
The first year of the gilt repo market

The gilt repo market began in January 1996, and in March 1997 the Bank started conducting daily money-market operations in gilt repo. This article reviews the growth and structure of the market, looks at the uses of gilt repo that have contributed to this growth, and describes its impact on the gilt market and the sterling money markets in terms of greater liquidity, lower financing costs, improved hedging opportunities, and the development of a liquid market in secured money.

Background

'Repo' is short for 'sale and repurchase agreement', where one party agrees to sell bonds or other financial instruments to another party, with an agreement to repurchase equivalent securities in the future, under a formal legal agreement. Repo transactions have been increasingly used in domestic and international securities markets since the early 1990s; analysis and market comment suggested that gilt repo could contribute to the liquidity and efficiency of the gilt market, providing trading opportunities familiar to those active in other markets. The Bank recognised the possible benefits, but was concerned to avoid the disruption seen in other markets caused by malpractice such as failing to take account of accrued interest when valuing stock (for example, the case of Drysdale Securities in the United States). However, in the Bank's judgment, these difficulties could be addressed by using standardised, sound legal documentation covering the rights and obligations of both counterparties, and by developing market practices designed to reduce risk. Against this background, and with agreement reached in principle on possible tax reform that would be necessary to facilitate it, the Bank published a consultative paper on gilt repo in November 1994; shortly afterwards, the Inland Revenue published options for the necessary tax reforms.

Until 1996 there had been long-standing arrangements in the gilt market for stock borrowing and lending to help facilitate the gilt-edged market makers' (GEMMs') performance of their market-making obligations, in the course of which a GEMM might be required to sell a stock it did not hold. GEMMs were the key intermediaries allowed to borrow stock for the purpose of covering a short position (ie temporarily acquiring a gilt in order to fulfil a contract to sell the gilt to a counterparty); stock could be borrowed only through the intermediation of the Stock Exchange money brokers (SEMBS); and only from lenders approved by the Inland Revenue (typically longer-term investing institutions, although it was also open to GEMMs and other wholesale market players to lend stock). Gilt loans were usually made against collateral such as other gilts or certificates of deposit (CDs), as well as against cash.

In addition to facilitating trading in gilt repo, the 1996 reforms liberalised gilt stock lending by removing the restrictions on who could borrow and lend stock, on the requirement that such deals be intermediated and on the purpose for which the deals could be done. The authorities sought to ensure that there would be a 'level playing field' between the two types of transaction.

During 1995, the necessary tax changes were agreed, and the Stock Exchange rules were amended to allow anyone to repo, lend or borrow stock, with any counterparty, for any purpose. The Bank worked closely with the relevant authorities to secure these changes. Market practitioners and regulators, working with the Bank, drew up recommended market practices (set out in the Gilt Repo Code of Best Practice), a legal agreement recommended by the Code, and settlement conventions. The recommended legal agreement comprised the PSA/ISMA Global Master Repurchase Agreement⁽¹⁾ with an annex covering special features of gilts, including the widely used delivery-by-value (DBV) facility in the Central Gilts Office settlement service. Several aspects originally covered in the annex, such as repo transactions through an agent, were subsequently incorporated into the updated PSA/ISMA Agreement (issued in November 1995). The Code, legal agreement and a report on settlement were issued in November 1995,⁽²⁾ ahead of the start of the market in January 1996. At the same time, work on the gilt-edged stock lending agreement (GESLA) sought to ensure that the two agreements dovetailed, to facilitate netting across the two transaction types. The revised GESLA was issued in December 1995.

Uses and types of repo

GC and specials

Gilt repo has several different uses. A gilt repo is in effect a simultaneous transaction in securities and secured money, and as such may be used for a variety of purposes. As a form of secured money, in which transferred gilts function as collateral, it may constitute both a secure means of placing cash and a competitive means of financing holdings of gilts. Placing and receiving funds against gilts where the

(1) The Agreement drawn up by the Public Securities Association of the United States and the International Securities Market Association, based in Europe.

(2) Copies of these papers are available from The Secretariat, Gilt-Edged and Money Markets Division, Bank of England, Threadneedle Street, London, EC2R 8AH.

gilts to be received as collateral are not specified is known as 'general collateral', or GC repo. Alternatively, a market participant may require a particular gilt, for example to cover a short position taken on as a proprietary position or in the course of market making; a holder of that stock may add to his return on it by repoing it out. Such a transaction is called a 'specific' repo, and the repo rate of interest on the transaction will normally reflect the relative scarcity of the stock in the stock lending and repo market. Typically, the specific repo rate for stocks that are widely available has been around 5 to 10 basis points below the GC rate. The difference would allow the holder of a stock required by a borrower, *inter alia*, to place the cash at GC and earn a modest profit. Where a stock is particularly difficult to obtain, and its repo rate diverges from the prevailing GC rate by more than about 5 to 10 basis points, it is said by the market to be '*trading special*'. The special value of a stock in the repo market is expressed in basis points below or 'through' the GC rate, reflecting the profit which the repoer of a special stock can prospectively make by investing the cash received in a GC transaction.

GC and special repos can both be used to raise cash, for example to manage a temporary cash flow shortfall, or to undertake a financial investment. A common use of gilt repo is to finance long positions in gilts; by undertaking a stock purchase and at the same time repoing out that stock (frequently repoing it back to the vendor), an investor can simultaneously take on *and* finance a long position in the market, thus using repo to 'leverage up' its book, using a very small initial outlay to make a much larger investment. Table A gives one example of this type of transaction. This

is commonly done by investors seeking exposure to the market, or to a particular segment of the market, with minimal financing costs. Securities houses are active users of repo to finance long positions for their own book and for clients.

Matched books

Principals and principal intermediaries with large volumes of both repos and reverse repos are said to be running '*matched books*'. These matched books may comprise repos and reverse repos of broadly matched maturities, with their profit coming from the small margin between the rate at which they transact in the professional market and the rate they pay to, or charge, their clients. Alternatively, these books can be a way for firms to mismatch maturities and so take a proprietary view (for their own account) of prospective interest rates. Firms may also choose to arbitrage between secured and unsecured money, depending on their credit standing and the spreads between repo and unsecured rates.

