THE DEVELOPMENT OF ALTERNATIVE TRADING SYSTEMS IN THE UK GILT MARKET:

LESSONS AND IMPLICATIONS

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† The views expressed are those of the author and not necessarily those of the UK Debt Management Office.

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INTRODUCTION

1 The use of electronic trading mechanisms has become widespread in equities markets. This has allowed market participants to adopt new trading strategies such as posting limit orders or crossing trades. In addition, remote participation in securities markets has grown as technology has spread.

2 Electronic trading systems have also become a significant feature of some government bond markets, in particular the US Treasury market, but as yet are not a significant feature of the market for UK government bonds, the gilts market. [1]

3 This paper considers the policy issues that arise from the possible introduction of such systems into the gilts market and outlines the UK Debt Management Office's (DMO) policy response to these developments.

GILT MARKET: BACKGROUND

GENERAL BACKGROUND

4 The gilt market is a mature market; the first marketable British government security was issued in the eighteenth century. The current market structure of the gilt market was introduced in 1986, following "Big Bang"; it has changed little since then.

5 Dealing in gilts is investment business under the Financial Services Act 1986. The Financial Services Authority (FSA) regulates the conduct of firms that undertake such business and supervises the investment exchanges on which dealing in gilts, or in futures and options in gilts, takes place. Dealing in gilts and gilt derivatives, including gilt repo transactions, also takes place off-exchange.

6 All GEMMs and IDBs (see below) are either authorised by the FSA or, in the case of firms from other EEA states, by their home state regulator, to undertake such business.

7 Both the on-exchange gilt market of the London Stock Exchange (LSE) and the London International Financial Futures Exchange (LIFFE) gilt futures markets have

[1] The most recent survey by the Bond Market Association identified 74 systems offering electronic trading services in fixed income markets.

been designated as regulated markets for the purposes of the EC Investment Services Directive.

8 The majority of gilt trades settle T+1 in the CREST settlement system; which introduced full DVP in central bank money on 26 November. Also on 26 November, Electronic Transfer of Title (ETT) was introduced. Under ETT, full legal title is conferred on the investor at the point of settlement. CREST is responsible for maintaining the record of the electronic register.

9 The Bank of England Registrar's Department in Gloucester provides the principal gilt registration services for the government, maintaining the certificated part of the register and the overall record of the register. The main elements of the service include maintaining the record of the register of stockholders, registering changes of ownership of gilts and making, and accounting for, interest and redemption payments. The Department also operates a postal brokerage service through which private investors can buy and sell most gilts at comparatively low rates of commission.

10 Registrar's are responsible for delivering the correct amount of new gilts into the settlement system following a new issue, and for receiving amounts of gilts the members wish to assent in relation to a conversion offer when the DMO makes an offer to convert one gilt for another.

11 Gilts trade relatively infrequently compared with, for example, the FTSE-100 stocks. For example, over the nine months ending September 2001, there was on average just over 1,500 trades a day in all gilts. This compares with an average of approximately 39,500 trades a day on the Stock Exchange Electronic Trading Service (SETS) order book.[2] However, the average value of a gilt trade over this period was much greater, in excess of £3.7mn, relative to the average size of a SETS transaction over the same period, which was just over £45,000. So, the size of the average trade in the gilt market is approximately 80 times that in the equity market. This indicates that trading behaviour in the two markets is significantly different and that structures that work in one market may not work in the other.

