Sterling wholesale markets: developments in 1998

- *Sterling wholesale markets grew further in 1998. Outstanding lending appeared to be little affected by the international financial market turbulence of the second half of the year.*
- *The gilt repo market consolidated its position as an important form of secured money at the short end of the curve.*
- *Yields on gilt-edged securities fell in 1998. The amount outstanding fell very slightly.*
- *The Bank made a number of changes to its open market operations during 1998, building on the reforms of the previous year.*
- *The gilt strips market had a quiet first year.*

Overview

1998 was another year of change in the sterling wholesale markets. Market activity, measured by the amount of business outstanding, increased in all of the major sterling money markets: interbank, certificate of deposit (CD) and gilt repo. The amount outstanding in the gilt-edged market fell slightly. The total amount outstanding in all these markets combined was £635 billion at the end of the year, 9% higher than a year earlier (see Table A).

Table A
Sterling wholesale markets: amounts outstanding

£ billions

	Interbank	CD	Gilt repo	Gilts	Total
1997	135	100	72	278	**585**
1998	149	121	94	271	**635**

Note: All data are end November except gilts, which are end December.

The amount of business outstanding was little affected by the global turbulence that characterised much of the second half of the year. Although there was much talk of retrenchment in financial markets during that period, the core sterling wholesale markets remained active, at least for high-quality firms. Sterling markets were, however, affected by the reduction in global liquidity: turnover in some markets was lower in the second half of the year than in the first; credit and swap spreads widened, as did bid-offer spreads for gilts; and benchmark gilts outperformed similar-maturity non-benchmark stocks.

There were also a number of changes to the Bank's operations in the sterling money markets, building on the major reforms in the previous year. Changes in 1998 included the following: foreign exchange swaps were used to provide sterling liquidity to supplement the regular provision of liquidity through open market operations (OMOs); the timetable for the Bank's OMOs was altered, as were the end-of-day (late-lending) arrangements; and the Bank announced extensions to the range of collateral eligible for use in its OMOs. And the remaining discount houses emerged from the transitional arrangements implemented in 1997.

1998 also saw the transfer of sterling government debt management from the Bank to the UK Debt Management Office. The Bank continues to have an operational presence and a close analytical interest in the gilt market, as explained below.

Money markets

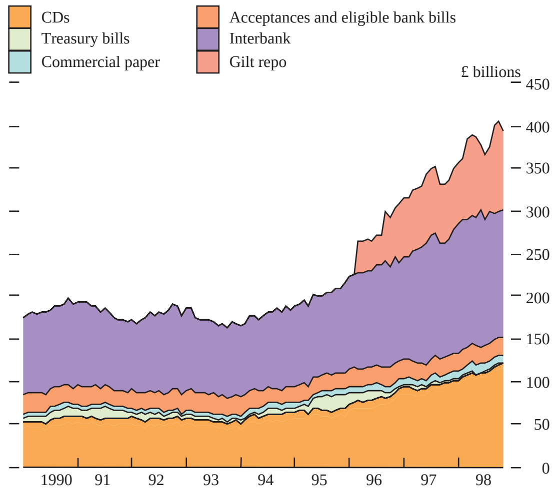
Growth of the sterling money markets

Despite turbulence and heightened credit concerns in most international markets during the second half of the year, total outstanding business in the sterling money market increased.(1) Total funds outstanding rose by around 16% between November 1997 and November 1998.(2)

Chart 1 shows the path of the main components of the sterling money markets during the 1990s. The three main components of the market—interbank deposits, CDs and gilt repo—continued to grow in 1998. The interbank and CD markets are where money-market credit concerns would show up. But there is little evidence that volumes of business fell much in the second half of the year, beyond the

(1) The sterling money market is defined here as the sum of outstandings in the interbank, CD, gilt repo, commercial bill, Treasury bill and commercial paper markets.
(2) The aggregate balance sheet of all UK banks contracted very sharply in December 1998. The contraction was mainly in foreign currency business with non-residents, and was almost certainly linked with the euro-conversion weekend. Amounts outstanding in the main sterling wholesale markets recorded no significant falls.