A variation on these approaches is *collateral switching*. For example, a firm may borrow a stock from a stock lender against collateral composed of CDs. The stock is then repoed into the market and the cash raised is used for an investment (for example, to pay for the CDs transferred as collateral in the stock loan). The principal intermediary earns the interest on the CDs, minus the fee paid on the stock loan and the repo interest. So, provided there is sufficient spread between the interest received on the CDs and paid on the gilt repo, the principal intermediary can cover its direct and indirect costs associated with the

Table A
Example of a repo financing trade

Position of Party A	Transaction flow	Position of Party B
Party A contracts to buy £100 million of gilts from Party B.	A owes B £100 million. B owes A gilts.	Party B contracts to sell £100 million of gilts to Party A.
Party A contracts to repo the £100 million of gilts to Party B to finance its purchase.	A owes B gilts. B owes A £100 million.	Party B contracts to buy the gilts from Party A.
	The two transactions net out, so no actual transfer need be made across the CGO.	
Party A has locked into a secured financing rate for a term of its choosing, to facilitate its exposure to the cash gilt market.		At the termination of the repo financing trade, Party B is to re-sell to Party A gilts bought in the (reverse) repo at the pre-agreed price.
	When the second leg of the repo is completed, the transactions can be reversed; there is still no requirement for a transfer across CGO.	

transaction and also earn a profit. In effect, it has used gilt repo to finance an investment in CDs. This may be profitable partly because the intermediary may be better placed than end-users of the market to identify particular stocks that are in tight supply and so are likely to command a 'special' repo premium greater than the stock lending fee. The intermediary may also take on a yield curve exposure, if the CDs are of greater maturity than the repos. The service provided to the market by the intermediary enables the stock lender to earn additional returns on its portfolio while using the stock lending form of transaction that it may prefer, and to provide either specific stocks or general collateral to repo market players, so contributing to gilt market liquidity.

Gilt repo activity and the yield curve

It was noted above that the maturities of the repo and reverse repo sides of a matched book may be mismatched, allowing market participants to take positions on the evolution of the short end of the yield curve. It has been found so far that in practice gilt repo trading has been more active when the yield curve is upward sloping, with overnight GC trading at lower rates than those for one or two weeks or a month. This has allowed an intermediary to enjoy positive cash flow by borrowing funds overnight on repo, rolling the transactions over, and lending the funds for a week or longer. In so doing, the 'mismatched' intermediary is exposed to unexpected movements in overnight rates during the period for which the position is taken.

If period rates in the money markets were determined only as the average of expected overnight rates, such position-taking would not be expected to be profitable in the long run. There may be several reasons why in practice such position-taking may be profitable in the short to medium term. Most importantly, there may be institutions placing funds in the market that are unwilling or unable to tie up their funds longer than overnight: they may face internal or external restrictions; they may be uncertain about their future cash flows and hence place a premium on retaining liquidity; or they may anticipate a near-term cash outflow. Intermediaries, who in effect charge to provide liquidity services, may be able to profit by bidding down the rates that they are prepared to pay for overnight funds, which they then place for longer periods. Other borrowers of funds may not take advantage of the relatively cheap overnight funding because of transaction costs, imperfect knowledge of the market, or structural reasons such as, for example, the liquidity guidelines under which banks operate. It is also possible, in the short period in which there has been active gilt repo trading, that periods when the yield curve has sloped upwards have coincided with times of greater uncertainty and divergence of views among market participants about prospective interest rate changes (though this need not always be the case). Gilt repo provides a liquid and secure means in which participants can trade on the basis of their different views.

Hedging through repo

Hedging positions in other markets is one of the main motives for some participants' involvement in gilt repo. This has been particularly evident in the sterling bond market, where underwriters have benefited from the ability to hedge the interest rate risk on their (long) underwriting positions by taking an offsetting short position in a gilt (ie selling a gilt they do not own), and using (reverse) repo temporarily to cover their short position to enable them to deliver the gilt. Gilt repo has enabled underwriters to short the exact gilt against which the bond they are underwriting is to be priced, improving the quality of their interest rate hedge. Previously they may have used less exact hedges, such as the long gilt future.

Other uses of gilt repo include arbitrage against the long gilt futures contract on the London International Financial Futures and Options Exchange (LIFFE). A formal basis trading facility has been available on LIFFE since October 1996. Basis trading arises from the difference between the current clean price of a stock (the price excluding accrued interest) and the clean price at which the stock is bought through the purchase of a futures contract. The difference between these two prices is known as the gross basis. Though much of the gross basis can be explained by the difference between the running yield on the gilt and the current repo rate, a residual amount, known as the net basis, is due to unquantifiables such as the delivery option implicit in the design of the futures contract. Traders take positions on the prospective size of the net basis. There has been active trading, at times, of the spread between swaps rates and gilt yields (mostly of three to seven years' maturity) and between unsecured short-term interbank rates and the repo rate on which traders take a position when they believe that the prevailing spreads are unsustainable.

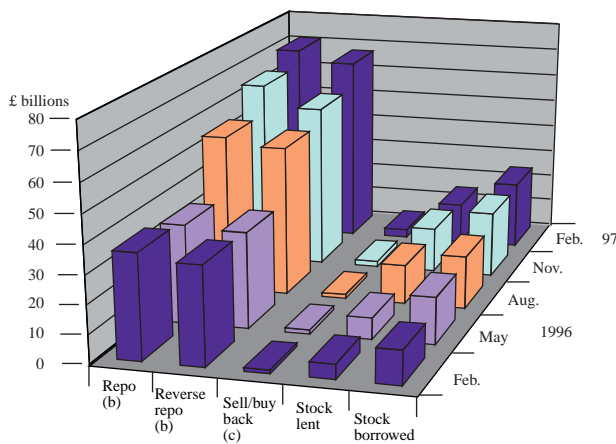
The growth of the market

Based on the figures collected by the Bank,⁽¹⁾ the gilt repo and stock lending market grew in its first two months to nearly £50 billion of repos and stock lending outstanding, of which some £35 billion was in repos. Stock lending activity, which was liberalised at the same time as gilt repo, continued at levels comparable to those prevailing in 1995 (around £14 billion outstanding). After a period of consolidation in the spring, the market resumed its growth over the summer and autumn, rising to reported outstandings of nearly £85 billion in November 1996. Further growth took the market to nearly £95 billion in February 1997, of which over £70 billion was in repos (see Chart 1).

