2007 should be reopened, with a view to this stock continuing as the ten-year benchmark until mid 1998. A new benchmark, serving for more than one year in view of the lower financing requirements expected, could then be issued in the second half of the year. The auction, the last of the financial year, went smoothly, with the stock yielding 5.9% at the average

Table F
Gilt issuance

Date	Stock	Amount issued (£ millions)	Price at issue (per £100 stock) (a)	Yield at non-competitive allotment price (b)	Yield at issue	Yield when exhausted (c)	Average yield (d)	Cover (e) at auctions	Tail (f) at auctions (basis points on yield)	Date exhausted
Auctions of conventional stock										
28.1.98	6% Treasury Stock 2028	2,000	100.1563	5.99	n.a.	n.a.	n.a.	1.25	2	28.1.98
26.3.98	7 1/4% Treasury Stock 2007	2,000	109.8438	5.90	n.a.	n.a.	n.a.	3.03	0	26.3.98
Tap issues of index-linked stock										
21.1.98	2 1/2% Index-linked 2003	200	193.3125	n.a.	2.94	3.16	3.16	n.a.	n.a.	21.1.98
13.3.98	4 1/8% Index-linked 2030	200	144.1875	n.a.	2.91	2.91	2.91	n.a.	n.a.	13.3.98

n.a. = not applicable.

(a) Non-competitive allotment price.
(b) Gross redemption yield per cent based on the weighted average price of successful competitive bids.
(c) Gross redemption yield or real rate of return (assuming 5% inflation), based on the price when the issue ceased to operate as a tap.
(d) Weighted average gross redemption yield or real rate of return (assuming 5% inflation), based on actual price at which issues were made.
(e) Total of bids divided by the amount on offer.
(f) Difference in gross redemption yield between the weighted average of successful competitive bids and the lowest accepted competitive bid.

accepted price; cover was strong at 3.03 times, and there was no tail.

The results of auctions for the first quarter are summarised in Table F. Some £21 billion nominal was issued at auction in total in 1997/98, compared with £33 billion the previous year, and with a smaller average auction size, £1.8 billion compared with £2.4 billion. Cover was slightly lower this year—on average 2.36 times, compared with 2.80 times in 1996/97.

The gilt 'shop window' shows the amount of stock in official portfolios available for resale or switching. Activity through the shop window was mostly switching of shorter-dated stock held in official portfolios to assist market liquidity, though there were a few outright sales of medium-dated stock. Total turnover through the shop window was around £400 million during the quarter.

On 19 March, the Treasury published the *Debt Management Report* for 1998/99. This included a financing Remit to the new Debt Management Office (which took over responsibility for debt management from the Bank on 1 April 1998—see the box on page 59 of the February *Quarterly Bulletin* for further details). The Remit is reproduced in the accompanying box. It continues the broad themes of the previous year's Remit, and the reforms in train to enhance openness, predictability and transparency in the gilts market. The main features of the 1998/99 borrowing programme are:

- Issuance strategy was determined by the low financing requirement, the interaction with index-linked auctions and liquidity considerations, specifically the need to build up maturity in the new ultra-long benchmark stock to enable it to become strippable. Index-linked issuance will therefore account for £3.6 billion of total sales, long conventionals £5.3 billion, and short and medium conventionals £2.7 billion each. The authorities do not intend following this issuance mix in future years, largely because of the lengthening of the portfolio that such a mix would imply.

- Auctions of index-linked gilts will start in October 1998. This will allow sufficient time for the Debt Management Office to establish a separate list of index-linked market makers (see section on index-linked auctions).

- Six auctions are scheduled in 1998/99, four for conventional gilts and two for index-linked. Each auction will be for one single stock. The auctions of conventional gilts will be for between £2–3 billion (nominal) of stock. The auctions of index-linked gilts will be for between £½–1 billion (cash) of stock.

Index-linked

At the start of the final quarter of 1997/98, £4.1 billion had already been raised through index-linked sales, leaving only £1 billion left to reach the Remit target of £5.1 billion. Index-linked generally underperformed conventionals in January, with breakeven inflation rates falling below 3%. The Bank was, however, made aware of specific demand for short-dated stock, and responded with a £200 million issue of 2½% Index-linked 2003 on 21 January. The stock was exhausted immediately at the certified price. The index-linked market rallied during February and March, as record equity prices took dividend yields below those of index-linked gilts, so enhancing the attractiveness of the sector. Demand for long-dated index-linked stock prompted the Bank to tap the market again on 13 March. The longest-dated stock, 4⅛% Index-linked 2030 had not been issued since December 1993, but had been the subject of strong institutional buying during the quarter, and had become expensive relative to other index-linked stocks. A tap of £200 million was issued and exhausted in the initial tender at a 1/16 premium to the certified price. The sales brought total index-linked funding for the year to £4.8 billion, close to the target of £5.1 billion.

