

Improving efficiency in the European government bond market

Avinash D. Persaud



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Improving efficiency in the European government bond market was commissioned by ICAP plc. The author of this report is Professor Avinash D. Persaud. Professor Persaud is Fellow of Gresham College, Visiting Fellow, Cambridge Endowment for Research in Finance at the Judge Institute, Member of Council, Royal Economics Society and Governor and Member of Council of the London School of Economics. Formerly he was Gresham Professor of Commerce and Visiting Scholar at both the European Central Bank and International Monetary Fund. Persaud is Chairman of Intelligence Capital a financial research and advisory firm. Formerly, he was managing director of State Street Corporation and a director of debt research at UBS. He is the winner of the Institute of International Finance's Jacques de Larosiere Award in Global Finance (2000).

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Introduction

In April 2003, the second Giovannini Group Report¹ called for a removal of secondary market restrictions and obligations for primary dealers in the European cash government bond market (Giovannini Barrier 10). In May 2006, the European Commission published a report entitled “Competition in EU securities trading and post-trading - Issues Paper” (“Securities Issues Paper”) ² which further questioned the national restrictions placed on some primary dealers to execute government bond trades on a designated trading platform. However, studies based on early 2004 data from MTS, the principal electronic trading platform for secondary market trading of European government bonds, found evidence of relatively tight bid-offer spreads and greater volume where these restrictions existed – signs of good liquidity. This may be seen, *prima facie*, as arguing that there are wider “production efficiencies” from maintaining restrictions on primary dealers, and principally, that a removal of these restrictions might lead to a fragmentation of liquidity. This paper seeks to analyse this issue.

We observe that technological and regulatory changes mean that traders routinely aggregate prices in different markets on the same screen on their “trader desktop” (using in-house or third party software). Consequently *where there are no restrictions in trading between platforms, competition between trading venues does not fragment liquidity*. Price discovery in one market venue, informs the other. Indeed, while there is little evidence of fragmentation from competition, there is evidence from equity markets (Euronext and Deutsche Börse), bond futures markets (Eurex and Euronext) and currency markets (Reuters and EBS) that competition between platforms has increased volumes and depth, and improved market functioning.

In assessing the liquidity of electronic trading of European cash government bonds we also find that measures of market “tightness” coincide with a range of measures of market “shallowness”. This unusual combination suggests that *the requirements placed on primary dealers may have created “artificial liquidity”: liquidity that disappears when it is placed under pressure (and therefore when it is needed most)*. This “shallowness” appears to be the critical element that allowed the controversial Citigroup trade of 2 August 2004. Artificial liquidity and poor depth raise important concerns over market functioning and financial stability³.

¹ The Giovannini Group, Second Report on EU Clearing and Settlement Arrangements, Brussels, April, 2003, http://ec.europa.eu/economy_finance/publications/giovannini/clearing_settlement_arrangements140403.pdf

² Competition in EU securities trading and post-trading, Issues Paper, European Commission, Competition DG, Brussels, 24 May, 2006, http://ec.europa.eu/comm/competition/antitrust/others/securities_trading.pdf

³ See, Mishkin, F. “Anatomy of a financial crisis”, NBER WP 3934, December 1991.

*The absence of competition as a result of these restrictions causes an unambiguous loss of consumer welfare. Even though volumes are restricted, the direct transfer from consumer welfare to the single designated trading platform for primary dealers is an estimated €18m per year. However, users of wholesale European interest rate markets are harmed more than by just paying higher prices. Elsewhere competition between trading platforms has delivered improved trading technology and straight through processing, which has enhanced transparency, improved market functioning (via automated links to clearing and settlement infrastructure) and reduced operational risk. If we solely analyse the “repressed volume” part of the dynamic costs to lost competition, and assume that the European cash government bond market could have at least half as much electronic volume as the US market (which is one third smaller in terms of the face value of bonds in issue) then *the deadweight loss of these restrictions to users of European interest rate markets is an estimated €119m per year.**