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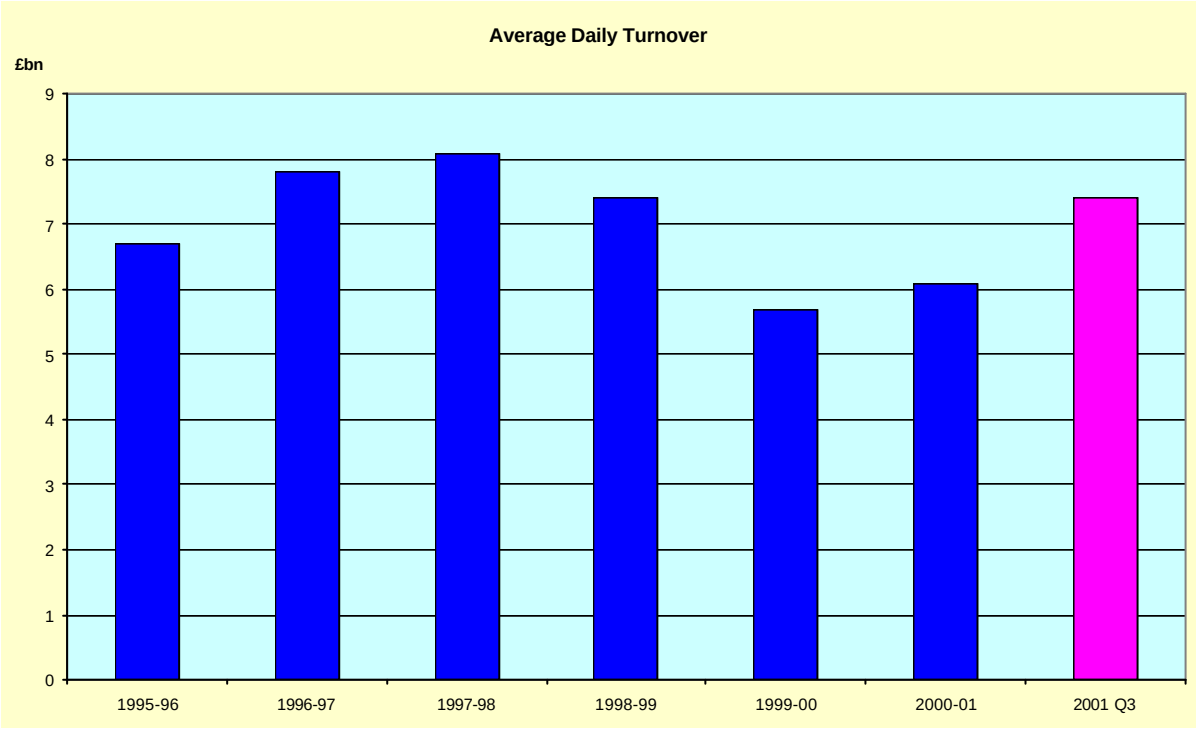
[2] SETS is the London Stock Exchange's electronic order book for equities.

12 The majority of trades are negotiated over the telephone and, where at least one party to the trade is a member, are reported to the LSE within 3 minutes.

13 Given supply constraints and demand pressures, particularly at the long end, liquidity in the gilt market has deteriorated since financial year 1997-98, although there are some signs that it is beginning to recover. Average daily turnover in the gilts market peaked at £8.1bn in 1997-98 but had declined to a low of £5.7bn in 1999-2000 (see chart 1). This recovered to £6.1bn in 2000-01 and is currently running at £7.5bn.