Between November 1996 and February 1997 the growth in repo activity moderated. Within this period, activity fell in December, according to the monthly data reported by banks for compilation of the monetary aggregates (see the box on

(1) The Bank collects quarterly data on a voluntary basis from market participants, including banks, securities firms, insurance companies, etc. Although the data are broadly based, they cannot capture the full extent of the market; only one side of any transaction with a non-reporter will be captured, while a transaction between two non-reporters will not be captured at all. Non-financial firms and firms based overseas are least likely to report data to the Bank. The data in this article supersede those published in the April edition of *Bank of England: Monetary and Financial Statistics*; the updated data will be included in the May edition.

Chart 1
Repo market outstandings^(a)



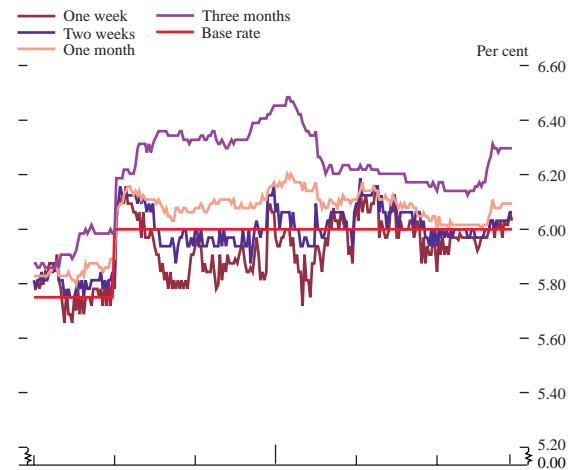
- (a) Data reported to the Bank by a large subset of the market under the voluntary quarterly reporting arrangements. Data show transactions entered into for which the second leg has not been settled.
- (b) Sell/buy back and buy/sell back transactions conducted under an annex to the Gilt Repo Legal Agreement are reported under repos and reverse repos respectively.
- (c) The reported levels of sell/buy backs and buy/sell backs are very similar.

page 193). It is thought that a number of banks and their customers, such as securities houses, sought to reduce their balance sheet size at end-December, to avoid adverse assessment by influential market analysts and credit rating agencies, some of whom apparently use simple measures of performance, such as return on balance-sheet assets, rather than looking at risk-adjusted capital usage and returns. It is also possible that market participants avoided taking on large repo positions to avoid the risk of having to close out or cover a position in thin trading over the holiday period, when the market would be less liquid. By the end of February, repo and reverse repo outstandings reported under the voluntary quarterly arrangements had risen above their November 1996 levels, with no significant change in the reporting population, although repo outstandings reported in the monetary data remained lower than in November, perhaps partly because of the increased use of netting of their reported positions by banks. As discussed above, the growth in activity to end-November, and possibly also in February, may have been linked to the steepening of the yield curve (see Chart 2).

Figures from the Central Gilt Office (CGO), the settlement service run by the Bank, appear to support the broad story of the growth of the repo market (Chart 3). CGO data cannot distinguish repos from outright sales or purchases. But the number of transactions being settled in CGO increased sharply between 1995 and 1996 before levelling off somewhat. That the increase was not greater probably reflects the fact that repos used as financing trades need not involve any transfers across the settlement system, since a firm purchasing stock and simultaneously repoing it back to the seller in order to finance its purchase would have made two simultaneous transactions, a purchase and a sale (with a commitment to a later repurchase), which would net out, with neither being entered as a transfer through the CGO system (see Table A).

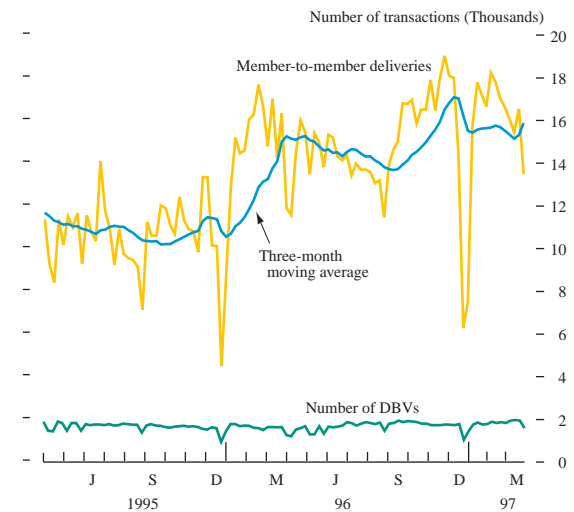
Data collected on turnover in the gilt repo market suggest that average daily turnover in gilt repo is at least £20 billion.

Chart 2
Unsecured interbank rates: since 1 October 1996^(a)



- (a) Mid-morning and late afternoon observations for each day.

Chart 3
CGO weekly volumes



During the quarter to end-February, reported turnover was slightly below that reported for the previous quarter, probably mainly because of the downturn in repo activity around the end of the calendar year.

Gilt repo and other sterling money markets

The gilt repo market has developed alongside growth in the existing, unsecured money markets (see Table B). In just over a year, there is said to have been a substantial shift in the trading patterns of the short-term money markets from unsecured to secured money; market participants estimate that gilt repo now accounts for fully *half* of all overnight transactions in the sterling money markets. Financing of long positions by securities firms and other financial institutions is believed to account for a large part of this overnight repo. At times, the GC rate has traded *above* the overnight interbank rate at the end of the day, even though repo transactions are secured. This may be because firms borrowing through repo may have limited access to unsecured (and cheaper) finance, and because the repo market is less liquid late in the day.

Table B
Sizes of sterling markets^(a)

£ billions

	CP ^(b)	Treasury bills	Commercial bills	CDs	Interbank ^(c)	Gilt repo	Gilt stock lending
1995 Dec.	6	16	17	61	114	0	14
1996 Feb.	7	11	20	69	118	37	12
May	8	11	19	70	122	35	16
Aug.	8	8	18	74	128	55	19
Nov.	7	4	20	81	132	65	23
1997 Feb.	8	3	20	86	129	71	21

(a) Outstanding amounts at the end of each period. Data are collected by the Bank for market monitoring and for the compilation of the monetary aggregates.
 (b) Commercial paper.
 (c) Interbank data exclude interbank gilt repo business.