In its May 2006 Securities Issues Paper, the European Commission stated that “competition has a fundamental role to play...in the process of integration”⁴. It went on to say that “vertical integration may result in foreclosure at all levels of the value chain and therefore lead to welfare losses”. “While there may also be efficiencies, so far the Commission has seen no convincing evidence to substantiate this.” Our analysis supports this view. We find that the vertical integration of government bond issuance and secondary market trading through exclusionary restrictions *does not deliver real liquidity benefits, raises systemic concerns and is a substantial cost to user welfare - a cost that is very likely transferred to European tax payers.*

In Section 1, we look at the national restrictions placed on primary dealers in executing government bond trades and assess their effects. In Section 2, we consider whether there are liquidity advantages from restricting competition between trading platforms. In Section 3, we consider the consumer welfare costs from the loss of competition in the European cash government bond market. Finally, in Section 4, we present our conclusions.

⁴ For integration issues see also Schmiedel, H., “Integration of securities market infrastructures in the euro area”, ECB Occasional Paper Series, July 2005.

Section 1

Exclusionary practices in the (non-retail) electronic trading of European cash government bonds

1.1 Overview of exclusionary practices

Primary dealer status accords certain privileges. In most countries, primary dealers have an exclusive right to make non-competitive bids at or after a debt auction, to participate in bond exchange/reverse offers, to strip and reconstitute bonds and to have exclusive or privileged access to syndicated issues. In some Member States, primary dealers also benefit from privileged access to the repo market⁵. The precise value of these privileges is unclear for a number of reasons, not least because they come with obligations. It is important to note, however, that Member State governments represent an important client-base for international banks.

The proportion of mandates and privileges accorded to individual primary dealers is a function of their ranking by Debt Management Offices (DMOs). This ranking is based on a number of factors. In many countries including US, Japan, Germany, France and the UK, primary dealer ranking is related to secondary market trading performance across any trading venue. However *in eight EU Member States, it is effectively the case that primary dealer rankings are assessed through performance on one trading platform alone.*

In the cases of Belgium, Denmark, Finland, Italy, Netherlands and Portugal, DMOs designate trading platforms for primary dealers to execute their obligations and the local MTS⁶ platform is the sole platform that is designated. DMOs often state that they have arrived at this choice in consultation with primary dealers and that they believe a single platform helps to maximise liquidity⁷. In most instances the primary dealers also have small shareholdings in the local MTS system (along with MTS SpA, itself owned by Euronext and Borsa Italiana). In Greece, the operating rules stipulate that only trading undertaken on HDAT (the Bank of Greece's proprietary system for trading bonds) and EuroMTS are taken into account in ranking primary dealers. Finally, in Spain, primary dealers are required to be full members of the electronic trading systems accepted by the Treasury, which are only Senaf or MTS Spain.

In addition to the explicit exclusions in these eight Member States, there is anecdotal evidence that the DMOs in these countries also frown upon primary dealers who use other systems in markets where exclusions do not apply. Primary dealers active in several markets are therefore reluctant to try other platforms even in markets when explicit restrictions do not exist.

⁵ See "Progress report on primary dealership in EU public debt management", Economic and Financial Committee, Brussels, November 20, 2000.

⁶ Shareholders in local MTS platforms are typically, MTS S.p.A, the founding member of the MTS Group, primary dealers active in the local market and, sometimes local debt management offices. For further details, see: www.mtsgroup.org

⁷ For details of primary dealer privileges and obligations see: http://ec.europa.eu/economy_finance/efc/efc_pdcontracts_en.htm

1.2 Competition effects of exclusionary practices

The effect of these restrictions can be seen in Table 1, below, which compares market share of the largest electronic trading platforms of European cash government bonds.