Chart 1

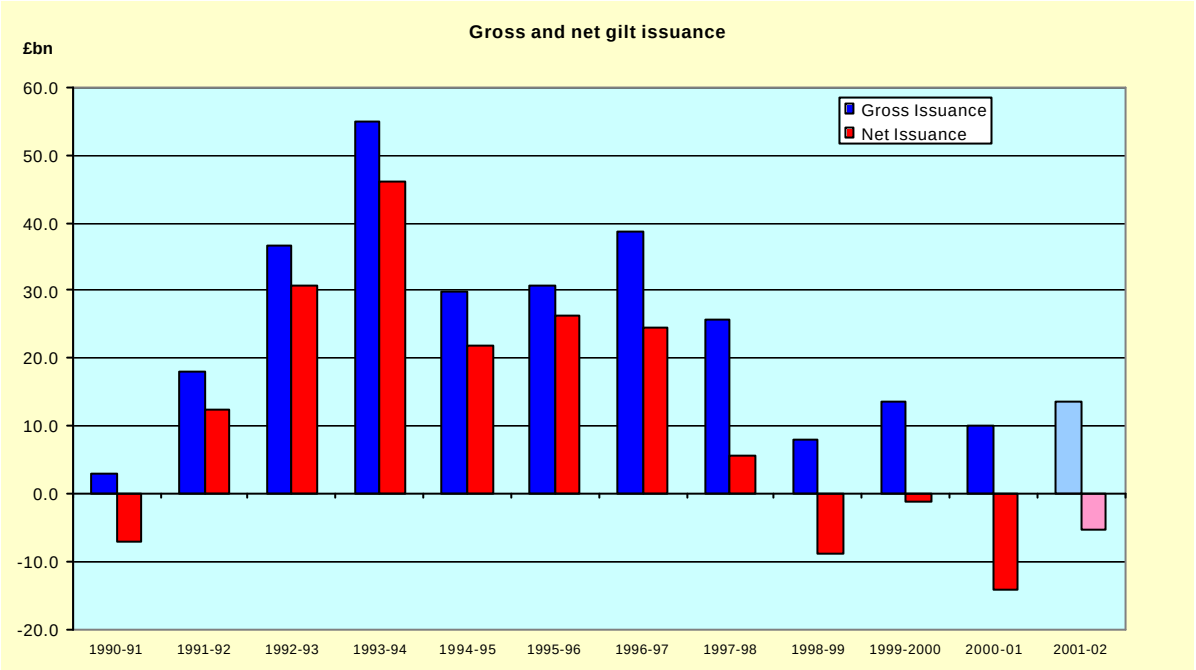


ROLE OF ISSUER

14 In April 1998, the DMO took responsibility for the issuance of UK government debt. It's key objective is to support the Government's aim of minimising its financing costs taking account of risk. In addition, it has a strategic objective to maintain orderly and efficient markets and to promote a liquid market for gilts. A liquid gilt market should minimise the Government's cost of raising funds by reducing some of the risks investors' face, consequently reducing any risk premium that exists on gilts.

15 The four years since the DMO became operational have been characterised by strong Government finances and, as a consequence, negative net gilts issuance (see Chart 2). The DMO has sought to maintain some level of gross issuance in order to maintain the market infrastructure, introducing a number of innovative operations that allow it to issue a greater amount of benchmark gilts than would otherwise have been possible.[3]

Chart 2



16 The general principles which guide the DMO in its approach to the creation of new trading venues are as follows:

i) Liquidity and efficiency of the gilt market: The DMO would be concerned if the market became excessively fragmented, particularly if it led to significant price distortions between trading venues or if liquidity was damaged significantly.

ii) Orderly market environment: The DMO, in common with other market authorities, such as the FSA, wants gilts to be traded in an orderly and regulated environment, ensuring at least some minimum degree of investor protection.

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[3] See "Official Operations in the Gilt-Edged Market: Operational Notice of the UK Debt Management Office", November 2001, for full details of these operations.

iii) Entry/exit of GEMMs: The DMO's ability to confer or to revoke the primary dealer status of any institution should not be constrained by any external influences. More generally, the DMO believes that barriers to entry and exit for GEMMs should be as low as possible.[4]

iv) Interests of retail investors: The manner in which these new trading venues would affect retail investors' ability to secure best execution and meet their need for transparency are issues which also need to be addressed.

THE ROLE OF PRIMARY DEALERS

17 In common with many other government bond markets, the UK gilt market is a one characterised by the presence of primary dealers, the gilt-edged market makers (GEMMs). Due to the trading characteristics of the secondary gilt market, where the majority of investors may not be actively trading every day, there is unlikely to be an even flow of demand and supply of gilts. Therefore, the DMO considers that a system of committed liquidity providers, that bridge the gap between demand and supply, reducing execution risk, is beneficial to the secondary market.