Chart 1
Size of the sterling money markets



normal seasonal fluctuations seen at the end of the calendar year.

The much smaller amounts outstanding in the commercial bill and commercial paper markets have changed little over recent years, while the stock of Treasury bills has fallen. This illustrates one of the contrasts between the UK and US money markets: the UK money market tends to be predominantly an interbank market, whereas direct corporate borrowing is more common in the US money market, through commercial paper issuance.

As Chart 1 shows, the amount of CDs outstanding has risen quickly in recent years: between 1996–98, CDs outstanding rose by £53 billion, compared with a £13 billion rise in the previous three years. This strong recent issuance is partly explained by the sterling stock liquidity regime, introduced in 1996, which allows banks to offset up to 50% of their five-day wholesale liability outflows with holdings of CDs, making it attractive for banks to fund themselves using CDs. (CDs also continue to be used as collateral in stock-lending transactions, making gilts available to the repo market.)

Turnover of money-market products was little affected by the turbulence during the second half of the year. Daily turnover of the nearest short sterling contract averaged 27,000 contracts, equivalent to nominal principal of £13.5 billion, in the second half of the year, compared with 20,000, equivalent to nominal principal of £10 billion, in the first half (see Table B). So there was no broad-based

Table B
Turnover of selected instruments in 1998

Average daily turnover	Short sterling (a) (Thousands of contracts)	Gilt repo (£ billions)	Gilts (£ billions)	Gilt futures (b) (Thousands of contracts)
1998 H1	20	14	9	50
1998 H2	27	15	7	37

(a) Nearest contract; each contract is for a notional deposit of £500,000.
(b) Nearest contract; each contract was for a notional amount of £50,000 in H1 and £100,000 in H2.

reduction in turnover, which might have reflected lower position-taking. Open interest in the nearest short sterling contract was 180,000 (equivalent to nominal principal of £91 billion) at the end of the year, around 30% higher than a year earlier. Turnover of other money-market products is more difficult to measure. According to the Central Moneymarkets Office data, CD turnover was little different from normal during the second half of the year. The Bank's gilt repo survey (see below) suggests that repo turnover remained relatively high in the second half of the year, averaging £15 billion a day, compared with £14 billion in the first half. Repo turnover and outstanding business held up, partly because firms may have favoured the security of lending against gilts during the turbulence.

Open market operations

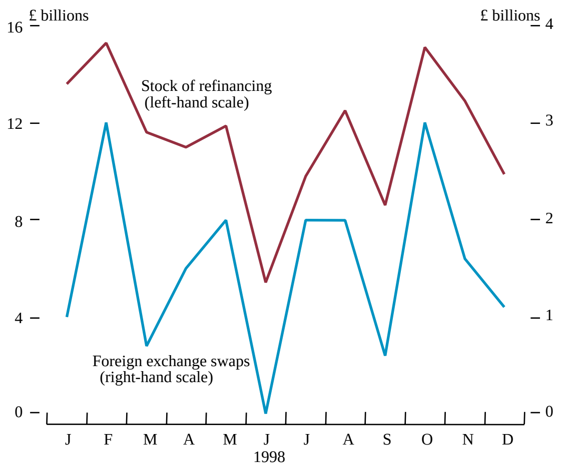
The Bank's OMOs developed further in 1998, following the major reforms implemented in 1997. The 1997 reforms introduced gilt repo as a tool of daily refinancing operations, thereby greatly increasing the range of eligible collateral, and widened the number of counterparties with which the Bank dealt. The three further changes introduced in 1998 built on the principles of these earlier reforms:

(i) Foreign exchange swaps

In January 1998, the Bank introduced foreign exchange swaps as a means of providing sterling liquidity to supplement its usual OMOs. The Bank provides temporary liquidity by sales of sterling for foreign currency and simultaneous matching of forward purchases, at a later date, of sterling for foreign currency. When the swap is unwound, sterling is drained from the market, so both 'legs' of the swap need to be planned carefully. Because the purchase and sale of foreign currency are conducted simultaneously, the Bank takes on no foreign exchange risk exposure. Foreign exchange swaps are used regularly by a number of other central banks to provide money-market liquidity; they may also be used by the European Central Bank. Their introduction in the United Kingdom was a technical change, which had no monetary policy significance.