Table 1
Percentage shares in European government bond volumes traded between all major electronic platforms in 2006

	MTS	HDAT	MTS non-Greece	Senaf	Eurex	BrokerTec & e-Speed
Feb	66.8	22.0	85.6	7.1	4.0	0.1
Mar	67.4	21.6	85.9	7.3	3.6	0.1
Apr	76.5	16.1	91.2	3.8	3.5	0.1
May	75.2	17.1	90.6	5.2	2.5	0.1
Jun	73.7	17.7	89.5	4.4	4.1	0.1
Jul	71.9	19.5	89.3	4.6	3.9	0.1
Aug	71.8	19.2	88.9	5.4	3.4	0.1
Average	71.9	19.0	88.7	5.4	3.6	0.1

The sole designated platform for primary dealers in these eight Member States, the MTS platform, maintains a market share of 71.9% of the electronic trading of European cash government bonds. Excluding HDAT, the Bank of Greece's proprietary system for secondary trading in Greek government bonds (which represent around 5% of outstanding Euro government bonds) the market share of MTS stands at 88.7%.

Although it only trades Greek government bonds, HDAT is the second largest electronic platform in Europe with a 19.0% market share. The third largest platform is Senaf, which is a Spanish domiciled platform trading Spanish government bonds and is the only electronic platform approved by the Spanish Treasury other than MTS Spain. It has a 5.4% market share. The fourth largest platform is Eurex Bonds, owned by Deutsche Börse. It has a 3.6% market share. The remaining 0.1% is shared between e-Speed (a publicly listed subsidiary of Cantor Fitzgerald) and BrokerTec (operated by a subsidiary of ICAP plc).

The Herfindhal-Hirschman Index (HHI) of concentration in the electronic trading of European cash government bonds, excluding Greece, is 7,901, where a score of 10,000 indicates a perfect monopoly.

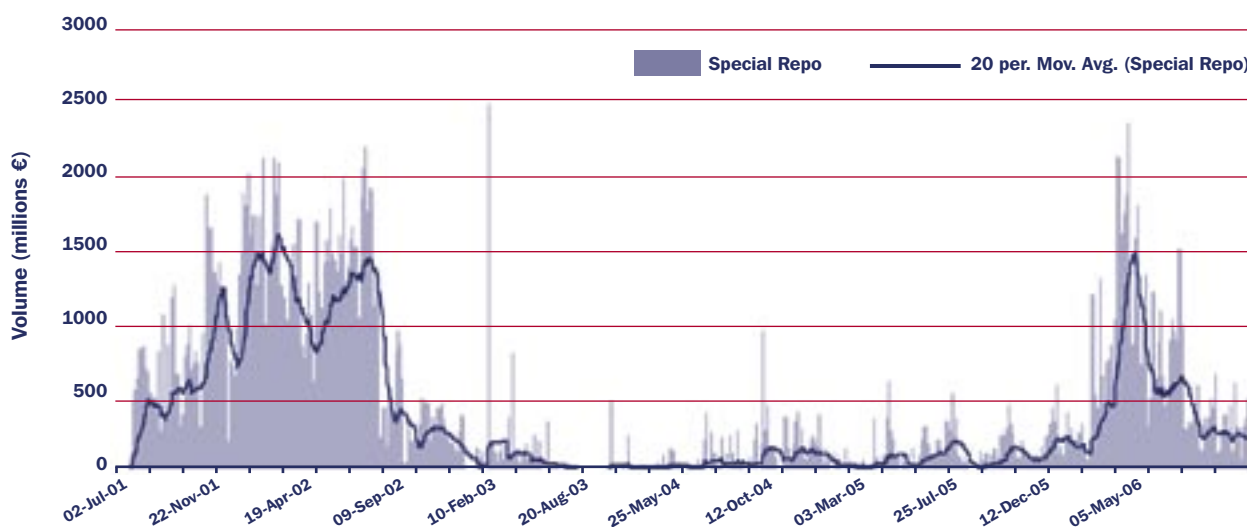
Is this concentration of the wholesale electronic market a result of the restrictions on primary dealers or other factors? It is unlikely that the smaller players in the European market have inadequate technology or lack operational competence. For example, in the cases of e-Speed and BrokerTec, although they can only muster a 0.1% market share in electronic trading of cash Euro government bonds, in the United States, by contrast, where no trading restrictions apply to cash government bonds and where the electronic market place is 20 times larger by volume, they are the two largest players and account for the majority of volumes on the electronic market. Moreover, even these diminutive market share figures flatter e-Speed and BrokerTec's real position in the Euro government cash market as they are primarily driven by volumes from basis trading, where bonds are traded simultaneously with an opposite position in an exchange listed bond futures contract – a distinct type of trading, which is not included in the scope of primary dealer market making requirements by DMOs.