Index-linked gilt auctions

The 1996/97 *Debt Management Report* stated that the UK authorities saw positive merit in moving to an index-linked gilts auction programme as soon as feasible, subject to, first, reviewing the impact of the initial US experience in auctioning inflation-indexed securities, and, second, conducting a further round of consultations with the market. In January 1998, the Treasury, in conjunction with the Debt Management Office and the Bank, conducted a consultation exercise with a wide range of market participants.(1)

Following the consultation, the Treasury decided to proceed with the introduction of an auction programme for index-linked gilts, starting in October 1998. Of the £3.6 billion (cash) index-linked supply, up to £1.5 billion will be available for taps for the first half of the year and up to £0.5 billion in the second half. In addition, the authorities have pre-committed to a minimum annual level of £2.5 billion cash as index-linked gross issuance for the foreseeable future, to help establish the success of IG auctions.

The planned index-linked auctions have a number of key features:

- the Government proposes to introduce a separate index-linked market-maker list. Index-linked market makers will have privileges and obligations in auction bidding;

- index-linked auctions will initially use a uniform price format, though this will be kept under review; and

(1) The results of this consultation are summarised in more detail in the 1998/99 *Debt Management Report*.

The Government's financing requirement and Remit to the Debt Management Office for 1998/99

Published as part of HM Treasury's *Debt Management Report 1998/99*.

1. The Debt Management Office (DMO), a candidate to become an Executive Agency of the Chancellor of the Exchequer, has among its declared objectives:

- to meet the annual Remit set by Treasury Ministers for the sale of gilts, with high regard to long-term cost minimisation; and
- to promote a liquid market for gilts and conduct operations in a predictable, transparent way with a view to reducing the overall cost of financing.

Quantity of gilt sales

2. The DMO, on behalf of the Government, will aim to issue approximately £14.2 billion of gilts in 1998/99, subject to confirmation of the size of the overshoot of the gilt sales target in 1997/98.

Pace of gilt sales

3. The DMO will aim to sell gilts at a broadly even pace through the year. Within-year seasonal fluctuations in the pattern of Central Government expenditure and revenue will be met by other financing means, including changes to the weekly Treasury bill tender and the Ways & Means advances.

Maturity structure of gilt issues

4. Over the year as a whole, the DMO will aim to make 25% of its gilts sales in index-linked stocks with the remainder in conventional stocks, spread across the maturity ranges. On current forecasts this implies index-linked gilt sales of £3.6 billion cash and conventional gilt sales of £10.7 billion. Four auctions of conventional stocks are planned in 1998/99; two in the long maturity area and one each in the short and medium areas. This implies Remit proportions in 1998/99 of 25% for index-linked gilts issuance out of total sales, and, within conventional sales, approximately 25% in both the short (3–7 years) and medium-dated (7–15 years) bands and 50% in the long (15 years and over) band. The Government does not intend to maintain these issuance proportions in future years. For 1998/99, there are no plans to meet the financing requirement with marketable instruments with a maturity of less than three years, but the authorities reserve the right to tap sub three-year gilts for market management purposes and to review the issuance of ultra short-term debt after the handing over of Exchequer cash management responsibilities to the DMO.

Auctions of conventional gilts

5. Auctions will constitute the primary means of conventional gilt sales. The calendar for the four conventional auctions is set out below. All auctions will be single auctions held on the day indicated. There is no intention to hold any dual auctions of conventional gilts in 1998/99.

6. Each single auction is planned to be for between £2 billion and £3 billion nominal of stock.

Auctions of index-linked gilts

7. Following consultation on this issue the Government intends that the DMO should initiate index-linked auctions in 1998/99. But to allow for sufficient time to establish a separate list in index-linked market makers, index-linked auctions will not start until October 1998.

8. In the first half of 1998/99, in the period before auctions can start, the DMO may issue up to a maximum of £1.5 billion cash of index-linked gilts via taps.

9. With the delayed start to the index-linked auction programme, the authorities plan to hold two index-linked auctions in the second half of 1998/99, on the calendar set out below. Auctions will be for between £0.5 billion and £1.0 billion cash of one stock on a uniform price basis.