The CD market has grown substantially, partly because the growth of the gilt repo and stock lending market has contributed to demand for CDs for use as collateral in stock loans. A further reason for the increase in CD issuance is the response of the major UK banks to new supervisory guidelines on liquidity management, which focus on the liquid assets available to a bank to cover the possible withdrawal of deposits that could occur over a period of days in the event of an institution-specific disruption in the market. One way for banks to reduce their potential short-term outflow is to raise more longer-term funding through period CDs.

The volume of Treasury bills outstanding has fallen since late 1995. Treasury bill issuance through the weekly tender varies depending principally on the official forecast of the autonomous influences on the prospective money-market position over the period ahead.

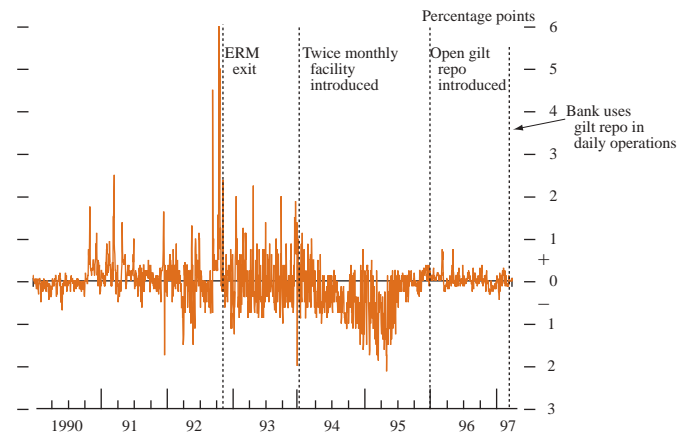
One potential effect of gilt repo on the money market is its possible association with a reduction in the volatility of overnight *unsecured* interest rates (see Chart 4), although it is too early for this evidence to be conclusive. One possible explanation for the sustained reduction in volatility is that repo has provided an alternative funding mechanism to many market players, which may have reduced pressure on the unsecured market in overnight funds and enhanced the ability of financial intermediaries to distribute liquidity.

Having monitored the steady growth in the scale and depth of the gilt repo market, the Bank issued a consultative paper in December 1996 on reforms to its money-market operations to include daily operations in gilt repo and to extend its range of counterparties. The new arrangements were introduced from the beginning of March 1997.⁽¹⁾ The Bank will study the impact of these new operations.

Impact on the gilt market

The main objective of introducing a gilt repo market was to enhance the liquidity of the gilt market and hence the attractiveness of gilts. There is evidence that market liquidity has improved, with firms able to transact larger deals than previously without moving market rates or spreads against them, and anecdotal evidence suggests that interest in gilts has broadened.

Chart 4
Overnight Libor less base rate^(a)



(a) Overnight London interbank offered rate (Libor) taken at 8.30 am.

Turnover data reported to the London Stock Exchange (LSE), which do not include gilt repo trades, show the increase in turnover in the cash gilt market (see Charts 5 and 6). Average daily turnover by value on the LSE grew by 17% in the year to March 1997, compared with the 12%

Chart 5
Average daily turnover: values

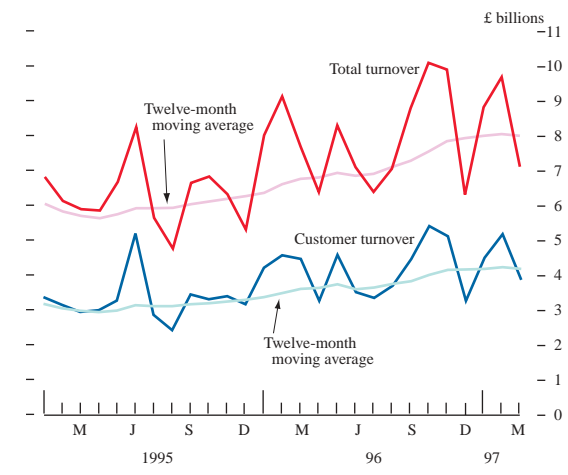
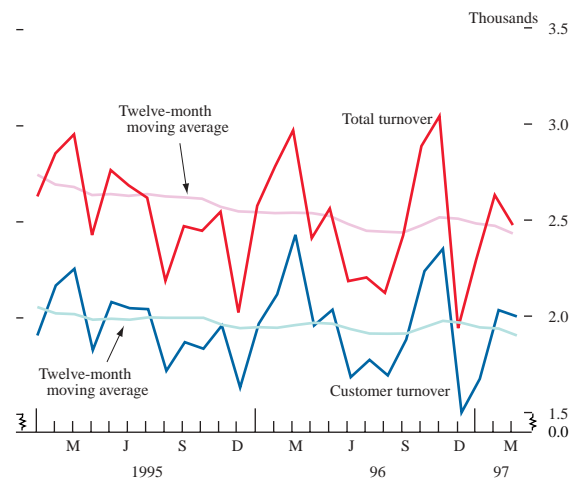


Chart 6
Average daily turnover: bargains

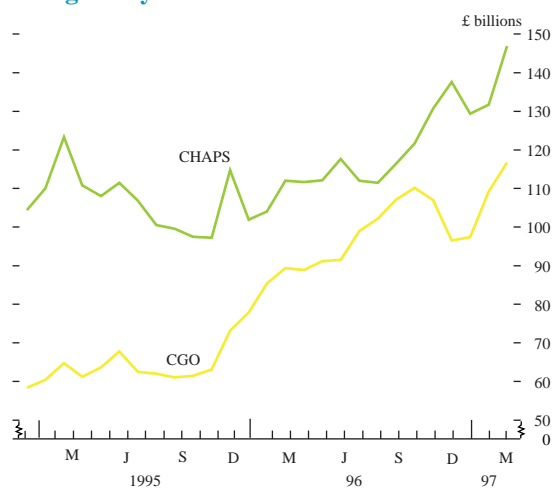


(1) The article on pages 204–7 explains the reforms.

increase in the value of gilts outstanding over that period. At the same time, the average size of customer transaction (including retail trades) increased from £1.8 million in 1995/96 to £2.2 million in the year to March 1997. In the wholesale market, gilt trades of between £50 million and £100 million are now common, with trades of up to £200 million not unknown. Large investors are thus better able to effect large trades when making strategic portfolio changes. Market participants see gilt repo as an important factor in encouraging and facilitating these developments.

