The gilt-edged market: developments in 1996

The gilt-edged market development programme continued in 1996, and gilt repo trading concluded a successful first year. Ten-year gilt yields were little changed at year-end from the previous year, but the yield curve was flatter. EMU-related market movements meant that gilts underperformed bond markets in European countries, despite the strength of sterling toward the end of the year. Gilt sales raised nearly £40 billion in 1996, taking the value of gilt-edged stock outstanding to £285 billion. Further reforms to the issuance process contributed to strong auction results and rapid sales of tap stocks in 1996. Secondary market turnover in gilts continued to increase. The year concluded with the Bank's proposals to extend its daily money-market operations to operate in gilt repo and to abolish the requirement that the gilt-edged market-makers be separately capitalised entities.

The reform programme

The process of reform in the gilt market continued in 1996. During the year, a number of developments which had been under discussion, or were awaiting implementation, came into effect, and further reforms were announced.

- The gilt repo market started on 2 January 1996. The previous limitations on repoing, borrowing or lending gilt-edged stock were removed. A wide range of institutions are now active in the gilt repo and stock lending market.

- Tax changes, effective from January 1996, facilitated the introduction of gilt repo and contributed to gilt market efficiency. All 'manufactured' dividends arising from repo or stock lending activities are now paid gross, and withholding tax has been abolished on dividends for wholesale investors holding their gilts in 'STAR' accounts in the Central Gilts Office (CGO).

- As a result of these tax reforms, nearly 80% of gilt holdings (by value) now receive coupon payments gross of withholding tax.

- In addition, a new taxation framework for gilts (and other bonds) was introduced in April 1996. Most wholesale investors are now taxed on a 'total return' basis, ie on both capital gains and income (and with tax relief for capital losses), removing tax distortions from trading, and promoting greater market efficiency. This was an essential precondition for the future introduction of gilt stripping (see below).

- In October 1996 a 'basis trading' facility on LIFFE in long gilt futures contracts was launched, allowing market participants to undertake transactions in the cash gilt and futures markets simultaneously at an agreed spread, removing execution risk.

Gilt auctions

- A number of incremental reforms were made to the gilt auction process, designed to decrease the risk associated with auctions for both the government as issuer and for the market.

- The average size of individual auctions was reduced by scheduling auctions monthly (except around the Budget) and by introducing periodic 'double-headed' auctions. 'Double-headers' allow the issue of two stocks of different maturities in the same month, moderating the supply in any one maturity at one time and potentially appealing to a wider range of end-investors.

- The amount of stock that gilt-edged market-makers (GEMMs) are allowed to bid for in auctions on a non-competitive basis (ie at the average allotted competitive price) was increased from a flat amount of £500,000, to 0.5% of the stock on offer. GEMMs can therefore cover more of a short position with certainty. There was no change to the expectation that GEMMs should bid competitively at auctions.

- The number of telephone bids that GEMMs are allowed to submit in the final minutes before close of bidding in an auction was increased, allowing GEMMs more readily to accommodate auction bids submitted by investors.

Other operational procedures

- The transparency of secondary market sales from official portfolios was significantly enhanced by the introduction of a 'Shop Window'—information on the Bank's screen pages—giving details of the amounts of stocks available for resale or switching. The Bank retains discretion on whether to accept bids.

- More generally, the Bank's publication of a revised *Operational Notice* in June 1996, describing its relationship with gilt market counterparties, further contributed to the transparency of the Bank's procedures.

Strips

- In May 1995, the Bank issued a consultative paper on the possible future introduction of a gilt strips facility. Such a facility would allow a standard coupon bond to be separated into its individual coupon and principal payments, so that they could be separately held or traded as zero-coupon instruments.

- The Bank published a further paper in May 1996 which set out decisions taken on the arrangements for the planned strips facility. The few remaining decisions will be announced as soon as possible.

- The 1996/97 *Debt Management Report* stated the authorities' intention that future medium and long maturity issuance should be strippable and that the strippability of future short-dated benchmark issues would be kept under review. In fact, all new benchmarks issued since that announcement have been strippable, including the new five-year benchmark, 7% Treasury Stock 2002, first issued in December 1996.

- As part of the policy of building up the stock of strippable gilts, 76% of stocks auctioned in 1996 were strippable. In addition, two conversion offers, from double-dated stocks, contributed to the increase in strippable stock to £57 billion outstanding by end-December.

- It was announced in 1995 that coupon interest on all strippable stocks would be paid gross of tax. To remove uncertainty about when this would take effect, it was announced in August 1996 that it would commence with the coupon payments on 7 June 1997, regardless of when the gilt strips facility becomes operational.

- In December 1996 the Bank issued a draft 'strips memorandum', designed to serve as a generic prospectus for gilt strips (avoiding the need for a separate prospectus for each strip).

- Towards the end of 1996, the Bank held a round of meetings with individual GEMMs to discuss their plans for the strips market.

- During 1997, the Bank will publish an update of the May 1996 paper, setting out all the decisions relating to the strips facility. The extension to the CGO upgrade timetable (see below) means that the strips facility will also be introduced slightly later than originally planned; it is expected that it will commence shortly after the CGO upgrade.

Central Gilts Office (CGO)

- Euroclear, Cedel and Bank of New York became CGO members and began offering settlement services, including tri-party repo services, in gilts on 4 March 1996.

- During 1996, the Bank published newsletters and consultative papers on the detail of work to upgrade the CGO, and convened meetings with market representatives to help take the project forward.

- On 3 December the Bank announced that it was extending the timetable for the upgrade of the CGO system (see the box) and that the target for inauguration was 26 August 1997. This extension was agreed partly in order to allow members to concentrate resources on the phased introduction of CREST; and also to allow sufficient time for a stable upgraded CGO system to be

Upgrade to the CGO system

The Bank announced on 24 November 1995 that the CGO system was to be upgraded to facilitate easier handling of gilt repo and strips. The target date for the inauguration of the upgraded system is 26 August 1997, following the August bank holiday weekend. The design of the system has been broadly finalised, following close consultation with practitioners from all parts of the gilt market via the 'CGO Upgrade Group' established by the Bank for this purpose.

Among the key benefits from the upgrading of the CGO will be new features which will:

- Facilitate stripping and reconstitution of gilts.

- Allow back offices to process repos more efficiently, helping them to settle a greater volume of trades as the market develops.

- Effect automatic reporting to the Securities and Futures Authority and the Stock Exchange, reducing back-office work for all gilt deals settling through CGO.

- Offer more flexible membership and account management arrangements. It is hoped that this will result in wider membership and increase the scope for investors to hold gilts in dematerialised form, reducing the volume of paper in the settlement process.

- Allow better control by settlement banks of their exposure to the CGO members for which they act, reducing any residual risk in the settlement process.