In many markets the effects of trading restrictions are hard to measure because we do not have experience of the market before the exclusions were applied. However, we are fortunate to have a clear illustration of the pre- and post-effects of the imposition of these exclusionary restrictions with related players in a closely related market. Prior to September 2002, primary

dealer rankings in Italy were not related to the trading of repo (repurchase agreements – a form of bond collateralised lending). As a result, repos were traded on a variety of trading platforms. Figure 1, shows volumes of Italian repo trading on the one platform for which we have daily volumes - BrokerTec. BrokerTec entered the market in July 2001 and twelve months later volumes on its repo platform had grown to a daily turnover of €2bn representing a market share of around 10%. In September 2002, the Italian DMO decided that repo trading on the designated platform (the MTS SpA market) should also count towards the ranking of primary dealers. Consequently, trading on all other platforms virtually ceased as primary dealers shifted repo to MTS Italy.

Volumes have returned intermittently to other platforms, primarily when there have been technical outages on the designated platform. Partly in response to this, the Italian DMO modestly loosened the restrictions on repo trading in early 2006. While above average trading performance in repos on MTS generates 4 points in determining primary dealer rankings, trading performance on all other repo platforms and voice receive a maximum of 3 points. The response, which can be seen in Figure 1 below, was a modest rise in trading volumes on alternative venues. However, volumes on these alternative venues remain substantially lower than where they were before the primary dealer points system was extended to repo. In the case of our example they are 80% lower. It is clear from this picture that these *trading requirements placed on primary dealers, even when they became only partial, have had a singularly powerful effect of restricting competition between the designated platform and any other trading venue. Due to the nature of primary dealers as underwriters of public debt, any loss of activity on their part will have a significant impact on price availability for other users.*

Figure 1
Italian special repo volume traded on BrokerTec from July 2001 to October 2006



Section 2

Are there production efficiencies that justify these competitive distortions?

2.1 Analysing the case for production efficiencies

The principal argument for these restrictions is that, in theory, competition in trading venues may lead to increased fragmentation of liquidity and reduced transparency over primary dealer behaviour for the DMOs. It has been said that fragmentation of trading venues “makes it very difficult for investors and market participants to have access to the best available trading opportunities and costly for them to verify compliance to best execution duties”⁸. This conjures up the problem faced by investors in the first half of the last century. But it is important to understand the source of that problem. Multiple venues fragmented liquidity in the past because information between the venues was fragmented. Largely as a result of financial regulations, investors and the issuance of securities were also fragmented along the same geographical lines of the local exchanges.

Technological advances, open access to clearing and settlement, the elimination of capital account restrictions and improved transparency has combined to remove barriers to efficient competition. Today, technological advances allow users to pool information across platforms wherever they are. Many traders have inexpensive in-house screens that show them the best bid and offer of a security, irrespective of which trading platform those prices come from. *Where there is price transparency and no restrictions between trading platforms, price discovery is not separated between platforms. Where different trading venues access different sources of liquidity, they add to overall liquidity and where they don't, they provide intense competition for the best and lowest cost technologies. Today there are no liquidity advantages of obligating quotes on one trading venue as opposed to any trading venue.*