The Bank has tended to use foreign exchange swaps as a marginal additional source of sterling liquidity when the stock of refinancing held at the Bank is high, so as to mitigate potential strain on the collateral markets. (When they were introduced in January, the stock of money-market refinancing held at the Bank was around £14 billion, compared with an average for the year of £11.5 billion.) As the stock of refinancing fell, so did the Bank's use of foreign exchange swaps; the level of swaps outstanding rose again later in the year as the stock of refinancing increased. Chart 2 shows how the stock of refinancing outstanding and the level of swaps outstanding for money-market purposes moved broadly together during the year.

Chart 2
Stock of refinancing and foreign exchange swaps: outstanding



(ii) New timetable

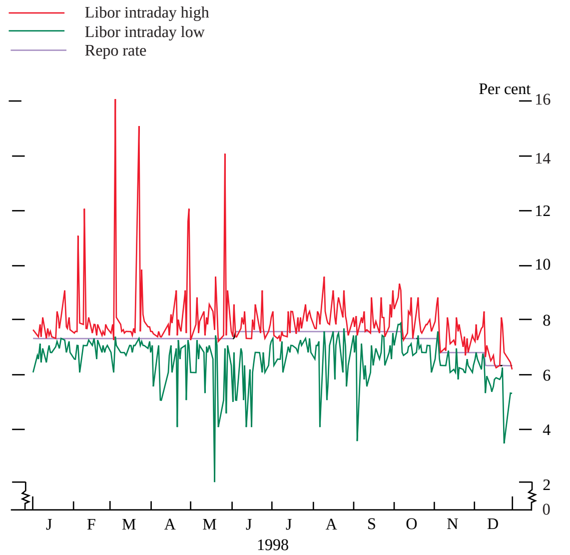
In June 1998, the Bank took the opportunity of the introduction of extended CHAPS banking hours, and the gradual emergence of the remaining discount houses from transition (see below), to alter the OMO timetable and make more explicit the structure of penal interest rates operating late in the money-market day.[1] When the original reforms of March 1997 were introduced and the group of potential Bank OMO counterparties widened, the discount houses (previously the Bank's sole counterparties) were granted a transition period as they—and the new systems—adjusted to the reforms. One of the transitional features was the retention of the facility whereby the discount houses could borrow late in the day from the Bank between 2.45 pm and 3.20 pm, in the form of overnight repos (after the main rounds of OMOs). This 'safety valve' became less effective as the discount houses gradually moved out of transition, leaving less capacity among those remaining in transition to borrow late from the Bank. If the forecast shortage was not cleared in the final regular round of OMOs, then the overnight interest rate—an indicator of liquidity conditions in the interbank market—sometimes spiked up sharply.

With effect from 1 June 1998, the facility was amended to allow all Bank counterparties to borrow overnight from the Bank after the final round of OMOs, at 3.30 pm. This round of operations is conducted at a penal rate, initially at 100 basis points above the Bank's repo rate.[2]

At 4.20 pm, after the money market has closed, the Bank publishes any further revision to its forecast of the market's liquidity shortage. At that time, the settlement banks have access to an overnight late repo facility. Previously, the facility had been limited to the amount of any late swing in the market's need for liquidity, with any liquidity being provided at 25 basis points above the Bank's repo rate. From June, the amount supplied in this facility has been determined by the Bank, taking into account the extent of any remaining forecast shortage, including any late swing, and in the light of market indications of the extent of remaining liquidity needs. Use of this facility is at a rate determined by the Bank, which may range from its repo rate to as much as 150 basis points above its repo rate.

The changes to the timetable and the increased capacity to borrow from the Bank at 3.30 pm have been successful in capping short-term interest rates at lower levels than before—very short rates have rarely traded substantially above the Bank's (penal) late-lending rates (see Chart 3).