The upgrade will utilise CREST software, and arrangements are in place for continuing mutual co-operation with CRESTCo in the further development of this software. The Bank and CRESTCo have also confirmed their intention to keep open the option of possible consolidation of the two systems in the future.

available for trialling so that members could be confident of a smooth transition to the new system.

Use of gilt repo in money-market operations

- Since the start of the market in January 1996 (see the box on page 72), gilt repo has become the main sterling market in secured money and has developed considerable scale and depth.
- In December 1996 the Bank published proposals to extend its daily open market operations to include operations in gilt repo.
- The impact of the proposals is likely to go beyond money-market operations to the sterling markets more generally, and is likely to promote the further development of gilt repo.

Capitalisation of the GEMMs

- The Bank proposed that, at the same time as broadening the range of counterparties with which it conducts daily open market operations, its requirements for separate capitalisation would cease, as would the associated specialist supervisory arrangements, for both money-market and gilt market counterparties. The obligations of GEMMs to make markets in gilts and to participate in auctions will remain unchanged.

Taxation

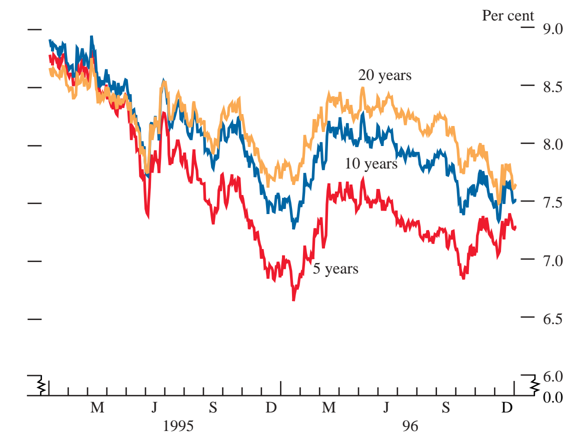
- In November, the Inland Revenue proposed that in 1997/98 additional categories of overseas investors should be able to receive gilt interest payments (on non-strippable gilts) without deduction of withholding tax. Like domestic corporates, foreign corporates can already obtain gross payment through STAR accounts, but the proposals would extend gross payment to overseas pension funds, foreign mutuals, and non UK resident individuals.
- The new regulations would substantially simplify both the tax treatment of gilts and the qualifying arrangements for receiving gross dividends, replacing three existing schemes which enable some overseas investors to obtain gross payment.

Gilt yields in 1996

At the end of 1996 the yield curve was flatter than a year earlier, with gilt yields little changed at medium maturities (see Chart 1). Although the UK market underperformed many European markets, whose bonds benefited from heightened expectations of their participation in Economic and Monetary Union (EMU), gilts outperformed US Treasuries.

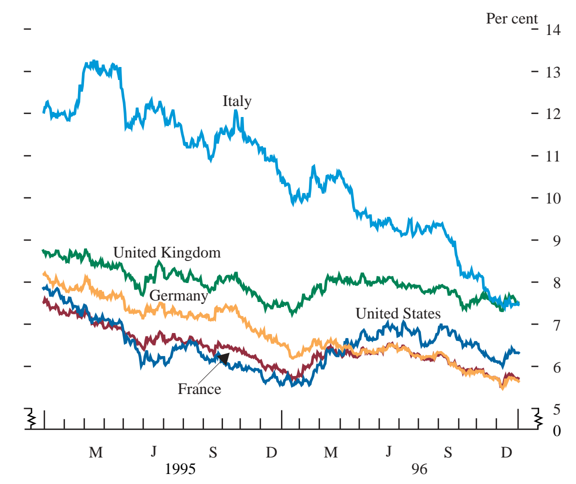
The low point of 1996 for the ten-year par yield (and for shorter maturities) was reached shortly after the start of the year, on 18 January. The UK market, which had risen with

Chart 1
Par yields on British government stocks at 5, 10 and 20 years



the sustained rally in European bonds since late October 1995, rose further with the cut in UK official rates on 18 January 1996. Thereafter, global yields rose as markets factored in the reduced prospects of further rate cuts in the major economies (see Chart 2). A series of comments by policy-makers in Germany, Japan and the United States contributed to the turnaround in sentiment, as did a number of data releases. Among the latter, the publication on 8 March of much stronger-than-expected growth in US

Chart 2
Ten-year benchmark yields

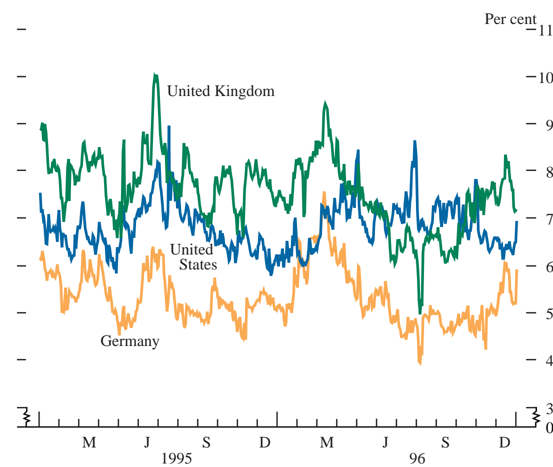


employment led to the year's sharpest one-day rise in gilt yields. Implied volatility[(1)] also rose sharply to over 9% (see Chart 3). Gilt yields across the maturity spectrum reached their highest point of the year in early May, with the rises again triggered by strong US activity data.

Official rates in the United Kingdom were cut in June and, between May and early October, yields in the United Kingdom trended downwards. Implied volatility fell below US volatility, reaching a low for the year in August. The particularly sharp decline in yields at the end of September and into October was largely US-led, as global markets

(1) Implied volatility is the expected standard deviation of annualised price movements in the futures contracts implied by options prices; higher implied volatility is generally associated with greater uncertainty about price movements in the underlying instrument (gilts in this case).

Chart 3
Implied bond market volatility



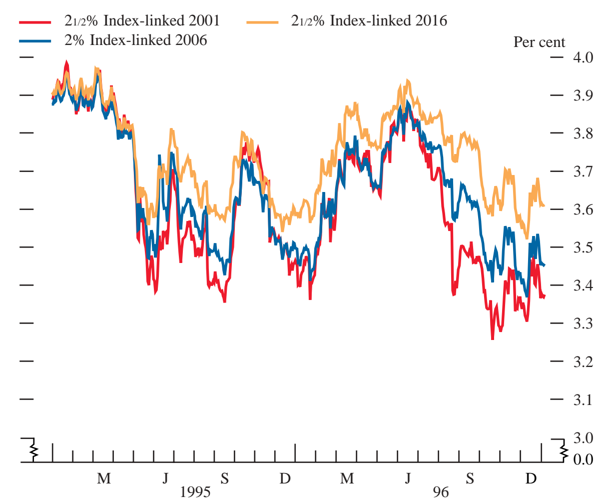
rallied following the Federal Open Market Committee's decision on 24 September to leave interest rates unchanged. Gilt market sentiment turned in mid-October with new domestic inflation and unemployment data. Yields rose across much of the curve following the rise in official interest rates at the end of October and the publication of the November *Inflation Report*, as the market reassessed UK inflation expectations. However, the market recovered in November and in early December, reflecting a continuing rally in European bonds, a strong sterling exchange rate, and an unexpectedly large public sector debt repayment in October. The UK Budget on 26 November had little impact on gilt yields.