10. In the second half of the financial year, but as a transitional measure to support market makers in maintaining liquidity whilst auctions are introduced, the DMO will be prepared to issue up to a further £0.5 billion cash of index-linked gilts through taps between auctions, for market management purposes, if necessary, to relieve any overall market shortages.

11. Over the medium term, the authorities would aim to issue index-linked gilts in such a way as to maintain liquidity in most maturity areas across the curve. However, given that auctions will only cover a single stock, it may not be possible to reopen every stock in each year.

12. To ensure the medium-term viability of the index-linked auction programme, the authorities remain

committed to a minimum gross supply of £2.5 billion cash of index-linked stocks in 1998/99 and for the foreseeable future.

13. In the longer term, the authorities intend that auctions will constitute the primary means of issuance of index-linked gilts.

The auction calendar

14. The calendar for auctions in 1998/99, covering auctions of conventional and index-linked stocks, is as shown.

Auction calendar 1998/99

Wednesday 20 May 1998	(Conventional)
Wednesday 29 July 1998	(Conventional)
Wednesday 28 October 1998	(Index-linked)
Late November/December 1998 (a)	(Conventional)
Wednesday 27 January 1999	(Index-linked)
Wednesday 24 March 1999 (a)	(Conventional)

(a) Subject to the Chancellor's decisions on the Budgetary timetable.

Announcements on details of each auction

15. At the end of each calendar quarter, following consultation with the gilt-edged market makers and end-investors, the DMO will announce plans for the auctions scheduled for the coming quarter. From September, this announcement will also cover auctions of index-linked gilts. For each auction, this will indicate either the stock (where relevant indicating a new stock) or, where further feedback on the choice of stocks would be valuable, the intended maturity range of stock. Towards the end of each quarter, the DMO will publish details of progress to date with the gilt issuance programme, any changes to the Government's financing requirement and any changes to the gilts auction programme.

16. The auction plan for the first quarter of 1998/99 will be announced at 3.30 pm on Tuesday 31 March 1998.

17. Full details of these, and subsequent, auctions will be announced at 3.30 pm on the Tuesday of the week preceding the auction.

Tap sales and repo operations

18. The programme of conventional gilt auctions may be supplemented by official sales of stock by the DMO 'on tap'. Taps of conventional stocks will be used only as a market management instrument in conditions of temporary excess demand in a particular stock or sector or when there is an exceptionally sharp general rise in the market. In 1998/99, it is envisaged that conventional tap issuance will not constitute more than about 5% of expected total issuance.

19. In 1998/99, it is envisaged that taps of index-linked gilts will constitute a maximum of £2 billion cash of total index-linked gilt sales, although most of this will be expected to take place during the first half of the financial year.

20. After an auction, the DMO will generally refrain from issuing stocks of a similar type or maturity to the auction stock for a reasonable period. Such stock will only be issued if there is a clear market management case.

21. For the purposes of market management, the DMO may repo out stock. Any stock used for this purpose will only be issued via temporary repo operations and therefore will not count towards financing the CGBR.

Coupons

22. As far as possible, coupons on new issues of gilts will be around gross redemption yields at the relevant maturity, at the time of issue.

Conversions

23. In order to build up the pool of strippable benchmark stocks further, the authorities envisage the DMO making offers for the conversion of unstrippable stocks into strippable benchmarks of similar maturity during 1998/99. Details of any such offers will be announced in due course, in the light of market conditions.

Reviews to the Remit

24. This Remit, and in particular the timing of auctions and the allocation between maturity bands and index-linked, may be varied during the year in the light of substantial changes in the following:

- the Government's forecast of the gilt sales requirement;
- the level and shape of the gilt yield curve;
- market expectations of future interest and inflation rates; and
- market volatility.

This Remit may also need to be extended or revised to take account of the cash management operations of the DMO when details are announced.

25. Any revisions to this Remit will be announced.

- only one stock will be auctioned at a time. The announcement on stock maturity will take place quarterly, at the same time as that for conventional gilts.

The consultation also considered the possible redesign of index-linked gilts. The consensus was that the benefits of redesign could not justify the transitional costs of fragmented market liquidity, if a new type of index-linked gilt were to be issued alongside the existing design, or of holding large-scale conversion offers. At present, the Government has no plans either to redesign index-linked gilts or to consider concentrating issuance on benchmark issues.