Chart 3
Repo rate and intraday Libor



(iii) Extension of collateral

With effect from 26 October 1998, the Bank announced an extension of the collateral that it would accept in OMOs, to include certain sterling bonds issued by other European governments and international financial institutions. In due course, the pool of assets will be widened further still, to include certain euro-denominated securities issued by these entities.

In making this change, the Bank's main objective was to assist the smooth conduct of its OMOs by extending the range of eligible securities its counterparties can use in them, subject to the continuing requirement that these securities should be of prime credit quality and traded in liquid markets, and should be capable of regular use without placing undue operational burden on the Bank or its counterparties.

The additional sterling (bulldog) securities added to the list are a natural extension within the present framework. Eighteen sterling bulldog bonds, totalling some

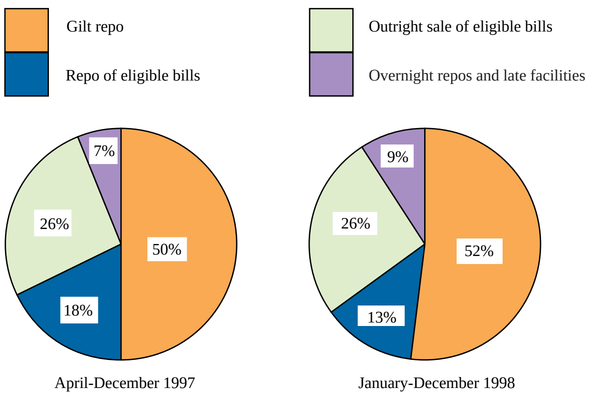
(1) CHAPS provides a same-day real-time payments system and is used to settle money-market transactions.
(2) This reflects the view that counterparties wishing to obtain liquidity from the Bank should whenever possible do so at the two regular rounds of operations at 9.45 am and 2.30 pm. The 3.30 pm round of overnight operations is intended only for counterparties to 'square off' unforeseen late variations in their positions. The Bank seeks to supply the full amount of any remaining liquidity requirement, but may supply more if market conditions suggest such a need (for example, if the overnight interbank rate was under sharp upward pressure).

£2.8 billion, were affected by the announcement; the bonds can also be used to obtain intraday liquidity in the real-time gross settlement system. The second stage of the widening of the collateral pool, to include certain euro debt securities, will increase the pool significantly, and will help to ensure that the Bank's operations and those of its counterparties develop in parallel with the euro area.

Share of instruments in the Bank's refinancing

Chart 4 shows the shares of different instruments in the Bank's refinancing in 1997 and 1998. Gilt repo has consistently accounted for around half of the Bank's money-market refinancing during the past two years. Repo of bills has accounted for a more variable proportion. Outright sales of bills, which until March 1997 were the main tool of money-market refinancing, continued to be a relatively popular instrument with counterparties, accounting for about one quarter of the flow of refinancing for most of the past year. Bill sales allow counterparties some flexibility in the maturity of money that they obtain from the Bank: counterparties can sell bills to the Bank with any maturity from one day up to approximately two weeks (in practice, up to the date of the Bank's longest-dated repo). The amount of refinancing done on an overnight basis late in the day was 9% in 1998, compared with 7% in the previous year.

Chart 4
OMOs—instrument review



Note: Totals may not sum to 100 because of rounding.

Though most of the Bank's refinancing is provided at a maturity of two weeks, the availability of shorter-maturity lending through sales of bills means that the average maturity of the stock of refinancing is less than two weeks.

Gilt-edged market

The price of gilt-edged securities rose in 1998, particularly in the second half of the year. The total amount of gilts outstanding fell by around £7 billion in calendar-year 1998, to a nominal value of £271 billion. Gilt redemptions amounted to £17 billion, but the Government's financing requirement was lower in 1998/99 than in the previous year: the overfund from the previous year reduced the financing requirement, and there were successive downward revisions to the borrowing requirement as revenue exceeded expectations.