By the end of the year yields had again risen slightly, despite the continuing international interest in sterling, as government bond markets globally responded to an apparent warning by Federal Reserve Board Chairman Greenspan, that asset prices were overvalued. Ten-year gilt yields ended the year at around 7.50%, little changed from 7.45% a year earlier. UK and US ten-year yield differentials narrowed to around 120 basis points by year-end.

The reassessment of prospects for global interest rate cuts that took place early in 1996 was accompanied by a flattening of the gilt yield curve (see Chart 1). The spread between ten and five-year par yields narrowed from around 70 basis points in mid-February to less than 50 basis points in mid-April. The fall in yields in the following months was more pronounced at the short end and therefore resulted in a steeper yield curve, with the ten-year minus five-year spread approaching the 70 basis points level again by end-August. The yield curve began to flatten from early September in anticipation of higher future interest rates, after rates were left unchanged at the Monetary Meetings of 4 and 23 September and as the Minutes of the 30 July meeting, published on 18 September, revealed the Bank's preference for higher interest rates, and a willingness by the Chancellor to raise rates pre-emptively if necessary. Yield spreads, particularly in the short-medium area, continued to narrow as the curve flattened, with an especially sharp movement following the 30 October increase in base rates (when yields at the shorter end rose, while those at the very long end fell). The spread between ten-year and five-year par yields ended the year at just over 20 basis points.

Unlike nominal conventional yields, real yields on UK index-linked stocks diverged during 1996, ending the year slightly lower at short and medium maturities, and little changed at longer maturities. As might be expected given that real yields should not be greatly influenced by inflation news, the volatility of real yields was much lower than that of conventional yields (note that the Chart 4 axis extends only from 3% to 4%). The real yields shown here are calculated by deriving the rate of inflation implicit in the indexed bond that would equate the return on an indexed gilt and a conventional bond of similar maturity.[1]

Chart 4
Real yields on index-linked stocks



Inflation expectations[2] (see Chart 5) at all maturities rose during the spring, with the steepest rise occurring at shorter maturities. Both real and nominal forward rates also rose. Inflation expectations tended to level out or decline after mid-April. However, while the decline in ten-year expectations largely continued for the rest of the year, inflation expectations at five years levelled out in October. At the end of the year, inflation expectations for ten and fifteen years ahead were somewhat lower than a year earlier and broadly unchanged for five years ahead. The convergence of inflation expectations was reflected in the flattening of the nominal yield curve.

Over the year, the spread of ten-year gilts over US Treasuries narrowed by over 60 basis points, but gilt prices underperformed against most European bonds (see Chart 2). In early 1996, gilts were particularly affected by political uncertainties and worries about the implications of bovine

(1) See *Working Paper No 23*, published in July 1994, 'Deriving estimates of inflation expectations from the prices of UK government bonds' by Mark Deacon and Andrew Derry.
(2) As derived from a comparison between the prices of conventional and indexed gilts. The comparison does not provide an exact measure, as it is not possible to separate out the influence of any inflation risk premium or of other factors influencing relative prices at specific times, such as the supply of particular gilts, from expectations of inflation.

Chart 5
Inflation expectations at 5, 10 and 15 years ahead(a)

(a) Implied annualised inflation in the six-month period beginning 5, 10 and 15 years ahead.

spongiform encephalopathy (BSE) for government borrowing and the balance of payments. During the course of the year, however, the more important factor behind the underperformance of gilts was that previously 'high-yielding' EU bonds, such as those of Italy and Spain, benefited from changed market perceptions of the likelihood of EMU, and of those countries being among the first group of participants. Against French bonds, most of the underperformance occurred in the first quarter. French yields converged with those of Germany at this time and for the rest of the year, reflecting a belief in the markets that France and Germany were on course for EMU.

Interest rate cuts during the course of the year by the Bundesbank—which opened the way for monetary easing elsewhere in Europe—together with the presentation of budget packages in a number of countries aimed at ensuring compliance with the Maastricht deficit criterion, appear to have provided the main impetus for the narrowing of yield differentials. As can be seen from Chart 2, Italian ten-year bonds, which had yielded around 300 basis points over gilts at the start of the year, yielded slightly less than gilts by year-end.

Gilt sales requirement

The gilt sales requirement is set at the start of each financial year, April to March, in the remit given to the Bank by the Chancellor of the Exchequer. The sales requirements may be revised during the course of the year as the government's financing requirements change. Gilt sales in the first quarter of 1996—the final quarter of financial year 1995/96—totalled £10.4 billion and took gross gilt sales for the financial year to £30.7 billion. Partly as a result of a higher-than-forecast outturn for the PSBR, an underfund of £2.2 billion was carried into 1996/97.

The gilt sales target for 1996/97 was based on the forecast for the CGBR rather than, as previously, the PSBR. This change, which was announced in the *Report of the Debt Management Review* published jointly by HM Treasury and the Bank of England in July 1995, means that money raised through debt issuance is now used entirely to finance central government operations, including any central government lending to other parts of the public sector (for example, local authorities). The CGBR for 1996/97 was initially forecast at £24.1 billion, but was revised in the Treasury's *Summer Economic Forecast* to £28.1 billion. The gilt sales target, which started the financial year at £32.6 billion before figures for the previous year were finalised, was increased to £39.9 billion by end-September, reflecting an underfund in 1995/96, the increased CGBR forecast, and the decision to call the $6\frac{3}{4}$% 1995–98 stock for redemption on 1 November (which added £1 billion to the total of maturing gilts to be refinanced). However, in the November Budget the forecast of the CGBR was revised down to £27.9 billion, while the assumption for the financing contribution from sales of National Savings products was raised from £3.0 billion to £4.5 billion. The gilt sales target was then revised to £38.4 billion for the financial year. By the end of December—three quarters of the way through the financial year—just over three quarters of this target had been met.

Stocks issued

Gross gilt sales during calendar 1996 were £39.5 billion, of which £29.1 billion was issued in the first nine months of the current financial year. Sales of index-linked gilts raised £6.6 billion. In both last year's remit to the Bank from the Government and the remit for 1996/97, the target for sales of indexed gilts was approximately 15% of total gilt sales; indexed sales amounted to 15.1% in 1995/96. The aim of approximately one third of conventional stock issuance in each maturity band (shorts: 3–7 years, mediums: 7–15 years, and longs: 15 years and over) was also achieved, with conventional funding distributed 35%, 33% and 32% across shorts, mediums and longs respectively. This target issuance pattern was repeated in the 1996/97 remit.