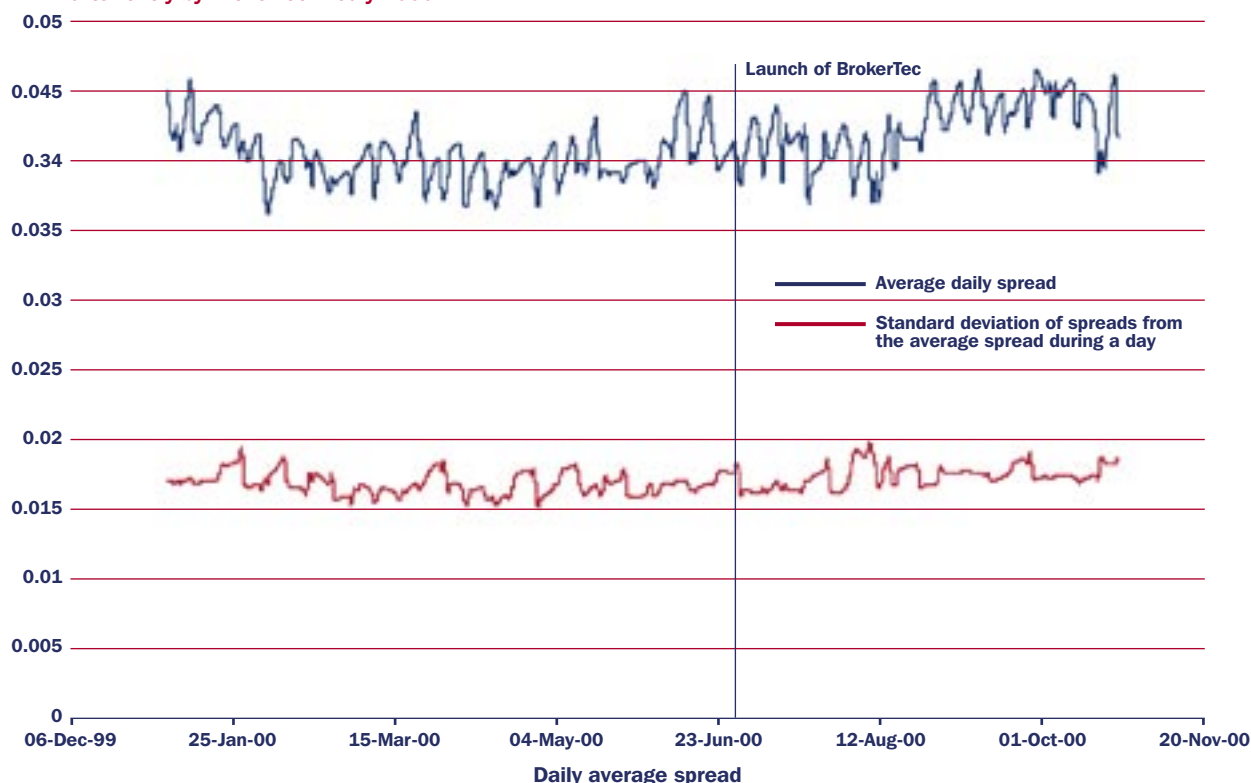
Indeed, contrary to the assertion that competition results in fragmentation of liquidity, there is in fact evidence today from equity markets (Euronext versus Deutsche Börse) bond futures markets (Eurex versus Euronext), commodity derivatives (Nymex versus ICE), electronic cash bond markets (e-Speed versus BrokerTec) and currency markets (Reuters versus EBS) that *competition between platforms has boosted volumes, depth and market functioning.*

Despite the intense competition between Reuters and EBS, the global foreign exchange market is considered the most liquid market in the world with daily trading volumes in excess of \$2trn.

⁸ Quoted from “Recent evolution in Securities Market Prices Formation Mechanisms”, Claudio Salini, May 20, 2004.

FX market growth has accelerated in recent years. Perhaps the closest example to electronic trading of cash European government bonds is the competition between e-Speed and BrokerTec in the United States Treasury market. By the turn of the century e-Speed was the dominant electronic broker for US cash government bonds. BrokerTec entered the market in July 2000. Figure 2, below shows that at the time of entry there was no discernable impact on the average bid-offer spread between the two platforms or the volatility of the spread. Over time, volumes have grown, the bid-offer spread has halved and the market exhibits substantial depth.