Gilt futures turnover fell in the second half of the year, affected by the fall in global liquidity and appetite for risk-taking; cash gilt turnover fell by less. Cash turnover averaged some £9 billion a day for most of the first half of the year and fell to around £7 billion in the second half. Turnover in the front gilt futures contract, which had averaged some 50,000 (equivalent to £2.5 billion) contracts a day during the first half of the year, fell to 37,000 (equivalent to £3.7 billion) a day during the second half. The fall in gilt futures turnover partly reflects the increase in contract value from £50,000 to £100,000 with effect from the September 1998 contract. It also reflects the fact that it is easier and quicker to trade in the futures market than in the cash market, so any reduction in international banks' risk and position-taking is likely to be seen there first. The cash market, though not immune from international turbulence, perhaps retained some natural order-flow from domestic institutions. Also, by the time that confidence had been restored to markets, many market participants were reluctant to take new positions in the futures market, with the imminent year-end and the introduction of the euro.

On 1 April 1998, HM Government sterling debt management was transferred from the Bank to the newly-established UK Debt Management Office, marking the formal separation of debt management from monetary policy. The Bank continues to have an operational presence in the gilt market, and a close analytical interest. For example:

- OMOs are mainly in the form of gilt repos, so the Bank analyses the gilt repo market closely.
- The gilt market is an important source of analytical information both for monetary and financial stability purposes.
- The Bank has an operational role in the gilt-edged market, as the box opposite explains.

Gilt market conventions

A number of changes were made to gilt market trading conventions in 1998. From the end of July, the special ex-dividend arrangement for gilts was abolished. And in November, the calculation of accrued interest switched to using an 'actual/actual' daycount convention. From the same date, gilt prices were quoted in decimals instead of in £$^1/_{32}$ per pound. The move to quoting in decimals brought the gilt market into line with other European bond markets.[1]

(1) A more detailed account of the change to gilt trading conventions appears in 'Gilt-edged and sterling money markets: developments in 1997', *Quarterly Bulletin*, February 1998, pages 55–69.

The Bank's operational role in the gilt-edged market

The Bank retains a strong interest in the gilt and associated markets, in pursuit of both monetary and financial stability objectives. Notwithstanding the transfer of responsibility for sterling government debt management to the newly established UK Debt Management Office (DMO), the Bank continues to maintain an operational presence in the gilt market, which helps to retain a direct relationship with the market. The Bank's dealers:

- execute orders for the Bank's customers (including other central banks); and
- execute retail orders for gilts that have been placed with the Bank of England Brokerage Service, operated by the Registrar's Department.

Until the DMO takes responsibility for managing the government's day-to-day cash needs, the Bank will bid for stocks within three months to maturity, in order to smooth money-market shortages ahead of redemption dates.

The Bank also closely monitors other associated markets such as gilt futures and options, swaps, strips, repo and non-government sterling bond markets. The head of the Bank's Gilt-Edged and Money Markets Division is chairman of the Stock Lending and Repo Committee, which brings together practitioners, associations and authorities across the range of repo and stock-lending markets in London, and maintains the Gilt Repo Code of Conduct in line with best practice in the market. The Bank's dealers also operate the 'calendar' for sterling issues. This service, provided at the request of the market, enables lead managers/advisers to pre-notify the Bank of sterling issues of more than £20 million, in order to spot and avoid potential clashes.

The Bank's operational role in the gilt market is as follows:

- Calculating and publishing coupons on index-linked bonds, on release of the Retail Price Index (RPI).
- The Bank is also responsible for determining whether there has been a 'material change' to the RPI, and whether the redemption 'trigger' clause in index-linked gilt prospectuses should therefore be invoked.
- Setting and publishing dividends for floating-rate gilts. The Bank's dealers obtain three-month LIBID rates from a panel of banks. These rates are then used to determine the next quarterly dividend on such stocks.
- In accordance with the prospectus, every six months the Bank certifies whether the average price of 3½% Conversion Stock has been above or below £90 in the preceding dividend period. An average price below £90 requires the DMO to purchase stock for the sinking fund over the following six months.