Ten of the auctions during the year sold existing stocks while three created new stocks. The first of the new stocks was a new 25-year issue, which became the longest maturity conventional gilt in issuance. The second was a new five-year floating-rate gilt to complement the existing 1999 floating-rate gilt, and in December a new five-year conventional benchmark stock was issued.

All the additional amounts of existing stocks created during the year were immediately fungible with the existing ('parent') outstanding amounts, providing investors with immediate liquidity. In the past, 'A' tranches of stocks, which did not become fungible with the parent stock until the next ex-dividend date, were sometimes issued when a stock was close to its ex-dividend date. However, the move to taxation of the total return on gilts (rather than just the coupon) and the payment of coupons gross of withholding tax for most investors, has largely removed the unattractiveness of purchasing stocks carrying a large amount of accrued interest. One stock was auctioned *within*

the ex-dividend period and so carried rebate rather than accrued interest; the first time this had occurred.

Of the £33 billion nominal of conventional stocks issued by auction during the calendar year, £25 billion was in stocks which will be strippable when an official gilt strips facility starts, probably in autumn 1997. The pool of strippable issues was further built up by two conversion offers during the year; 13½% Treasury Stock 2004–2008 into 8½% 2005 in September, and 12% Exchequer Stock 2013–2017 into 8% 2015 in December. Acceptances of the offers to convert these two double-dated stocks together added £2.8 billion to the outstanding amount of strippable issues.

Methods of stock issuance

Auctions

Issuance of stock by auction accounted for 98% of conventional sales in 1996, in line with the policy that auctions should constitute the primary means of conventional gilt sales. The frequency of auctions was increased slightly in 1996, with auctions (including dual auctions on two occasions) occurring in every month except November—the month of the Budget. An auction was held in August for the first time since 1992. Dual, 'double-headed' auctions (auctions of two separate stocks held in close succession) were held for the first time in July and October. Both the introduction of double-headed auctions and the holding of monthly auctions were aimed at reducing the size of individual auctions. The average size of all single auctions during the current financial year (1996/97) was £2.9 billion, compared with an average of £1.75 billion for each leg of the dual auctions.

Table A
Auction results

Stock title	Status	Amount of issue £ billions	Date of auction 1996	Average yield per cent	Times covered	Tail (yield in basis points)
8% 2000	Fungible Strippable	3.0	31 Jan.	6.74	1.96	2
8% 2021	New Strippable	3.0	28 Feb.	8.09	1.48	5
7% 2001	Fungible	3.0	27 Mar.	7.67	2.64	4
7½% 2006	Fungible Strippable	3.0	24 Apr.	8.08	2.65	2
8% 2021	Fungible Strippable	3.0	29 May	8.33	2.04	2
Floating Rate 2001	New	3.0	26 June	(a)	4.51	1
8% 2000	Fungible Strippable	2.0	23 July	7.20	4.81	0
8% 2015	Fungible Strippable	1.5	25 July	8.21	1.88	2
7½% 2006	Fungible Strippable	2.5	28 Aug.	7.90	2.69	1
8% 2021	Fungible Strippable	3.0	25 Sept.	8.14	1.73	2
7% 2001	Fungible	2.0	22 Oct.	7.10	3.57	0
8% 2015	Fungible Strippable	1.5	24 Oct.	7.86	2.66	0
7% 2002	New Strippable	2.5	4 Dec.	7.13	1.70	2

(a) Yield equivalent to 6 basis points below Libid.

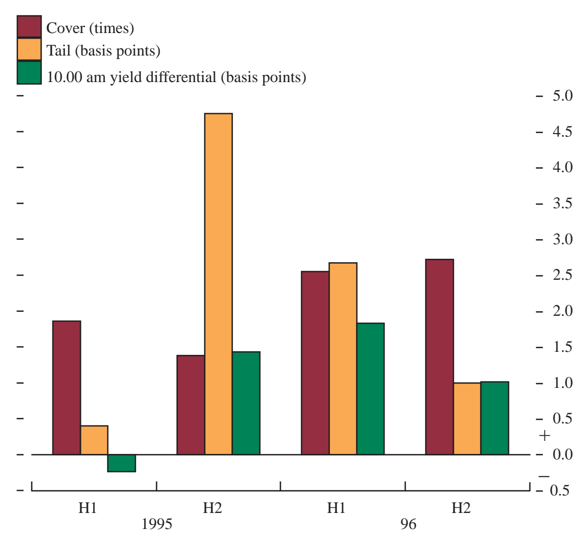
Table B gives figures on cover (the ratio of bids to stock on offer), tails (the difference between the average and the highest accepted yields), and the difference between the average accepted yield at auction and the yield calculated from secondary market screen prices at the close of bidding on auction day (the 10.00 am yield differential). Auction cover was on average higher in 1996 than in 1995, while yield tails were lower. However, the average 10.00 am yield differential was larger in 1996 than in 1995.

Table B
Auction outcomes

Average	1995	1996
Cover	1.65	2.64
Tail (basis points)	2.33	1.77
10.00 am yield differential (basis points)	0.50	1.39

Individual auctions produced varying outcomes throughout 1995 and 1996. In 1995 there was a marked contrast between the first and second halves, with lower cover, substantially higher tails, and a significant, positive 10.00 am yield differential (see Chart 6) in the second half of the year. In 1996, some of that reversed, with much

Chart 6
Auction results in 1995 and 1996



higher cover and smaller tails, particularly in the second half of 1996. However, although the 10.00 am yield differential tended to be narrower in the second half of the year, it remained positive. The 'cheapness' of the auction stock needs to be seen in the context of any underperformance of the stock in the longer run-up to the auction; the discount of the average price to the 10.00 am market price is only part of the picture.

The higher cover in auctions during 1996 reflected increased bidding by GEMMs on their own account, increased bidding by GEMMs on behalf of customers (making use of their increased bidding facility), use by GEMMs of the higher non-competitive bidding facility from April 1996, and the higher cover generated by the smaller, dual auctions. These changes in behaviour had thus been facilitated by the changes made by the authorities to the issuance process. As

can be seen from Table C, in percentage terms the increase in bids from customers was even more significant than that from GEMMs. These customer bids may be a substitute for buying the auction stock in the week before the auction on a 'when-issued' basis; Table C also shows that collective shorting of the auction stock (or its parent) by GEMMs to customers prior to the auction declined.