Figure 2
Average bid-offer spread between e-Speed and BrokerTec in the cash US government bond market, before and after entry by BrokerTec in July 2000.



2.2 What are the liquidity effects from quoting obligations on a single platform?

Analysis of fragmentation in the past indicates that it is driven by restrictions between platforms and obligations that discriminate between platforms. This would suggest that the obligation which requires dealers to quote in specific ways on a single platform in order to qualify for concessions in the primary markets, could itself lead to a vertical fragmentation of liquidity where liquidity appears to exist at one level but does not at another. We find evidence of this vertical fragmentation of liquidity, or what has been described elsewhere as artificial liquidity⁹, on the designated European platforms.

Liquidity is difficult to define and even more difficult to measure. Of the several dimensions of market liquidity, the two most important are tightness and depth. Tightness is a market's ability to match supply and demand at low cost (measured by bid-offer spreads). *Market depth relates to the ability of a market to absorb large trade flows without a significant impact on prices* (approximated by volumes, quote sizes, and the amount of liquidity available at the best spreads). A liquid market would exhibit "tight" bid-ask spreads, high volumes and little deterioration in the price or bid-offer spread as orders are filled beyond the best available price¹⁰.

⁹ For definitions of artificial liquidity and the related phenomena of liquidity black holes, see "Liquidity Black Holes, Understanding, Quantifying and Managing Financial Liquidity Risk", Persaud, A. D., 2003, Risk Books.

¹⁰ For definitions of liquidity see BIS, CGFS Working Group Report No. 11 of May 1999 on Market Liquidity.

An example of a clearly liquid market, as referred to above, is the global market for foreign exchange. Here volumes are the largest of any market at \$2trn per day and bid-offer spreads for €/€ transactions are in the region of 1-3 basis points. Order books are thick with other best bid/offer prices (of lesser time priority) and even further depth of close bids and offers. On a normal day trade sizes have to be in excess of \$250m before that spread begins to widen out noticeably¹¹.

In considering liquidity a disproportionate emphasis is placed on measures of tightness alone as bid-offer spreads are easy to record and can be easily compared across markets and time. *But depth is equally, if not more important.* When market participants raise concerns about the decline in market liquidity, they typically refer to a reduced ability to deal without having prices move against them. This is more about reduced market depth than the tightness of the best-reported bid-offer spreads.¹² It is important to observe, therefore, that although on some measures, bid-offer spreads on the designated platform for European government bonds are as tight as the spreads for equivalent US government bonds on major electronic platforms, measures of market depth vary from modestly to substantially worse. Such an inconsistency is unusual.

2.3 Measures of depth of liquidity on the European electronic trading platform

In the electronic trading of US government bonds there are on average 700 and sometimes thousands of bids and offers sitting just below the tightest bid and offer. The market is unquestionably deep as well as tight¹³. Equivalent data on depth of orders is not widely available for the MTS trading platform.

While much anecdotal evidence attests to the fact that European bond trading on the designated platform for European government bonds exhibits tightness but little depth, piecing together evidence of market depth on MTS is not easy and indeed has become harder since the 2 August 2004, Citigroup trade.¹⁴ Instead we will examine three indicators of depth: volumes, the relative size of electronic and voice markets and the consistency of spreads on MTS and other platforms.

2.3.1 Volume of electronic trading in the European cash government bond market and other equivalent markets

The least precise, but in this case most dramatic, indication of depth is the difference in volumes between the European and US markets. Table 2, shows monthly electronic trading volumes across venues in the US, a number of Member States and in Europe as a whole (including local MTS platforms as well as Euro MTS). Electronic volumes of European bonds are 5% of those of US bonds – even though the US bond market is one third smaller in terms of bonds outstanding. This is a strikingly low level of market turnover. Were it not for tight bid-offer spreads, this low turnover would have been seen as a measure of substantially lower liquidity.