Sectoral investment activity

The latest ONS data, covering the period from October to December 1997, show total net institutional investment in gilts at a record high of £8.7 billion during the quarter. This partly reflected the relatively low level of redemptions falling during the quarter (around £1.2 billion), but probably also strong demand for gilts and other government bonds as a result of the flight to quality out of unsettled East Asian markets towards the end of the year. The continuing effect of the Minimum Funding Requirement (introduced under the Pensions Act in April 1997) and the changes to ACT tax credits (first announced in the July 1997 Budget) probably also continued to influence institutional demand for gilts. Pension funds invested a record net £5.8 billion in gilts during the quarter, an increase of £3.5 billion on the previous quarter. Net investment in gilts by long-term insurers, by contrast, fell slightly to £1.9 billion.

In the most recent quarter, January to March, gross gilt sales of £4.8 billion were outweighed by two large redemptions, amounting to £11 billion in total (see Table G). Despite the resulting net reduction in overall sectoral holdings of gilts, the domestic non-monetary sector (which includes pension funds and long-term insurers) increased its net holdings during the quarter, with demand encouraged by the auction in January of a new ultra-long benchmark stock. The overseas sector also made net purchases of £1.3 billion in the quarter, perhaps attracted by the strength of sterling. By contrast, there was a net reduction of holdings of £8.9 billion by banks and building societies.

Table G
Official transactions in gilt-edged stocks

£ billions: *not seasonally adjusted*

	1997/98	1998		
	Apr.–Dec.	Jan.	Feb.	Mar.
Gross official sales (+) (a)	21.0	2.4	0.0	2.5
Redemptions and net official purchases of stock within a year of maturity (-)	-8.5	-3.2	-0.1	-7.7
Net official sales (b)	12.4	-0.9	-0.1	-5.3
of which net purchases by:				
Banks (b)	1.1	-2.5	-2.2	-4.2
Building societies (b)	0.5	0.0	-0.1	0.0
M4 Private sector (b)	8.5	1.4	1.8	-1.9
Overseas sector	2.0	0.2	0.4	0.8
LAs & PCs (c)	0.4	0.0	0.0	0.0

(a) 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.
(b) Excluding transactions under purchase and resale agreements.
(c) Local Authorities and Public Corporations.

Technical developments

Abolition of special ex-dividend arrangements

Following market consultations in 1997, the Bank announced on 18 February 1998 that provisions for special ex-dividend trading would end on 31 July 1998. The 'special ex-dividend' period is the period of 21 calendar days prior to the ex-dividend date.(1) During this period, parties to a transaction may at present agree bilaterally to trade on an ex-dividend basis, with the purchaser thus deciding to take delivery of the gilt without the right to the next dividend payment.

The abolition of the special ex-dividend period was supported by the majority of respondents to a Bank consultation on changes to

(1) The 'ex-dividend date' is the latest date that transfers of gilts can be registered to allow the new holder to receive the next dividend directly from the Bank of England Registrar.

gilt market conventions last year. It should contribute to reducing credit exposures in the gilt market, and will end a restriction on the times within each delivery month when gilts may be delivered into LIFFE contracts.

Changes to the calculation of accrued interest and decimal pricing for gilts

The Bank announced on 9 March that two further changes would come into effect this year. From 1 November 1998, the calculation of accrued interest will switch to using an 'actual/actual' daycount convention and will be rounded to six decimal places, and gilt prices will switch from being quoted in £$^{1}/_{32}$ per £100 to being quoted in decimals.

The daycount convention is part of the formula used to calculate the accrued interest payable to the seller by the buyer when gilts are traded between dividend payments.(1) When calculating accrued interest using the 'actual/actual' convention, the semi-annual interest payment is multiplied by the number of days between the last dividend date and the settlement date, and divided by the actual number of days in the dividend period.(2)

All trades settling before 1 November will use the 'actual/365' convention; trades settling after 1 November will use the 'actual/actual' convention. This ensures that all gilts will be subject to the same convention at all times.

The change to rounding accrued interest to six, rather than five, decimal places will also take place on 1 November 1998. This change was favoured by market participants, and will ensure that the market in coupon gilts trades similarly to the strips market (as strip settlement prices are rounded to six decimal places).

Also on 1 November 1998, gilts will switch to trading in pounds and pence per £100 nominal, in place of the current practice of trading in £$^{1}/_{32}$ per £100 nominal. Trading gilts in decimals will bring the gilt market into line with other European bond markets. The change has also been made at LIFFE, which will quote the June 1998 long gilt futures contract in decimals from 11 May (the September contract has been quoted in decimals since its listing, as has the new short gilt future).