18 In return for providing this market-making service in the secondary market, the GEMMs have special privileges with respect to auctions. Competitive bids from investors are channelled through the GEMMs[5] and they also have access to a non-competitive facility,[6] which allows them to mitigate some of the risks they face in auctions.[7] The DMO also carries out a range of other secondary market operations exclusively through the GEMMs.[8]

19 The issuer also benefits in the primary market from the presence of primary dealers. Governments are increasingly adopting a transparent approach to primary issuance, publishing well in advance details of forthcoming auctions. This exposes

[4] Given some minimum levels of operational and managerial competence.
[5] In auctions of conventional stock, investors can also submit their own paper competitive bids.
[6] Personal investors also have access to a non-competitive bidding facility.
[7] For example, GEMMs may have acquired a short position in the when-issued market, which they need to cover.
[8] See "Official Operations in the Gilt-Edged Market: Operational Notice of the UK Debt Management Office", November 2001, for full details of these operations.

the Government to a high degree of execution risk[9] as, once details of the auction have been announced, it is difficult to adjust the timing, stock or size to suit market conditions. The DMO believes it can limit this risk somewhat by having a limited number of counterparties with some obligations to participate in its primary issuance.[10]

20 Primary dealers can also provide the issuer with a variety of market data. This enables the issuer to monitor conditions in the market effectively and is very valuable in informing decisions on what market operations should be undertaken. Primary dealers can also act as an efficient distribution mechanism, facilitating the transfer of stock from the issuer to the end-investors.

21 Overall, the DMO believes that a list of designated primary dealers is advantageous to both the primary and the secondary market. Therefore, it is likely that certain privileges in the primary market will continue (for the foreseeable future) to be linked to the provision of certain services in the secondary market.

22 There are currently 16 recognised GEMMs, 10 of whom provide specialist market-making services in the index-linked market. All GEMMs must be members of an RIE that admits gilts to trade.

ROLE OF GILT-EDGED INTER-DEALER BROKERS

23 Another feature of the gilt market is the gilt-edged inter-dealer broker (the IDBs) who intermediates exclusively between the GEMMs. Almost all trades between two GEMMs are intermediated by an IDB. These transactions make up approximately 40% of total turnover in the gilts market.[11]

24 The purpose of the IDBs is to allow the GEMMs to lay-off any unwanted inventory risk, acquired in the course of their market making activities, within the closed environment of GEMMs. The IDBs act as principal to all trades, preserving post-trade

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[9] In this context, execution risk represents the risk of an uncovered auction, i.e. a circumstance where there is insufficient demand for the Government's issuance.

[10] GEMMs are expected to participate actively in auctions and are expected to bid in line with their share of secondary market trading. In the case of index-linked auctions, there is a 3% minimum allotment set for index-linked GEMMs.

[11] Based on data reported by the GEMMs for financial year 2000-01.

anonymity. Trade information is kept within the GEMM community and is not disseminated to the wider market.

25 In addition, IDBs that are endorsed by the DMO must offer their broking service to all GEMMs on an equitable basis, providing a level playing field for the GEMMs, and are required to be members of an RIE that admits gilts to trade.

26 There are currently three endorsed IDBs in the gilts market – Cantor Fitzgerald, Garban-Icap and Dowgate.

GILT MARKET: ELECTRONIC TRADING

THE CHANGING ENVIRONMENT

27 A number of the GEMMs have been active supporters of a number of fixed income electronic trading systems, including inter-dealer platforms, such as BrokerTec and EuroMTS, and multiple dealer to client systems, such as TradeWeb and BondClick (now part of EuroMTS' BondVision). In addition, GEMMs have considered adding gilts to their single dealer to customer platforms, where they exist for other government bonds.

28 Of themselves, these developments are to be welcomed where they improve the operational efficiency of the market and improve customers' access to liquidity. However, where they risk impairing liquidity at the core of the market, a policy response is warranted.