The gilt repo market

The gilt repo market began in 1996. In the past three years, it has grown into one of the main components of the sterling money market. Gilt repo outstandings—some £94 billion—now represent about one quarter of the total sterling wholesale money market. Gilt repo turnover—around £15 billion a day—is typically twice the turnover of cash gilts.

The Bank has been conducting a survey of the main participants in the gilt repo and gilt stock lending markets since the start of the market, covering details of trades outstanding and turnover at various maturities.(1) According to the survey, the amount of gilt repo outstanding was £94 billion in November 1998 (see Table C). The market grew rapidly by £22 billion during the year, following a rise of £13 billion in 1997. More than 100 firms complete the survey. Although a small number of 'core' market participants account for a large share of the market, the degree of market concentration has fallen. At the start of 1996, the top five firms by share accounted for around 55% of the market; by November 1998, the top five firms accounted for about 40% (see Chart 5). A small number of players were active in the market at the very start—mostly firms that had been involved in the old stock-lending market and/or those that had experience of repo in overseas markets. They were gradually joined by more firms, as the market in what was for some an unfamiliar product became more established and deeper.

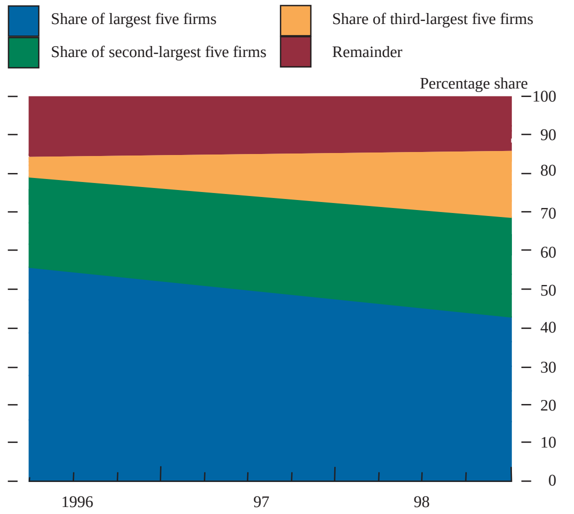
Table C
Gilt repo and reverse repo outstanding

£ billions

		Repo	Reverse repo
1996	Feb.	37	34
	Nov.	69	60
1997	Feb.	71	67
	Nov.	72	71
1998	Feb.	95	94
	Nov.	94	90

(1) An article by Jonathan Bailey in the November 1998 edition of the Bank's *Monetary and Financial Statistics* describes the survey and compares it with repo data reported as part of the monetary statistics.

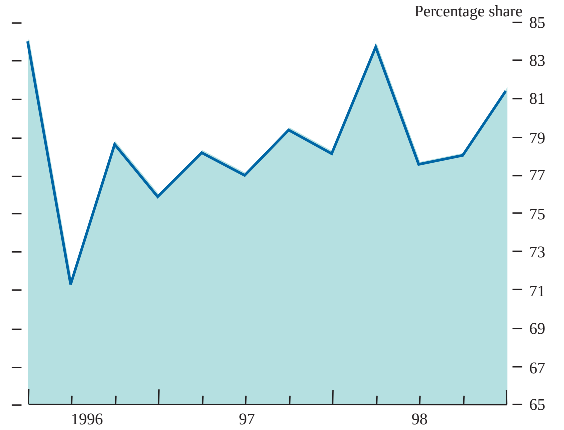
Chart 5
Concentration of the repo market[(a)]



(a) Shares of firms by amounts outstanding.

Most of the large players in the sterling repo market are also counterparties of the Bank in its daily OMOs: in November 1998, OMO counterparties accounted for around 80% of all repo outstandings in the Bank's survey (see Chart 6). Not surprisingly, the size of the stock of refinancing held at the Bank influences the repo activity of these counterparties.(1) When the stock is high, counterparties of the Bank have to be more active in order to supply collateral to the Bank and distribute sterling liquidity to the private sector.