Reports of larger transaction sizes and improved liquidity in the gilt market are also supported by data from the settlement systems. The gross *value* of trades through CGO settled by the settlement banks on behalf of their customers (measuring one side only of the cash transfer) increased sharply during 1996 to approach the levels transferred through the Clearing House Automated Payment System (CHAPS), used for same-day transfer of funds (see Chart 7). This increase, compared with the levelling-off in the number of transfers through CGO, reflects the increasing transaction size in both gilt outright and gilt repo transactions.

Chart 7
Average daily settlement values

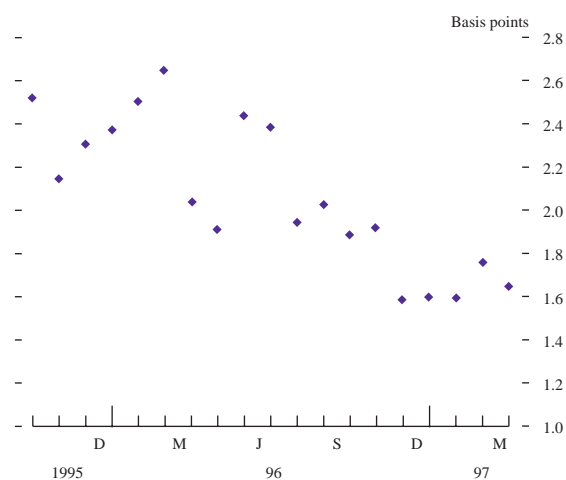


Gilt repo has also contributed to improvements in the gilt-edged market-making function. The possibility of undertaking gilt repo with any counterparty has enhanced the ability of GEMMs to make markets in gilts, by improving their access to stock to cover short positions and lessening the cost of so doing, and by reducing the cost of financing their long positions, from above Libor to Libid minus a margin. These improvements underpin the role of the GEMMs and the service they provide to the gilt market. The average cost of borrowing stock has also fallen. These lower financing and borrowing costs are also available to other market participants, although all repo and stock lending market participants can face temporarily higher costs if a stock trades at very special rates, which will also influence its price in the cash market.

One likely consequence of an improvement in gilt market participation and liquidity is more effective arbitrage

activity, and it was expected that the changes in 1996 might contribute to this by extending to the whole market the ability to take short positions in gilts, although other developments, such as tax reforms, would also contribute. One indication that gilts are now less likely to trade at anomalous prices is the modest decline in the average absolute divergence (over five days) of stocks from the yield curve estimated by the Bank (see Chart 8). The chart is generated by taking the absolute value of the observed yield of each gilt minus the fitted yield, and averaging all observations in a five-day period in the early part of each month (to avoid auctions).

Chart 8
Divergences of gilt yields from fitted yield curves^(a)



(a) Stocks with less than one year remaining to maturity are excluded because of the difficulty of fitting an accurate yield curve.

Market structure

The UK market comprises both gilt repo and gilt stock lending. Although there are institutions that undertake only one type of activity, many trade actively in both areas. For example, an institution that is short of a particular gilt may cover its short position (which could result from either an outright sale or a repo) in either the gilt repo or the gilt stock lending market. Given the level playing field between gilt repo and gilt stock lending, all market participants are free to choose whichever transaction type best suits their business. Some institutions prefer to use repo because they feel that the special value of tight stock is more rapidly and more accurately reflected in the repo than the stock lending market. Others prefer to use stock lending because their existing systems and control procedures can more readily accommodate stock lending than repo. For example, they may have no cash reinvestment capability nor experience of managing interest rate risk and may therefore prefer to receive collateral against a stock loan for a fee, rather than interest-bearing cash against a repo. They may also believe that for their own business the overhead costs of setting up and maintaining a repo capability are not justified.

The institutions incorporating the activities of the former SEMBs are among the main institutions active in both repo

The impact of the gilt repo market on the monetary statistics

The introduction of the gilt repo market has made it more difficult to analyse the monetary statistics over the past year (see, for example, the Bank's May 1996 *Inflation Report*, page 11). The aggregate data, as well as those for the other financial institutions (OFIs) sector were affected, but there was no effect on the data for the personal sector or industrial and commercial companies, because they were not active in the new market. In the *Inflation Report*, analysis of the inflationary implications of the M4 data has, in part, focused on the sectoral behaviour of broad money. Nevertheless, it is helpful to examine the effect of gilt repo on the aggregate M4 statistics and the OFIs' sector. Table A compares the quarterly flows of aggregate—and OFIs'—M4 and M4 lending with the flows in gilt repo and reverse repo. This shows the large initial effect of the gilt repo market on the M4 statistics.

Table A
Contribution of gilt repo and gilt reverse repo to M4 and M4 lending flows^(a)

£ millions, quarterly flows

	1995	1996				1997
	Q4	Q1	Q2	Q3	Q4	Q1
M4	14,492	16,677	13,095	16,430	13,005	28,558
OFIs' M4	4,385	8,719	4,424	9,013	2,826	15,686
Gilt repo		9,650	-1,489	193	1,142	826
M4 lending (b)	15,247	20,151	15,974	15,277	10,858	25,430
OFIs' M4 lending	3,489	7,265	3,427	4,139	-818	16,328
Gilt reverse repo		10,519	1,181	1,023	-3,482	4,823

(a) The aggregate M4 and OFI data shown here are seasonally adjusted.

(b) Excluding securitisations.

Institutions have taken advantage of repo as a new and cheaper means of generating liquidity and this has led to a *structural* increase in the volume of OFIs' deposits and loans. These institutions also *substituted* gilt repo and reverse repos for other M4 deposits and loans. It has been difficult to disentangle the structural increase in aggregate and OFIs' M4 and M4 lending from the substitution effects, as it is impossible to know what would have happened in the absence of gilt repo.