Table C
Auction participation(a)

Average (b)	1995	1996
GEMMs' own account competitive bids	147	175
Customer competitive bids	17	82
GEMMs' cumulative shorting of positions during the when-issued week, up to the evening before the auction	32	18

(a) Average for all auctions (as a percentage of stock on offer).
(b) The figures are not weighted by the size of auction.

Bidding behaviour may have changed following the uncovered auction in September 1995, when the pre-auction activity failed to provide adequate price discovery for the auction amount to be sold in full, and also following the December 1995 auction, when the long tail showed that auctions could present opportunities to obtain stock relatively cheaply. Results since then suggest that although bids at or around the prevailing market price have certainly not diminished (as indicated by the shorter tail statistics in 1996), more low bids are now being submitted (as seen in the higher cover figures). These low bids may reflect increased uncertainty over the behaviour of other participants in the auction process: participants bid at what they believe is an appropriate price for the stock, but, in addition, they submit other, low bids that would enable them to acquire more of the stock relatively cheaply if other market-price bids have not been submitted in any volume.

The increase in cover has coincided with the first year of gilt repo trading. The introduction of repo may have attracted more participants to the market in general, and the ability to cover short positions via repo would have facilitated shorting the auction stock (selling the stock to an investor before having secured the stock at auction). The ability to repo out stock in order to finance holdings after the auction may have encouraged some increased activity in auctions, as well as in the secondary market. There was some repo tightness in auction stocks in the days leading up to an auction, although this tended to be pronounced only in the case of short stocks (mirroring the more general pattern in day-to-day repo trading). There were instances both of a relatively high volume of bids after little or no repo tightness (the October long auction) and of disappointing cover after pronounced repo tightness (the December short auction); it is too early to draw any conclusions about connections between repo activity and patterns of auction demand.

Index-linked gilts

Index-linked gilts continued to be issued through the tap mechanism. At the end of 1995 the authorities consulted the market on the merits and practicalities of holding a pilot series of index-linked auctions in 1996/97, but concluded in favour of continuing with tap issuance for the time being. This reflected, in particular, market concerns about the lack of an adequate hedging tool.

An average of £550 million a month of cash sales of index-linked gilts was made during 1996. Sales were bolstered by a number of factors, including the decline and temporary reversal of the 'yield gap' with equities (the excess of dividend yields over real index-linked yields, using a flat inflation assumption) in the first half of the year, and specific investor demand. Among investors, there was anecdotal and some statistical evidence that pension funds were increasing the proportion of indexed gilts in their portfolios; of their £4.5 billion net purchases of gilts in the first nine months of 1996, £3.9 billion, or 85%, were in index-linked, compared with their end-1995 portfolio weighting for indexed gilts of 45%. The announcement that an auction experiment would not be tried in 1996/97, while the target percentage for indexed issuance would be held at 15% of total sales, also helped buoy the price of index-linked gilts.

The announcement in May that the US Treasury was considering issuance of indexed bonds (a description of the planned bonds was published in September) was generally considered to be a helpful development for the UK indexed market, although there was no immediate impact on yields. Details of US issuance were firmed up by the end of 1996, and the first auction was held on 29 January 1997.

Tap packages of indexed gilts issued during 1996 were exhausted (sold out) twice as quickly in 1996 as in 1995, after about five days, down from about ten days, reflecting stronger demand in the sector. This performance may have been helped by the change in the Bank's tapping procedures, with the initial tender held only half an hour after the announcement of the tap (rather than the next day, as in the first half of 1995). The size of indexed tap packages was increased during the first half of the year and the issue on 27 September of a total of £450 million nominal, equating to £725 million at market prices, was the largest package created on a single day since the end of 1993. One of the two stocks issued was exhausted on the same day and the other within two days, indicating substantial capacity on the part of investors to absorb, on occasion, indexed stock in large amounts.

Conventional tap issues

Taps of conventional gilts are undertaken for market management purposes. There were four such taps during 1996, for amounts between £50 million and £250 million (the amounts varying according to market circumstances). The precise circumstances for each of the taps differed, but on two occasions a main indicator of the need for market management was extreme tightness in the repo market. All four taps were exhausted on their day of issue, reflecting the excess demand in the market. The procedure for the issue

Working Group on the gilt market after EMU

This Group was established in September 1996 and comprised experts on gilts and EMU issues, including representatives from investors, the Gilt-Edged Market Makers Association (GEMMA), other relevant industry associations, the Stock Exchange, LIFFE, the Bank of England and HM Treasury.

The Group's objectives were:

(a) to identify the practical issues that will arise for the gilt market following the introduction of the euro, whether or not the United Kingdom enters the single currency area;

(b) to devise and discuss solutions, addressing the issues raised and taking into account measures planned in other European bond markets;

(c) to make recommendations to the competent official and market bodies; and

(d) to bring its conclusions to the notice of practitioners in the gilt market and other sterling markets, participants in other discussions of the implications of the euro for securities and money markets, those involved in other European bond markets, and to the general public.

The Group restricted its attention to the gilt market and did *not* cover, for example, the United Kingdom's foreign currency debt or reserves, or other private sector sterling debt and equity markets. It discussed the harmonisation of government bond market conventions, the redenomination of gilts if the United Kingdom joins EMU, provisions for private investors during the transition phase, when sterling would still be used as a denomination of the euro, government bond derivatives in EMU and the co-ordination of issuance by different public debt issuers in EMU.

The Group published its report on 16 December 1996 as part of the third issue of the Bank's regular 'Practical Issues Arising from the Introduction of the Euro' publication. Its main recommendations were:

If the United Kingdom joins EMU:

- complete and simultaneous redenomination of existing gilts from sterling into euro by law; this should take place early in 1999 if the United Kingdom joins EMU at the outset or as soon as possible after it joins if it participates at a later date;
- any further changes to the terms of gilts should be made separately by a series of conversion offers, which could take place before and after redenomination;
- gilt prices should be quoted in decimals rather than fractions ($^{1}/_{32}$nds are used currently);
- gilts should trade in nominal amounts that are multiples of one cent (this would be consistent with the current position in which gilts can trade in nominal amounts of one penny);
- private investors should not be disadvantaged by the redenomination of gilts; in particular:
    - HM Treasury and the Bank of England should consult further with representatives of the banking system, in order to ensure that personal investors will be able to receive value in sterling units on euro-denominated gilts during the transition period, when most are likely to have sterling-denominated bank accounts; and
    - the Bank of England should account to holders of gilts in both sterling and euro units until the end of the transition period;
- the Bank of England should consult with CGO users on whether all payments should be input to CGO in euro, or to what extent inputs in sterling units would be allowed during the transition period; and
- HM Treasury and the Bank of England should consider with other prospective government issuers of euro-denominated debt how information can be exchanged to minimise the risk of large coincident official debt issues.