POLICY RESPONSE

29 In January 2000, the DMO published a consultation document that sought views on whether and how it should respond to the possible entry of electronic trading systems into the gilt market.[12] The consultation paper considered a number of different options consisting no change in policy; the introduction of a centralised quotation system; the introduction of a centralised inter-GEMM market with quote obligations and the introduction of a full electronic dealership market. However, given the trading characteristics of the gilts market, the DMO discounted the possibility of introducing a full open order book.

30 Responses were received from many classes of market participant. The DMO considered these comments and identified its preferred approach in a response document issued in June 2000.

31 While continuing with the current set of benefits and obligations for GEMMs would be attractive in that it does not impose any additional burdens on the GEMMs, the DMO shared the concern of some respondents that a no change policy could add to the harmful effect of any possible market fragmentation. A fragmented market where a number of alternative trading venues compete for liquidity could make it very difficult for the GEMMs to meet their market-making obligations. Some GEMMs may be excluded from particular trading venues; this would limit their ability and opportunity to lay-off positions acquired during the course of their market-making activities. They may also face a reduced information set, hampering their ability to price gilts efficiently and reducing their ability to manage their risk effectively.

32 In addition, these new trading venues may in practice set certain entry requirements that would constitute an additional barrier to entry for a prospective GEMM. This could result in lower competition in the provision of market-making services to the market, another undesirable outcome.

33 Therefore the DMO has decided to introduce an inter-GEMM market with mandatory quote obligations. These new obligations will require GEMMs to provide firm quotes to other GEMMs in a specified number of bonds (details are attached in Annex A). The provision of mandatory quotes on a continuous basis will necessitate the adoption of some electronic trading technology.

34 This approach is similar to the mandatory liquidity provision common in most European government bond markets. The DMO believes that, although this option imposes an extra burden on the GEMMs, a central committed market would provide a benefit to the entire market, including the GEMMs, particularly in times of limited issuance. It ensures that the GEMMs have access to a minimum depth of liquidity in certain stocks and that prices in that market are fully efficient, allowing the GEMMs to carry on their wider market-making activities in confidence. This will be of particular

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[12] "The Secondary Market for Gilts: A consultation paper", January 2000.

value in an environment where a number of (potentially exclusive) trading venues exist. The DMO hopes that this model will make it more likely that entry barriers facing prospective GEMMs remain at an acceptable level, maintaining a high degree of competition in the provision of market-making services. This should ensure that any benefits resulting from the new system are reflected in the service that GEMMs provide to investors.

35 The DMO sees little need however to extend the model to the full electronic dealership model, where the centralised primary dealer core is augmented through the direct participation of other financial institutions. It believes that this model may evolve naturally from the inter-GEMM model.

36 Unlike many ofits European counterparts, the DMO did not identify any particular supplier of the necessary trading systems. How this mandatory liquidity would be provided operationally was a question that was devolved to a working group of elected representatives of the GEMMs and a representative of the DMO.

37 The working group met with a number of potential system providers and discussed a number of approaches that might solve the problem (see Annex B). This group has concluded that the best way is to allow each GEMM supply their prices to any recognised IDB. Adopting this approach preserves competition in the provision of IDB services. This means that brokers will have a continuing incentive to develop and maintain an attractive service, encouraging further technological innovation.

38 Given the small number of IDBs in the market, the information problem that arises from monitoring multiple trading venues should be of no greater magnitude than that currently faced by most of the GEMMs in the European government bond markets. Therefore they should be able to apply existing aggregation applications to manage the information flows.

39 Although liquidity might not be concentrated with just one broker, there will be no market fragmentation as all GEMMs have equal access to all recognised IDBs.

40 The IDBs will supply the DMO with the necessary information to allow it to monitor the GEMMs' performance against these new obligations.