The Bank's estimate is that in 1996 Q1 around £6 billion of the increase in M4 and M4 lending reflected a structural increase in OFIs' deposits and loans (twelve-month growth rates of M4 and M4 lending excluding this structural effect, and seasonally adjusted, are shown in Charts 1 and 2). Between 1996 Q1 and the end of the year, the gilt repo market continued to grow and gilt repo business replaced, or added to, other forms of wholesale funding. This increased demand for gilt repos appeared to reflect banks' increased need for wholesale funds to finance higher demand for loans. In December 1996 there was a sharp fall in gilt repo activity but this was mainly attributed to end-of-year balance sheet effects. This effect has largely unwound since then.

Chart 1
M4 including and excluding the structural effects of the gilt repo market

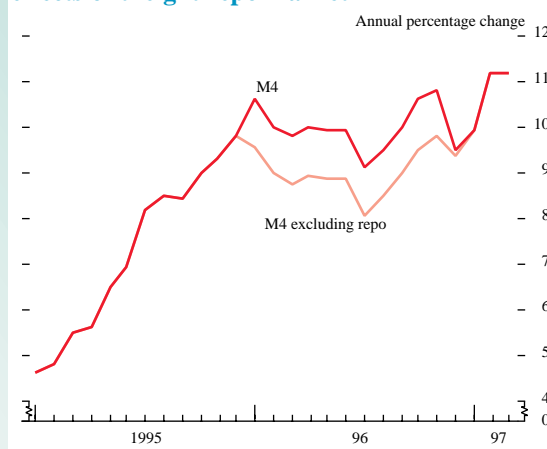
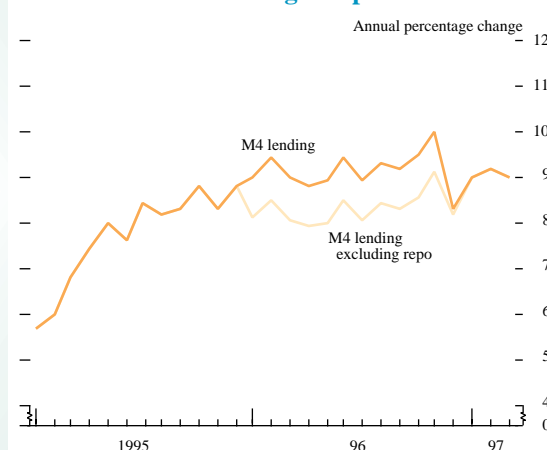


Chart 2
M4 lending including and excluding the structural effects of the gilt repo market



There do not appear to have been any further sizable structural increases in gilt repo activity affecting M4. Instead, institutions appear to have substituted readily between gilt repo and other forms of wholesale funding. For example, in some months when gilt repo activity has been relatively low it appears to have been replaced by CDs and as a result M4 growth rates have remained high. This suggests that banks have acted as liability managers, raising wholesale funds as cheaply as possible to finance their desired level of lending.

In January 1997 the arithmetic effect of the structural increase in gilt repo dropped out of the calculation for the twelve-month growth rates for M4 and M4 lending. Since then the monetary statistics have been relatively free of the distortions associated with the introduction of the gilt repo market. The use of gilt repo in the Bank's daily money-market operations from the beginning of March 1997 does not appear to have had any significant impact so far on the growth rates of M4 and M4 lending.

and stock lending, and in providing a service of arbitraging between the two. They have been able to build on their existing relationships with the traditional stock lending institutions to borrow stock from them and to repo or lend it on to others in the market. Various other institutions have also been developing their relations with stock lenders to try and improve their access to stock that may be in demand and therefore trade special.

Market making in repo

Some of the former SEMBs and a number of other institutions that run large matched books have been providing what can be seen as akin to a market-making function in repo. In establishing the gilt repo market, the authorities concluded that it would not be necessary to have formal market makers in gilt repo. It was thought that active dealers making prices in repo would emerge naturally if their services were likely to be valued, without the need for a structure of obligations and benefits of the kind prevailing in the gilt market, into which the authorities issue debt.

Aside from brokers, there are over 20 institutions, mostly banks and securities houses, which quote repo rates on request, usually on both specials and GC, though many will quote rates only for their own customer base. All these institutions have large, though fluctuating, volumes of repos and reverse repos outstanding. Some firms periodically put out pages of indicative GC repo rates on the screen services, such as Reuters and Bloomberg.

Brokers

A number of the wholesale sterling brokers are active in gilt repo. Unlike some other broker business, such as unsecured deposits, gilt repo (and stock lending) requires counterparties to have signed legal documentation in place before they undertake trades with each other (undocumented 'repos'—sell/buy backs—do not offer legal protection to both counterparties, which is reflected in the higher capital requirements for such transactions under the United Kingdom's implementation of the Capital Adequacy Directive, and in the Code of Best Practice, which discourages their use). No repo legal agreement is necessary with the broker, who introduces the two counterparties to each other's business. All types of broked business, including repo, require credit lines with the counterparty to be in place.

Data collected by the Bank from gilt repo brokers show considerable growth in flows through brokers during the first year of repo. Comparing the brokers' data with the gilt repo turnover data reported to the Bank suggests that the proportion of business going through brokers rose during the year to account for roughly a third of all reported gilt repo turnover. Possible reasons for this increase are the rising number of signed legal agreements in place (which increases the probability that a user of a broker will locate a counterparty with whom they have a signed legal agreement) and the growing

expertise of brokers, although no firm conclusions can be drawn.