Whether the United Kingdom joins EMU or not:

- gilts should continue to have semi-annual coupons;
- the gilt market should retain the daycount convention of actual/365 unless there is a wider initiative for harmonisation in Europe or preferably globally, in which case it should argue for actual/365 or actual/actual;(1) and
- new and existing issues of index-linked gilts should remain linked to the UK retail price index.

If the United Kingdom does not join EMU:

- the Bank of England should consult gilt market participants on the desirability of quoting gilt prices in decimals rather than fractions.

These recommendations were those of the Group and not necessarily the views of the Bank of England, HM Treasury or any of the other bodies represented. The decisions whether and how to carry the recommendations forward now lie with the relevant official and market authorities.

The Bank has now broadened the work of the Group to embrace other financial markets in London. Its remit and composition have been adapted accordingly.

(1) Daycount conventions are used to calculate redemption yields and accrued interest on bonds. For example, the accrued interest payable on a gilt using the 'actual/365' convention would be the coupon, multiplied by the actual number of days since the last dividend date, and divided by 182.5 (half of 365 because dividends on gilts are paid semi-annually). The calculation using the 'actual/actual' convention is the same, except that the denominator used is the actual number of days in the dividend period. Most European government bond markets use a third, less exact convention, which assumes a 360 day year of twelve 30 day months ('30/360') to simplify the calculation.

of 7¾% 2006 in November differed slightly from the usual tap procedures, in that the small amount of stock created was placed in the Shop Window (see below) for sale by tender with no minimum price. The issue was sold at a three tick (3/32nds) premium to the secondary market price.

Secondary market sales

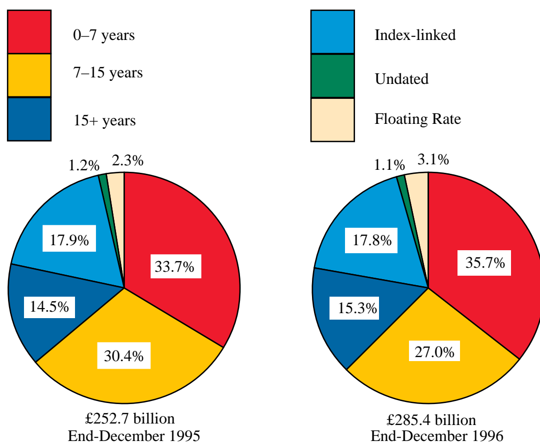
Net secondary market sales constituted just 0.5% of total gilt sales in 1996, consistent with the authorities' policy of concentrating sales in conventional auctions and index-linked tap issues.

The Shop Window, which began operation in July, introduced greater transparency to sales into the secondary market of stocks held in official portfolios. Stocks available for sale (except index-linked gilts) are posted on the Bank's screen pages. Stocks in official portfolios that are not available for sale, for example because they are of similar maturity to stocks recently auctioned, are shown on a separate screen, and are available only for switching. Those conventional stock holdings which are not intended for resale (ie 'rump' stocks of less than £100 million outstanding and bonds near to redemption) are not included in the Window. The Bank's *Operational Notice*, issued in June 1996, set out general guidelines on the operation of the Shop Window, and specified that large holdings of stocks would be available for sale through mini-tenders.

Stock outstanding

Chart 7 shows the breakdown of stock outstanding (in nominal terms, but including the inflation uplift on indexed gilts) as at end-1995 and end-1996. The total amount of gilts outstanding rose from £252.7 billion to £285.4 billion. Most of the rise was in short-dated conventional gilts, reflecting both new issuance (two auctions of medium stocks being scheduled for the fourth quarter of 1996/97) and the aging of the existing portfolio. The proportion of shorts:mediums:longs within conventionals changed from 43:39:18 to 46:35:19. The percentage of indexed gilts in the portfolio was little changed; new issuance was partly offset by the redemption of the 2% 1996 indexed gilt.

Chart 7
Maturity breakdown of stock outstanding(a)



(a) Assuming latest possible redemption date for double-dated stock.

Table D shows the 20 stocks of which there was £5 billion nominal or more outstanding at the end of 1996, and compares with 18 such stocks at end-1995. Large issue stocks tend to trade with greater liquidity in the secondary market. The total nominal outstandings of the 20 largest stocks was £158 billion at end-1996, or 68% of total conventional stock.

Table D
Large-issue stocks at 31 December 1996

Stock	Original issue date	Amount outstanding (£ millions)
8% Treasury Stock 2015 (a)	January 1995	13,787
7% Treasury Stock 2001	July 1993	12,750
7½% Treasury Stock 2006 (a)	September 1995	11,700
8½% Treasury Stock 2005 (a)	September 1994	10,373
8% Treasury Stock 2000 (a)	October 1994	9,800
8% Treasury Stock 2021 (a)	February 1996	9,000
8% Treasury Stock 2003	December 1992	8,600
7¼% Treasury Stock 1998	December 1992	8,150
8¾% Treasury Stock 2017	April 1992	7,550
8½% Treasury Loan 2007	July 1986	7,397
6% Treasury Stock 1999	October 1993	6,950
9¾% Treasury Stock 2002	August 1995	6,527
6¾% Treasury Stock 2004	September 1993	6,500
8% Treasury Stock 2013	April 1993	6,100
Floating Rate Treasury Stock 1999	March 1994	5,700
9% Treasury Loan 2008	February 1987	5,621
8¾% Treasury Loan 1997	October 1969	5,550
9% Treasury Stock 2012	February 1992	5,361
9% Conversion Stock 2000	March 1980	5,358
9% Conversion Loan 2011	July 1987	5,273

(a) Strippable stocks. The coupons on these stocks will be paid gross of withholding tax from June 1997.

Two of the largest stocks—8½% 2005 and 8% 2015—were built up further in size during the year through the two conversion offers mentioned earlier. These were the first such offers since 1991, and were undertaken so as to build up the pool of strippable stocks ahead of the strips market. They involved an invitation to exchange one stock—a relatively small, 'off the run', double-dated issue—for the more liquid strippable issue, in a ratio set by the Bank, taking account of relative market prices. In both cases, more than 90% (by value) of the holders of the stocks accepted the offer, and £2.8 billion was added to the pool of strippable stocks. At end-December the total value of strippable stocks was £57 billion, 25% of total conventional stocks.

In recent years, the Bank has asked CGO members to provide a sectoral breakdown on the beneficial ownership of the gilts in their accounts at the end of the year. The introduction of gilt repo trading necessitated a review of how the survey would be conducted in future. In discussions with a number of CGO members, it was found that many would be unable to tell whether their nominees' account holdings were inflated by stocks reversed in through repo, or deflated by stock repoed out, since they execute trades at their customers' instruction, without necessarily being told the nature of the transaction. They would therefore be unable to identify beneficial holdings accurately. The Bank therefore decided to suspend the survey for twelve months, rather than ask CGO members to

The gilt repo market

The market in sale and repurchase agreements in gilts began in January 1996, when all official impediments to gilt repo were removed; anybody is free to borrow or lend gilts for any purpose and with any counterparty, subject to any relevant regulatory or legal requirements. During its first year, gilt repo developed into the major sterling market in secured money, dwarfing volumes in some more traditional instruments. The gilt repo market developed in an orderly way, and generally high standards of conduct have been maintained. A number of features characterise the gilt repo market.