All of these changes were favoured by the majority of respondents to a Bank consultation on gilt-market conventions last year. The 1 November start-date will allow market participants plenty of lead time to prepare, and ensures that the changes will be in place before the start of Stage 3 of EMU.

Gilt strips(3)

Activity in the strips market has been building slowly. The total nominal outstanding of strippable stock increased to £84 billion with the gilt auction of £2 billion of 7$^{1}/_{4}$% 2007 on 25 March. Strippable stocks constituted 26.7% of the total nominal of gilts outstanding at the end of March. In addition, £2 billion of the new 30-year benchmark, 6% 2028, was auctioned on 28 January. For liquidity reasons, this stock will not be strippable until at least

(1) Regular interest payments on gilts will not change in any way. Only the accrued interest calculations will change.
(2) See *Changes to Gilt Market Trading Conventions*, Bank/HM Treasury paper, March 1998.
(3) For further background on gilt strips, see pages 15–18, 55–59, and 66–67 of the February 1998 *Quarterly Bulletin*.

£5 billion is outstanding. The percentage of strippable stock held in stripped form increased steadily to 2.2% by 6 April.

Turnover in strips has been low: in the first three months of this year, strips turnover averaged £135 million a week—about ½% of turnover in the coupon gilts market. Much of the activity in the strips market appears to involve overseas investors taking views on sterling and seeking out arbitrage opportunities by switching between UK and foreign strips markets, such as in Germany and France. As the main customer interest is in principal strips, particularly in longer maturities, intra-market activity between GEMMs has been focused on trading principal strips against the underlying coupon-bearing gilt.

Several factors have contributed to low levels of activity in the strips market, including:

- As strips are not yet included in industry benchmarks, there is no pressure from actuaries to buy them, and pure 'index trackers' prefer to buy 8% 2021 and 6% 2028 coupon bonds.

- When the yield curve is downward-sloping, strips' yields lie below those of coupon-bearing gilts of the same maturity, and so strips may look expensive relative to coupon-bearing gilts. This is because, as zero-coupon instruments, strips' duration is much longer than that of coupon-bearing gilts of the same maturity. This means that strips' yields will usually be closer to the yields of much longer coupon-bearing gilts than to those of coupon-bearing gilts of similar maturities.

- Limited client interest in strips has constrained intra-market activity, and GEMMs' strips' quotes reflect this lack of liquidity, thereby increasing the cost of buying strips.

- The repo market in strips has been limited, which may also contribute to making strips' inventories difficult to manage and/or finance.

The Bank announced, on 22 April, that from 27 April gilt strips would be eligible in deliveries-by-value used as collateral in its daily money-market operations. The Bank now also accepts strips as eligible securities in intra-day repos for liquidity in the real time gross settlement (RTGS) system.

Other issues

HM Government euro issues

On 13 January 1998, the Bank of England published a UK Government euro Treasury Note Information Memorandum. This changed the denomination of the UK Government Ecu note programme into euro, and replaced the Ecu Note Information Memorandum issued in 1996.

Under the terms of the Note Information Memorandum, once Stage 3 of EMU begins, all payments of interest and repayments of principal will be made in euro (all interest and principal payments on euro notes will fall due after the scheduled Stage 3 start date of 1 January 1999). Before Stage 3 begins, all payments at tenders will be made in Ecu at a rate of 1 ECU for 1 euro.

The new Information Memorandum also states that the daycount convention for calculating interest on euro notes will initially be '30/360' days, as it is for international Ecu bonds at present, but will change to an 'actual/actual' daycount at the first coupon payment date after Stage 3 begins. This approach follows market recommendations for the euro market, and the Bank expects that the market will calculate yields on a '30/360' day basis until the first coupon payment, and on an 'actual/actual' daycount basis thereafter. Similarly, in line with market recommendations, interest and principal payments in euro will be made on any due date when TARGET is open.

Payments of interest and repayments of principal on all UK Government Ecu securities issued under the earlier Ecu Note Information Memorandum that become due after Stage 3 begins will also be made in euro, at a rate of 1 euro for 1 ECU. However, their daycount conventions for accrued interest will remain '30/360' throughout their life, in line with the Terms and Conditions under which they were issued.