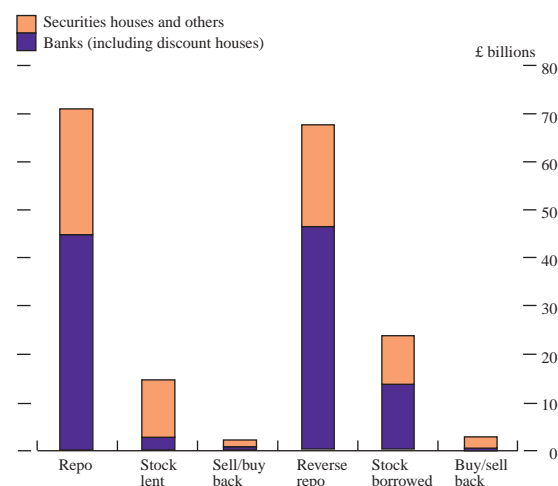
Brokers tend to specialise in different aspects of the gilt repo market. For example, some concentrate on GC repo, and others on specials and specifics; some on very short maturity transactions and others on longer-term trades. Brokerage is typically set at around 1 basis point (0.01%) of the total nominal amount of the bond transferred in a general collateral gilt repo, and 2 basis points for specific and special repos. Brokerage is paid by both sides to a gilt repo. Comparison with brokerage in other markets is difficult because volume discounts are common.

Market participants

Gilt repo began as a predominantly interprofessional market, with sterling money-market players and participants in existing repo markets tending to be the first players to sign legal documentation with each other. Since then the range of participants has gradually broadened.

Principal intermediaries, typically those incorporating the former SEMBs, have continued to play a significant role in the gilt repo market, as have some of the major UK banks, European and US banks, and international securities houses based in London. Banks, including discount houses, accounted for around 70% of reported repo and reverse repo outstandings in August and November 1996, but securities houses and others increased their share somewhat in February 1997. (Chart 9 shows the position in February 1997.) The activities of the second-tier players have increased during the first year of repo, and the overall client base has broadened to include building societies, overseas banks and securities houses, hedge funds, mutual funds, and overseas central banks. Stock lending activity has increased and participation in it broadened. Some institutional investors and corporates have reportedly begun to undertake

Chart 9
Outstanding amounts at end-February 1997
by practitioner^(a)



(a) Data reported by a large subset of the market under the voluntary quarterly arrangements.

gilt repo transactions, but their involvement has so far been limited.

One factor which may have constrained the use of gilt repo is that tri-party repo has not developed in the United Kingdom to the extent that it has in, for example, the US market. In a tri-party repo, an investor places stock with a custodian who manages their repo activities for them, subject to counterparty, margin, collateral quality and other limits specified by the investor. The custodian handles all settlement, investment of cash, and re-margining arrangements, and pays repo interest to the investor for the use of their stock, thus reducing the need for infrastructure investment and specialist personnel. Tri-party services are already on offer in the United Kingdom, and it remains to be seen whether these services prove attractive to UK firms and institutions.

Patterns of trading

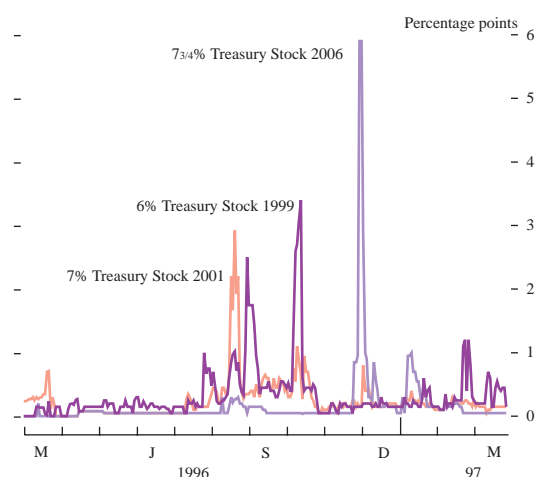
Specials

The emergence of ‘specials’ trading is a natural part of a repo market. One of the purposes of introducing a gilt repo market was to allow the demand to lend and borrow stocks to be cleared by the price mechanism, to improve overall gilt market efficiency. It is therefore natural that when stocks are in demand, for example because firms want them to cover underwriting positions, the special premium on obtaining them rises.

The Bank has examined the relationship between the specialness of a stock and its price in the cash gilt market. The more special a stock is in the repo market, the cheaper it becomes for investors to finance their holdings of the stock by repoing it out. So investors will be encouraged to buy the stock to repo it out, unless the cash price is expected to cheapen sufficiently relative to (those of) other stocks to wipe out the financing advantage. This would typically require that the stock stands ‘dear’ to a yield curve estimated from all gilt yields, or dear relative to its recent history. Conversely, where a stock is expected to cheapen in relative terms in the cash gilt market, perhaps in anticipation of an auction of that stock, the covering of short positions taken as a result will tend to make the stock trade special in the repo market. The stock will remain special until existing holders either sell their stock or make it available for repo or lending, pushing down the cash price or reducing the special premium. Charts 10 and 11 illustrate the special rates observed on some gilts.

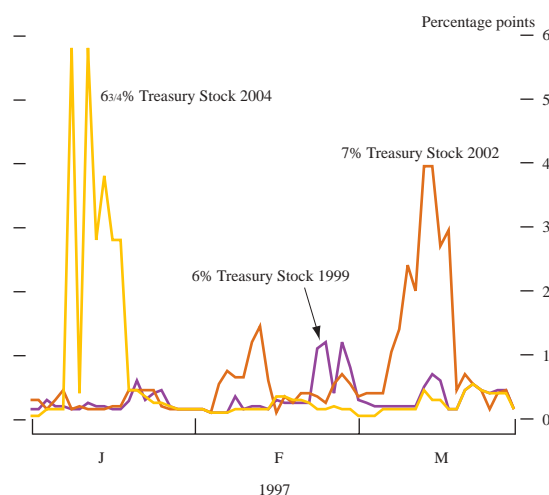
The Bank welcomes the functioning of the price mechanism in the specials market, to the extent that this arises as a natural result of market supply and demand, while reserving the right for market management purposes to reopen or repo a stock if conditions in the repo or cash markets become disorderly. The market’s Code of Best Practice says that participants in the gilt repo and stock lending market ‘must not in any circumstances enter into transactions designed to limit the availability of specific gilt-edged

Chart 10
Special rates on selected stocks^(a)



(a) Indicative one-week rates, expressed in percentage points below the prevailing one-week general collateral rate.

Chart 11
Special rates in early 1997



(a) Indicative one-week rates, expressed in percentage points below the prevailing one-week general collateral rate.

stocks with the intention of creating a false or distorted market in the underlying securities’. As part of its routine monitoring of the market, the Bank monitors the stocks that it receives in the course of its money-market operations, and can at its discretion require counterparties to replace stock.