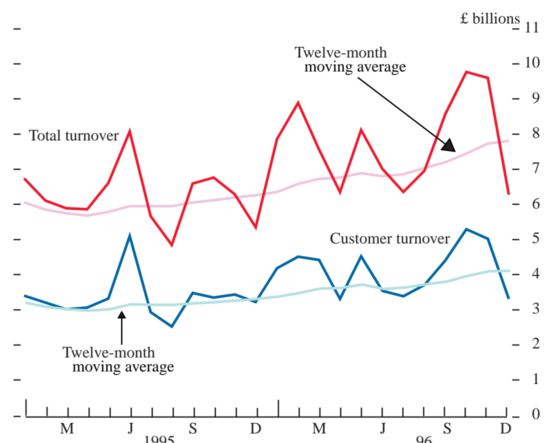
- Use of the standardised documentation, comprising the PSA/ISMA Global Master Repurchase Agreement with an annex specifically covering gilts, is almost universal, underpinning the safety of the market.
- Observance of the Gilt Repo Code of Best Practice, its principles and conventions, has been widespread, helping to establish good practice as the norm in the market.
- In accordance with the Code, many participants routinely call for margin when market price movements leave them with a material exposure, thus restoring the value of their own security and contributing to the security of the market as a whole.
- Along with the development of gilt repo, the stock borrowing and lending of gilts has also flourished, and many players successfully intermediate between different market participants to integrate these two closely related markets.
- Participation in the market is gradually extending from the core players of discount houses, other banks, and international investment banks, to the building societies, institutional investors, overseas funds, and some corporates.
- Settlement has normally been smooth, and failures to deliver have been relatively rare. Market participants can agree to accept partial deliveries of trades, rather than force a fail, and the Code of Best Practice recommends that participants sub-divide larger trades into smaller sizes, to minimise the incidence of fails.
- A substantial market has developed in general collateral (GC) gilt repo, used for borrowing and placing money against miscellaneous gilts as collateral, for example to finance portfolios of gilts. The market is already liquid at the short end of the maturity range, and liquidity is gradually extending outwards to maturities of several months.
- The volume of GC business tends to fluctuate with interest rate expectations, as repos can be used to take a position on the future level of short-term interest rates.
- An active market has also developed in 'specials', where a specific gilt is 'reversed in' (borrowed) in order to cover a short position. When the specific gilt required is hard to borrow, its repo rate (in effect, the cost of borrowing it) adjusts to reflect its scarcity, allowing the price mechanism to equate demand and supply in the market.
- Special rates increase the returns to an investor of lending their stock via repo, without (normally) making it uneconomic for the borrower to cover its short position in that stock.
- The Bank monitors repo rates and other market developments from its dealing room, and maintains regular contact with key repo market players.
- The Bank's proposals to conduct daily money-market operations in gilt repo are widely expected to accelerate the growth in and development of the gilt repo market.

provide potentially flawed information on beneficial holdings that could be misleading.

Turnover in the gilt market

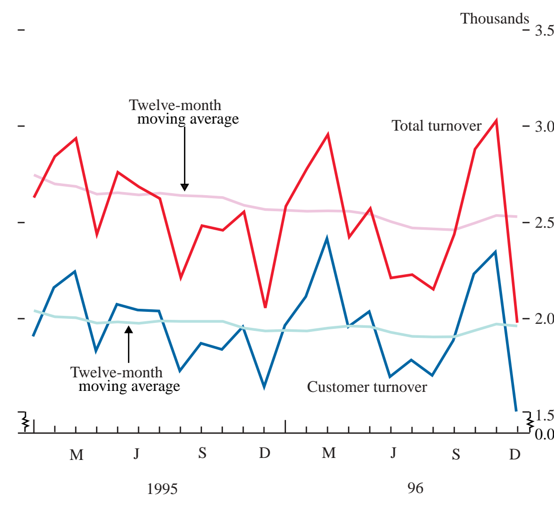
Turnover by value of gilts (excluding repos) on the London Stock Exchange was on a rising trend in 1996 (see Charts 8 and 9); average total daily turnover was £7.8 billion in 1996 compared with £6.3 billion in 1995, with the increase roughly equally divided between customer trades and market principal trades. The annual increase in turnover value, of nearly 26%, was double the increase in the value of gilts outstanding during the year. The peaks in activity occurred in February, October and November; periods when the market fell and volatility rose. The number of bargains was little changed in 1996 from 1995, continuing the trend towards a larger average

Chart 8
Average daily gilt turnover: by value



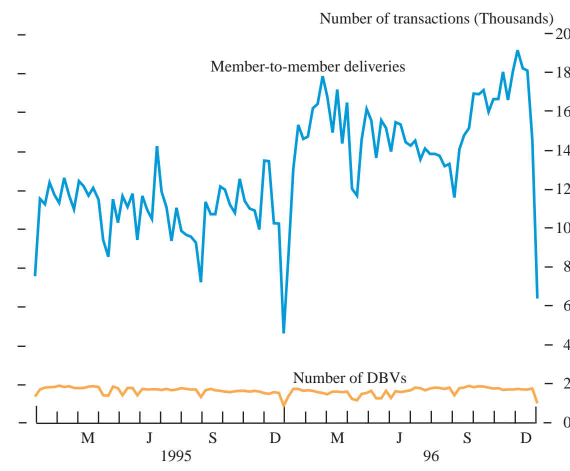
customer bargain size—£2.1 million compared with £1.7 million in 1995.

Chart 9
Average daily turnover: bargains



Data on work volumes (the number, not the value, of transactions) in the Central Gilts Office are shown in Chart 10. The number of member-to-member deliveries (transfers of specific stocks) increased sharply in 1996, to an average of around 15,000 per week compared with 11,000 in 1995. The number of weekly transactions in delivery-by-value trades (overnight transfers of unspecified gilts to a specified value, often used as general collateral in repo trades or as collateral against loans of specific stock) remained at roughly 1,700 per week, virtually unchanged from 1995. This probably reflects an increase in transaction

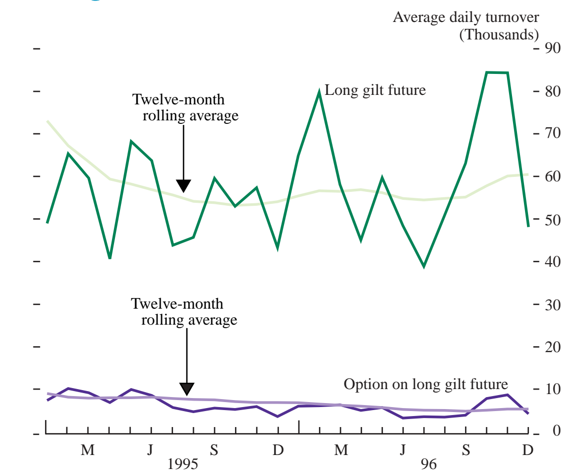
Chart 10
CGO weekly transaction numbers



sizes, as well as some disintermediation of transactions previously intermediated by Stock Exchange money brokers, now that some stock lending and repo is undertaken without an intermediary. An intermediated transaction involves two transfers—one to and one from the intermediary—so disintermediation *halves* the apparent volumes (while the underlying business remains the same).