41 The DMO plans to bring these mandatory quote obligations into effect early in 2002. As noted above, given competition in the market-making sector, any increase in liquidity in the inter-GEMM sector that results should pass through into the wider market.

OTHER ISSUES

TRANSPARENCY

42 The gilts market is relatively opaque. Post-trade transparency is present only in the retail market and in the IDB market. However, there is pre-trade transparency available through indicative (and firm) prices that the GEMMs make available, voluntarily, on the various wire services. In addition, the DMO publishes a real-time indicative mid-price for a selection of benchmark gilts that draws on the GEMMs prices as published on the wire services.

43 As noted above, prices in the IDB market are not made available more widely. In a recent consultation with the market (in 1998), investors recognised the trade-off between transparency and liquidity. The investors that responded indicated that such a move would significantly reduce the attractions of being a liquidity provider and that a reduction in the liquidity of the market was likely to follow.

44 The DMO also produces an end-of-day reference price for all gilts, on behalf of the Gilt-Edged Market-Makers' Association (GEMMA); all GEMMs are required to report a closing price to the DMO so that this reference price can be calculated.[13] These prices are used extensively for official valuations by, for example, the settlements system and the tax authorities.

RETAIL MARKET

45 In terms of transparency, the retail market is quite distinct from the wholesale market. The London Stock Exchange publishes real-time post-trade information on its ticker for all gilt trades of less than £50,000 nominal. In addition, three of the GEMMs that particularly target the retail sector have launched a multiple dealer to client electronic trading service, BondScape, for sterling-denominated fixed income

[13] Further details on the methodology are available on the DMO's web site www.dmo.gov.uk.

products. In addition to firm prices in bonds in small size, this platform also provides some basic bond analytics, adding to the prospective investors' information set. This service is provided to the network of retail brokers that deal directly with individuals; there is also the capability for the brokers to pass this service on to their clients through a "white-labelling" service. Therefore, in terms of transparency, ease of access to the market and achieving best execution in an efficient manner, the retail sector is well served.

CENTRAL CLEARING COUNTERPARTY

46 One theme that came out of the original consultation document was the need for a central clearing counterparty (CCP) if electronic trading was to be extended to a wide range of market participants; a CCP would be necessary to manage the associated credit risk. While there is little settlement risk present in the gilts market,[14] a CCP could lead to more efficient capital allocation by dealers through netting.

47 The London Clearing House (LCH) intends to add gilts to the list of bonds covered by its RepoClear product. RepoClear currently allows its members to clear German, Dutch, Belgian and Austrian government repo and cash bonds, Jumbo Pfandbriefe repo and cash bonds and "international" repo and cash bonds (comprising sovereign, supra-national and agency bonds) through LCH.

PRIMARY ISSUANCE

48 Electronic trading systems also open the way for primary auctions to be held electronically. Many issuers use internet systems or private network systems, such as Bloomberg, to conduct their auctions.

49 In the gilts market, bid capture is currently done over the telephone, with only GEMMs eligible to bid directly over the telephone. Bids are entered into an in-house electronic system that generates the necessary allocations and calculates the relevant auction statistics. However, electronic bid capture is a possibility in the future. Automating bidding procedures brings clear efficiency benefits such as straight-through processing and a quicker turnaround of auction results, as manual checking procedures are reduced.

[14] Gilts settle T+1 in an assured payment environment.

50 However, in the UK there is a maximum limit on the amount that any one party can be allocated in any auction – 25% in conventional auctions and 40% in index-linked auctions. GEMM allocations can be checked relatively easily; however, end-investor allocations are more difficult, particularly where an investor submits bids through multiple GEMMs. Currently, client allocations are checked manually once the auction is closed. The GEMMs supply details of client bids that they have submitted, allowing the DMO to collate client bids submitted through multiple GEMMs. However, naming conventions vary from GEMM to GEMM, so some judgement is used when matching different client bids. The DMO would need to consider in more detail how it would address this issue with a fully automated processing system.