Chart 6
Bank OMO counterparties' share of the repo market



The repo market has matured in the past three years. During the market's first two years, there was little repo activity beyond three months, but since then activity at that maturity has grown to about 20% of total outstandings. With a larger number of counterparties active in the market, firms have become more confident about using repo for long-term transactions to take views on interest rates.

Repo is a flexible and tradable instrument that allows firms to reduce (or increase) their balance sheet size more quickly than in the interbank deposit market. Some firms have used this flexibility towards the end of financial reporting periods (year-ends and quarter-ends), tending to reduce repo transactions to minimise the use of their balance sheet for credit-rating purposes. This effect has also occurred in the monetary statistics collected by the Bank, with the repo component of M4 falling at balance sheet reporting periods, with consequent effects on M4.

End-investment institutions, such as pension funds and insurance companies, have been slower to become involved in the repo market, and have tended to continue to offer gilts to the stock-lending market for a flat fee. Banks and securities firms borrow these stocks and repo them into the wholesale market. So though few end-investors participate in the repo market directly, they do supply some of the gilts to the repo market indirectly through stock-lending. Because of this broader access to gilts, the market as a whole may be less vulnerable to shortages of particular stocks. This might in turn explain why activity in the specials repo market has been lower than in the repo market's first year. Special rates have also been less volatile than in the first year of the market.

The Bank intervened in the specials market once during 1998. In response to the special status of 9% Treasury 2008 that developed during late 1997 and early 1998, the Bank announced that it was prepared to repo the stock overnight against cash at 0% to GEMMs where they, or their customers, had experienced failed repo returns or failed deliveries in the cash market.(2) In the event, no use was made of the facility but its availability led to an easing of the specialness of the stock.

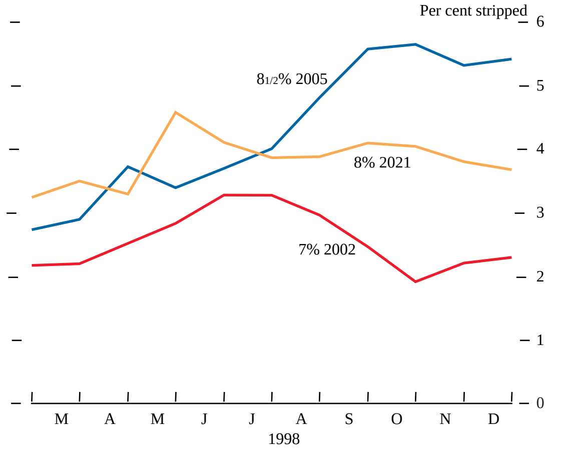
The gilt strips market

The gilt strips market has grown slowly since its launch on 8 December 1997. About one third of the total amount of gilts outstanding is eligible to be stripped, though less than 3% of potentially strippable stock had been stripped by the end of 1998. Daily turnover in the strips market averaged £40 million during 1998, about $^1/_2$% of average turnover in the unstripped gilt market. Turnover in gilt strips fell in the second half of the year, in line with the fall in turnover in the underlying gilts market, as market participants attempted to reduce risk and position-taking.

Though less than 3% of the market has been stripped, some strippable gilts have been more popular than others (see Chart 7). Longer-maturity gilts have tended to be stripped more than short gilts, with the exception of 8$^1/_2$% 2005, of which 5% was held in stripped form. One reason for the popularity of that gilt is that its principal strip has been the highest-yielding strip beyond a maturity of five years and has similar duration to the unstripped 7$^1/_4$% 2007. This

(1) Repos with the Bank as part of the OMOs are included in the repo totals, and the correlation between the total stock of refinancing and total repo outstanding is 0.64.
(2) For more details, see pages 111–13 of the May 1998 *Quarterly Bulletin*.

Chart 7
Stripping activity by selected gilts



means that investors can take a view on the shape of the short-medium part of the yield curve without affecting the duration of their portfolio.

A number of reasons have been suggested for the slow growth of the strips market in its first year. Because the yield curve is downward-sloping, strip yields lie below unstripped gilt yields of similar maturity. This may deter some investors who view strips as 'dear' relative to unstripped gilts. The turbulence of the second half of 1998 may have deterred strips activity, as investors favoured the liquidity of the underlying gilt market. Also, because strips are not yet included in benchmark indices for the investment industry, there is little pressure from actuaries to buy strips.