Turnover in long gilt futures on the London International Financial Futures and Options Exchange (LIFFE) was higher in 1996, at an average of 60,000 contracts per day compared with 54,000 in 1995 (see Chart 11). In a similar pattern to cash market activity, volumes were highest in February, October and November, months when the market fell sharply. Options turnover continued to decline; at an average of 5,000 contracts per day, volumes were down 23% on 1995. It is possible that the introduction of generalised gilt repo trading in 1996 reduced the attractions of using options to create synthetic short positions.

Chart 11
LIFFE gilt derivatives: number of contracts



GEMMs' financial performance

After returning to profit in 1995, the GEMMs made operating profits of approximately £11 million for the year as a whole. As in previous years, performance in 1996 varied markedly between individual GEMMs. The GEMMs were less successful in the first quarter of 1996, with only a third of market-makers returning a profit between January and March. More favourable market conditions in the rest of 1996 helped GEMMs to make a profit in every other quarter (with the highest profits occurring in the third quarter).

Figures for GEMMs' profitability exclude income from gilt-related business booked outside the GEMM, which can be significant. Throughout 1996, there was an increase in the amount of related business (such as hedging and arbitrage trading) booked elsewhere in the groups of which the GEMMs are a part, partly reflecting the introduction of gilt repo. So Table E does not fully reflect the profitability of gilt market activity.

Two GEMMs left the market during 1996, leaving a total of 18 at the end of the year. Retained profits of £11 million were more than offset by net capital withdrawals of £246 million, resulting in an overall fall in the amount of capital dedicated to gilt market-making from £807 million at the end of 1995 to £572 million at the end of 1996. Much of the fall in capital can be attributed to the lower capital requirements of the Capital Adequacy Directive (CAD) regime for GEMMs, which replaced the 'Blue Paper' regime at the start of the year and which allows a greater

Table E
Capitalisation of gilt-edged market-makers

£ millions

	Oct. 86–end-1990	1991	1992	1993	1994	1995 (a)	1996 (a)
GEMMs' capital at beginning of period (b)	595	395	432	511	734	812	807
Net injections or withdrawals of capital	-38	-12	15	164	138	-30	-246
Operating profits (+)/ losses (-) (c)	-162	49	64	59	-60	25	11
GEMMs' capital at end of period	395	432	511	734	812	807	572

(a) Data for 1995 are amended and data for 1996 are provisional.
(b) Oct. 1996 to start-1996 capital base as set out in the Bank of England's 'Blue Paper' ('The future structure of the gilt-edged market') published by the Bank in 1985 and reprinted in the June 1985 *Quarterly Bulletin*, pages 250–87. End-1996 capital base as set out in the Bank of England's 'Blue Folder' ('Supervisory arrangements for core participants in the gilt-edged & money markets') published by the Bank in May 1996.
(c) Net profits/losses after overheads and tax.

recognition of offsetting positions than did the previous regime.

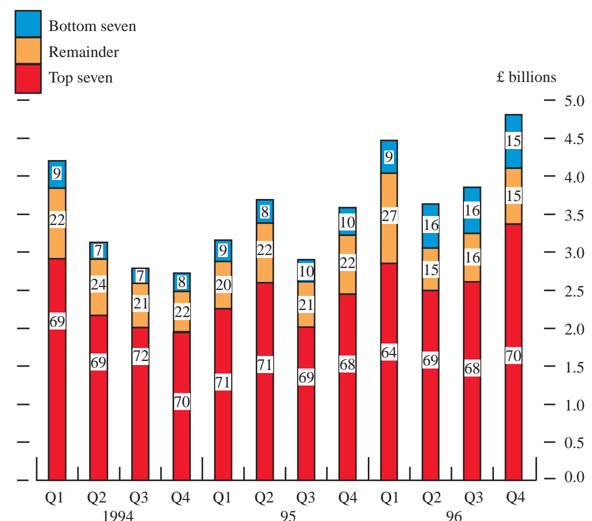
Approximately £32 billion of business in index-linked gilts was transacted by the GEMMs in 1996. Although the volume of business barely changed from the previous year, the number of players with more than 5% of index-linked business fell, from eight to seven. This was reflected in an increase in the combined market share of the most active five GEMMs in the index-linked business from 76% in 1995 to 79% in 1996.

Chart 12 shows GEMMs' retail trade with clients and agency brokers.[1] The total share of the most active seven firms fell from 70% in 1995 to 68% in 1996. Combined with the departure of two of the smaller GEMMs, this led to a more even distribution of overall business among the market-makers, in contrast to the position for indexed gilts alone. The composition of the most active seven firms remained unaltered for the second year running, and the same three GEMMs held the top three slots.

Separate capitalisation

The Bank proposed in its December consultative paper on money-market reform[2] to remove the requirement for

Chart 12
Distribution of GEMMs' retail turnover[(a)]



(a) Figures shown in the columns are the percentage market shares of each group of GEMMs.

GEMMs to be separately capitalised. This proposal reflects the changing structure of the sterling markets and the fact that the Bank's counterparties in the money markets will no longer need to be specialist entities. It will allow GEMMs to locate their gilt and other sterling business wherever it best fits into the group structure. Where they are part of a larger financial grouping, the Bank's counterparties in the gilt market will no longer need to be separately incorporated subsidiaries of that group.

The removal of separate capitalisation will enable GEMMs to assimilate their businesses into group-wide securities trading operations. The regulatory capital requirements for the combined entity should be less than that for the sum of each separate firm, due to hedging opportunities and the potential to offset positions between each part of the group. It will also be possible for GEMMs to integrate their systems, management, and controls structure more fully with those of the rest of the group.

(1) This measure of 'retail' does not include trade with inter-dealer brokers, direct trades with other GEMMs or trades with the Bank. In order to offer a better comparison between companies engaged in very similar business activities, the data exclude small-deal specialists, which conduct a large number of relatively low-value trades, mainly with personal investors.
(2) 'The Bank of England's operations in the sterling money markets', issued on 4 December 1996.