51 In addition, automating bid input increases the DMO's counterparty's operational risk by introducing the risk of input error. Currently there is an immediate call-back of bids to the counterparty which allows errors to be identified before the bids are input. Any system adopted would need to be configured to carry out sufficient (sensitivity) checks to adequately mitigate this risk.

52 Another issue to be considered is the transparency of the bidding process. Currently, with telephone bidding the auction is closed; however, automating the bidding process can add more transparency to the price formation process, bringing it closer to an open auction. The impact on bidder's behaviour of revealing the clearing price as the auction progresses, whether this is identified explicitly or implicitly, is an issue that will require further consideration before a fully automated bid-capture system could be specified. But more transparency might result in a final clearing price that is more efficient being a truer representation of the market's valuation.

53 Electronic bid capture also opens the possibility for more direct access to the auctions by a wider set of market participants, particularly where Internet technology is used. However, it is questionable how many major investors would choose to access the auctions directly; currently, there is little demand for direct access apparent from UK institutional investors.

54 Many choose to execute in advance of the auction (in the when-issued market for example), passing auction execution risk to their counterparty. Others, particularly index-trackers, wait until later in the day and choose to execute at a price close to that used in the calculation of gilts indices (the GEMMA reference prices).

55 In addition, where they do submit bids in the auction through a GEMM, they may also acquire information from that GEMM that informs their bid. This means that direct investor demand might not fill the vacuum created by the possible reduction in GEMMs' interest given the reduction in their benefits. So increasing direct access, while removing a key privilege from the GEMMs, may not generate significant amounts of direct demand from investors.

56 However, adversely, by reducing the incentive for GEMMs to participate in the market this could increase the execution risk for the DMO and could reduce the provision of committed liquidity to the secondary market, with an additional negative impact on the cost of funding as investors' liquidity risk increases.

CONCLUSION

57 Introducing new market structures to an existing market raises issues that differ to those that would be raised if it were a brand new market. Natural inertia and a fear of change can lead to significant switching costs; these need to be borne in mind when considering the appropriate policy response to the introduction of electronic trading.

58 As issuer, a primary dealer network provides an effective way in which to mitigate execution risk. The DMO continues to see an important role for the GEMMs, therefore it needs to ensure that the GEMMs' cost and risk trade-off is maintained at a level that ensures the continued participation of a core number of dealers. Although, the DMO does not have any specific target for the number of GEMMs, it would be concerned if the number dropped significantly.

59 The DMO's initiative in the inter-GEMM market builds on the existing IDB structure but will hopefully create the necessary environment to encourage the natural development of more transparent and operationally efficient mechanisms such as multiple dealer to client trading systems. The introduction of a central

clearing counterparty will also encourage this. However, the DMO has no intention to force or mandate such developments.

60 This initiative may also make it easier for other electronic brokers to enter the market. GEMMs may be more confident about providing firm prices to other systems where those prices can be linked to the prices in the central market place.

61 While some GEMMs remain sceptical about whether the DMO initiative will improve liquidity in the IDB market others, given their experience of European fixed income markets, are more positive. It will provide a mechanism for a GEMM to lay-off an unwanted position relatively easily and at a known cost. This should help risk management. In addition, it will provide greater transparency in that market, where currently few prices are posted.

ANNEX A: QUOTE OBLIGATIONS - THE DETAILS

Bond	*Maximum quote spread*	*Minimum quote size*
5% Treasury 2004	3 basis points	£5mn
7¼% Treasury 2007	3 basis points	£5mn
5% Treasury 2012	3 basis points	£5mn
CTD (9% Conversion 2011)	3 basis points	£5mn
8% Treasury 2021	3 basis points	£2mn
4¼% Treasury 2032	3 basis points	£2mn