The Bank started to accept strips as collateral in its daily deliveries-by-value OMOs from 27 April 1998, and it also accepts strips as collateral for intraday liquidity in the real-time gross settlement system (RTGS). By the end of the year, strips had been used in a limited way as collateral in the OMOs and in RTGS.

In principle, strips provide a direct way of observing the term structure of zero-coupon interest rates. For gilts, which provide a stream of income, a more indirect procedure of yield curve estimation has to be followed to derive a theoretical zero-coupon curve. Charts 8a and 8b show the zero-coupon curves derived using coupon strips prices at the beginning of 1998 and at the end. Yields on principal strips are shown separately. Because the principal strips have much greater amounts outstanding, they are more liquid and trade at a greater premium—and hence lower yield—than equivalent-maturity coupon strips.

Developments in sterling products on LIFFE

The London International Financial Futures and Options Exchange (LIFFE) made a number of changes to its sterling

Chart 8a
UK zero-coupon curves (derived using strips prices) on 4 February 1998

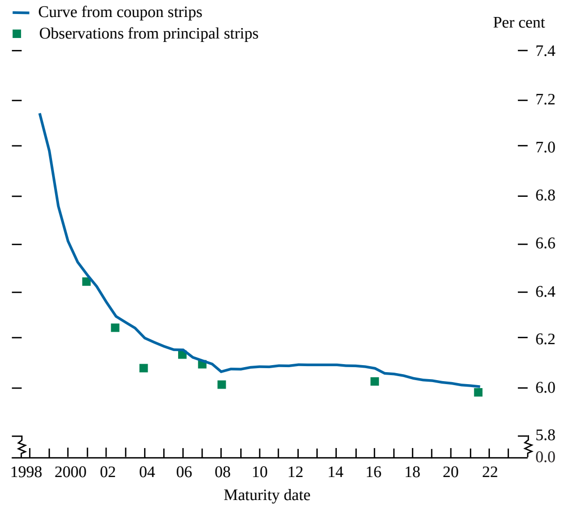
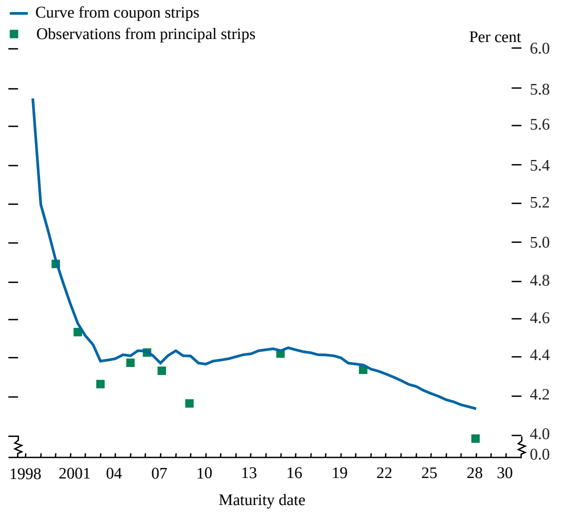


Chart 8b
UK zero-coupon curves (derived using strips prices) on 30 December 1998



interest rate and bond market products in 1998. LIFFE launched a new five-year gilt future on 26 February. Trading volumes have so far been very light: typically, the front contract has traded fewer than 1,000 bargains a day (equivalent to £0.1 billion of stock), compared with 40,000 (equivalent to £4 billion of stock) for the existing ten-year (long) gilt futures contract. Also, with effect from the September 1998 contract, the long gilt contract size was increased from £50,000 to £100,000. In May, the long gilt contract was altered to reflect a change in the deliverable gilts maturity band from 10–15 years to $8\frac{3}{4}$–13 years (effective from the December 1998 contract). LIFFE also began listing a fourth maturity year on its sterling interest rate futures products from 30 June 1998 (though volumes have also naturally been low).