Maturities

Gilt repo activity continues to be concentrated at the very short end of the yield curve with most trading (around 90%) at overnight to one week’s maturity (Table C). During its first year, however, gilt repo liquidity has gradually extended out along the curve. Even though the *proportion* of trades at longer maturities has varied relatively little (Table D), the growth in the absolute volume means that liquidity has improved considerably; trades of up to three-months’ maturity are now common, and three-month repo rates are routinely quoted with just a 5 basis point spread between the repo interest rates quoted for taking and

placing cash via repo. Trades of six-months' maturity are not unusual, with trades going through daily, but with quotes less readily available than for the shorter maturities.

Table C
Turnover by maturity, December 1996 to February 1997^(a)

Per cent

	On call and next day	2–8 days	9 days– 1 month	Over 1 month	Total
Repo	70	20	7	3	100
Stock lent	89	9	1	0	100
Reverse repo	68	22	6	4	100
Stock borrowed	84	8	6	2	100

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

Table D
Maturity breakdown of outstandings over time^(a)

Per cent

	On call and next day	2–8 days	9 days– 1 month	1–3 months	3–6 months	Over 6 months	Total
Repos							
1996 May	20	34	23	15	7	1	100
Aug.	19	33	33	11	4	1	100
Nov.	19	36	22	19	2	2	100
1997 Feb.	20	29	33	15	3	0	100
Reverse repos							
1996 May	20	30	20	23	6	2	100
Aug.	22	29	29	14	5	1	100
Nov.	21	34	21	20	3	2	100
1997 Feb.	18	32	26	21	3	0	100

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

Trading strategies affect the maturities of trades undertaken. For example, a trader wishing to take a position on interest rates at any maturity would enter a repo trade of equivalent maturity. Trades tied into LIFFE futures contracts will be undertaken up to the delivery date of the contract, and some specific trades may involve a gilt up to its redemption date. The volume of these strategic, longer-term trades will not always be significant compared with the volume of financing trades and other very short-term trades being undertaken each day.

Stock lending, by contrast, is traditionally undertaken for 'open' maturities; ie the maturity date is not specified, but either party can choose to terminate the transaction on any subsequent day. A lot of special repos are also traded with open or overnight maturities (when the repo is in fact often 'rolled' forward), but special repos are said to account for a higher proportion of repos at the longer maturities than at the shorter ones. There is anecdotal evidence of repos of six months or more in some special stocks; in this case, the borrower of the stock may either be hoping that the relative price of the stock will fall, or that it would become significantly more special during the life of the repo transaction, enabling them to lend or repo the stock out profitably.

Market practice

Conduct in the gilt repo market is guided by the Gilt Repo Code of Best Practice, which sets out standards of conduct in the gilt repo and stock lending market and describes some of the main market conventions agreed among participants in the gilt market, the money market, and existing repo markets before the gilt repo market started. Adherence to the principles set out in the Code has reportedly been good. In particular, the vast majority of market participants appear to have recognised the need for adequate legal documentation for transactions—whether in repos or in stock loans—and have ensured that such documentation is in place before trading. This has helped establish the reputation of the market.

As agreed at its last meeting before the start of gilt repo trading, the Gilt Repo Code of Best Practice Working Party is being reconvened to review the Code after a year's experience of the market. There are relatively few issues that need to be considered by the Working Party. One relates to partial deliveries, where less than the full amount of a contracted trade is delivered to the counterparty on the agreed date. Partial deliveries of stock are allowed in the gilt repo market with the consent of the counterparties. This is the opposite to standard practice in the cash gilt market, where partial deliveries are acceptable under Stock Exchange rules unless otherwise agreed (although in practice they are rare). The Working Party will consider whether this difference of emphasis has caused any problems in practice.

A further matter raised by market participants that the Code Working Party will consider is whether or not a penalty should be imposed on a party failing to deliver in an overnight repo. There is currently no penalty, other than the effect on the party's name in the market.⁽¹⁾ One possibility, for example, if counterparties felt sufficiently strongly, would be to add to their legal agreements a clause imposing an agreed automatic penalty for failures to deliver where no stock is delivered during the life of the repo. Nevertheless, failed deliveries continue to be rare in the gilt and gilt repo markets.

Overall impact of gilt repo

The precise impact of gilt repo is impossible to gauge, because of course we cannot know what would have happened in its absence. The ability of all market participants to short gilts, and to take and finance or cover readily their desired positions in the gilt market has improved the efficiency and liquidity of the gilt market, with larger bargain sizes being routinely traded, GEMMs and others more readily and more cheaply financing their positions, and tentative evidence that the efficiency of price formation in gilts has been enhanced. Gilt repo has also

(1) Since an overnight repo is due to be returned to the repoer on the following day, there is no point in delivering the stock the day after, as it would need to be returned immediately. By contrast, in the case of a failure to deliver on an outright sale of stock (or on a longer-term repo), the seller is obliged to deliver the stock as soon as possible after the intended delivery date, as the purchaser still wants it. This will be expensive to the seller (or repoer) because, for each day's delay in delivering it, they have to pay an extra day's accrued coupon interest on the stock when they buy it in the market, but they will be bound by the price originally agreed, which includes accrued interest only up to the contracted delivery date.

benefited other sterling markets, in particular, the sterling bond market, where the interest rate exposure on an underwriting position can now be more easily hedged by taking a short position in a gilt and using gilt repo to acquire the gilt for onward delivery.

The development of a liquid market in secured money, through the use of gilt repo, has broadened the range of funding and money placement options available to financial and non-financial firms, and in principle has increased the security and reduced the capital cost of conducting such business. It may also be associated with a reduction in the volatility of overnight interest rates. The Bank has also been able to incorporate gilt

repo into its daily open market operations in the money markets.

These developments in the sterling markets all contribute to the market's perception of the gilt market and to the willingness of investors to invest in gilts. The gilt repo market was intended to enhance the attractiveness of the gilt market to investors and so reduce the costs to the government of issuing debt. Although no calculations can be performed to quantify any effect precisely, the improvements to gilt market liquidity, the increases in turnover, and the considerable size of the gilt repo market itself all suggest that recent developments in the gilt market have successfully increased investor interest.