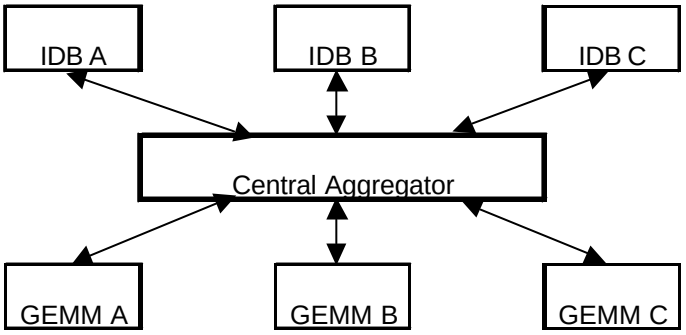
GEMMs will be expected to provide quotes that meet these requirements throughout the trading day, i.e. between the hours 8.30am to 4.18pm (when the settlement price of the futures is taken). However, the obligation will be relaxed 5 minutes before and 10 minutes after a significant news event (including major economic news releases from the UK, US and Europe and the results of meetings of the MPC and ECB).

These obligations will be reviewed regularly, either at the request of GEMMA or the DMO or at least twice a year, with proposed changes discussed at an appropriate quarterly consultation meeting with the GEMMs.

In addition, the DMO is proposing that the one exclusively retail GEMM be relieved of these obligations but that their activity in this market be restricted to a maximum of £1mn nominal per trade.

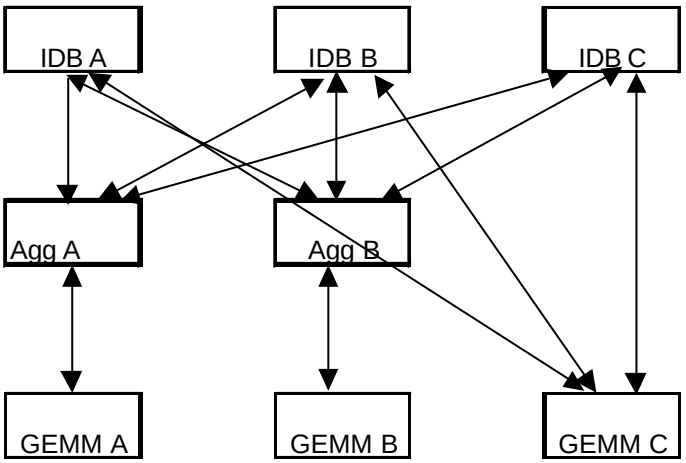
ANNEX B: PLATFORM PROVISION – THE OPTIONS

Option (a)



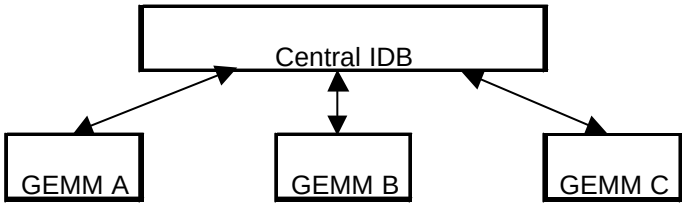
Under this option, each GEMM would input trades directly to the central platform or call an IDB to do so on their behalf. Every trade entered would be associated with one of the IDBs. Each IDB would receive information on all the trades associated with them – similar to the subset of information they receive today – allowing them to continue to offer a value-added service in broking "off-the-runs", switches and other contingent trades. This requires that the central aggregator can interpret information where it is fed directly in through an automatic order generator and channel it back to the appropriate broker.

Option (b)



Under this option, each GEMM would have the choice of sending their mandatory quotes to any recognised IDB. This could be done directly or through an aggregator. As is the case now, all the GEMMs would have access to all the recognised IDBs and the prices displayed on their screens. Each GEMM would, if necessary, be independently responsible for finding an external aggregator or developing an in-house aggregator to deal with the information flows.

Option (c)



Under this option, a single IDB would be granted a mandate to provide the service. All the GEMMs would provide all their mandatory quotes (and any other prices by choice) to this central broker.