€500 million of a new three-year euro Treasury note, the seventh in the programme of annual new issues, was auctioned on 20 January 1998. Cover at the auction for the 4.25% January 2001 issue was very strong at 5.8 times the amount on offer, and accepted bids were in a tight range of 4.37%–4.39%. The settlement date for the new issue was just after the redemption of the fourth Treasury note, which was €2.0 billion in size. The total of notes outstanding with the public under the UK note programme thus fell from €6.0 billion in the fourth quarter of 1997 to €4.5 billion in the first quarter of 1998. It was announced at the time of issue that further auctions of the new note were contemplated for April, July and October 1998.

HM Government Ecu Treasury bill issuance

The United Kingdom continued to hold regular monthly tenders of ECU 1 billion of Ecu Treasury bills during the first quarter, comprising ECU 200 million of one-month, ECU 500 million of three-month and ECU 300 million of six-month bills each month. The tenders continued to be oversubscribed, with issues being covered an average of 4.3 times the amount on offer in the first quarter of 1998, compared with the average cover of 4.0 times during the first quarter of 1997. During the first quarter, bids were accepted at average yields of 4–14 basis points below the Ecu Libid rate of the appropriate maturity. There are currently ECU 3.5 billion of UK Government Treasury bills outstanding. Secondary market turnover in the first quarter averaged ECU 1.1 billion a month, slightly lower than the average turnover of 1.2 billion a month in the fourth quarter of 1997.

In January the Bank also announced that it would be consulting market makers in both the euro Treasury note and Ecu Treasury bill programmes on the possibility of introducing in the next few months a facility allowing market makers to bid by telephone.

Sterling bond issues

Total fixed-rate issuance in the quarter was £13.8 billion, roughly equal to that in 1997 Q1. Short-dated issues amounted to £5.2 billion, boosted by a large number of swap-driven, retail-targeted deals during March; issuance of mediums and longs

totalled £4.2 billion and £4.4 billion respectively. Low long-term interest rates and the strength of sterling both helped to underpin sterling issuance during the quarter. Some issuers took the opportunity of low long-term rates to shift to a greater reliance on debt rather than equity finance. A change to the taxation of dividends has been cited as a structural factor leading to a switch from equity to debt finance. Strong institutional cashflows—which always tend to be high at the beginning of the year—meant that demand for new bonds was high (especially as some firms were buying back equities).

However, despite the favourable background of historically low gilt yields, the normal rush of sterling bond issues in the first quarter of the year was slow to materialise (bond issuance is usually high in the first quarter, as issuers want to get their funding under way and investors set out on their funding strategies and asset allocation for the year). With spreads still wide following the East Asian crisis, and with sterling expected to depreciate during 1998 on forecasts of lower UK interest rates (see exchange rate section), investors remained cautious and selective, forcing issuers to wait for opportunities. Shorter-dated issues met strong demand as defensive assets, but longer-dated and higher credit-rated bonds fared less well, with their spreads over gilts widening in secondary-market trading. As a result, only £3.5 billion fixed-rate bonds were issued in January, compared with more than £6 billion in the same month a year ago. The pace of issuance was fairly steady through February at just under £4 billion, but increased to £6.3 billion in March as the sharp appreciation in sterling (to DM 3.10) renewed interest in sterling assets, which continued to offer relatively high yields compared with other bond markets.

A large part of this issuance was by supranationals (for example, the European Investment Bank and International Bank for Reconstruction and Development), whose issues benefited from being seen as gilt substitutes at a time when gilt financing is forecast to fall (in March, the EIB's £500 million 30-year benchmark issue was increased to £750 million to satisfy demand). Historically low bond yields encouraged a variety of corporate issuers in the quarter, including several UK utilities. The strength of sterling and attractive swap rates also provided cheap funding opportunities for overseas issuers, encouraging firms such as Carlsberg, Ciba Geigy, Coca Cola and Toyota, and sovereign borrowers, such as Austria, Canada and Colombia to tap the sterling market during the quarter. Securitised deals again boosted total issuance, and the UK high-yield bond market also continued to develop, with issues by Diamond Cable, IPC Magazines, NTL and Punch Taverns.

In addition, there were three convertible bonds, including a £400 million ten-year issue for National Grid, and £3.7 billion of floating-rate notes (FRNs) issued in the quarter. Although there were a few short-dated FRNs by UK and overseas issuers, most FRN issues were longer-term secured deals, including a £1 billion six-tranche deal securitising the Student Loan book bought from the Government by National Westminster Bank.