Voice brokering is a significant execution means in the EU markets but even adding all volumes together (voice brokerage plus electronic platforms) volumes in the European market are still less than one tenth of that of the US.

¹¹ See the BIS Triennial Surveys on Foreign Exchange, www.bis.org

¹² See, "Structural Aspects of Market Liquidity from a Financial Stability Perspective – A discussion note prepared by the CGFS for the March 2001 meeting of the Financial Stability Forum (FSF), www.bis.org/publ/cgfs_note01.htm and "Implications for liquidity from innovation and transparency in the European Corporate Bond Market", Lagana, M., Perina, M., von Koppen-Mertes, I., Persaud, A. D., ECB Occasional Paper Series, No. 57, August 2006.

¹³ Fleming, M. J, "Measuring Treasury Market Liquidity", Economic Policy Review, Volume 9, Number 3, September, 2003.

¹⁴ The comprehensiveness based on pre-August 2004 data.

Table 2
Average daily turnover in March 2006 on major electronic platforms (MTS in Europe and e-Speed and BrokerTec in the US)

Country / Region	Volumes Traded ¹⁵ (€, Millions)	Outstanding Amount ¹⁶ (€, Millions)	Turnover (volumes/ bonds outstanding, %)
Belgium	9,026	218,120	4.1
Denmark	36,935	486,400	7.6
France	9,520	802,000	1.2
Germany	10,608	869,500	1.2
Holland	3,595	197,190	1.8
Italy	104,163	970,140	10.7
Portugal	9,263	69,780	13.3
Europe	183,109	3,613,130	5.1
US	3,666,342	2,638,680	138.9

2.3.2 Revealed preference of voice over electronic trading in Europe

Voice broking is necessary where liquidity is low and/or variable and a trader is required to heavily manage an order to reduce its price-impact and so reduce the cost to the buyer or seller. Electronic broking is preferred where there are a large number of small but easily standardised trades and where liquidity is good and the risk of volatility to buyers and sellers comparatively low.

Consequently, electronic broking tends to dominate trading in small trades and benchmark issues and voice broking is important in “off-the-run” issues, large or otherwise sensitive trades. The authorities have encouraged the adopting of electronic broking as it offers automatic audit trails and records and therefore reduces systemic risks. Electronic audit trails also allow DMO’s to monitor the compliance of primary dealers with their own rules.¹⁷

For those trades most suitable for electronic trading, the relative role of electronic versus voice broking is a measure of the confidence market participants have in the liquidity of the electronic market. In the US, over a period of stable, low interest rates electronic trading represents 98% of all “on-the-run” volumes (electronic plus voice). In Europe however, electronic trading represents just 65% of all volumes¹⁸. This revealed preference indicates a concern over the liquidity available on the single designated platform compared with that available on the electronic broking platforms in the US.

2.3.3 Measures of market shallowness in Europe

Why would a market exhibit tight bid-offer spreads but have the volume of a market with less liquidity? One explanation might be that primary dealers are forced to offer the appearance of liquidity through tight bid-offer spreads, but because this represents a cost to them, the size of the market is constrained. If this were the case we might expect to see the liquidity available at the tight bid-offer spreads being relatively small and a fair amount of activity occurring outside the best bid-offer spreads.

This can be observed in the results of an important survey by Dunne et al¹⁹ which uses data on MTS from April to May 2004. The impressive data that Dunne et al collect are not easy to interpret for our purposes, in part because they compare April to May 2004 on the dominant European platform, MTS, with April 2004 in the US on BrokerTec and with May 2005 in the US, on e-Speed. It would have been better to compare spreads and liquidity available across all three platforms for the same time, May 2005, but MTS data has not been made available for periods after the 2 August 2004, Citigroup trade. The second best solution if we cannot compare spreads across platforms at the same time for a recent time period is to compare

¹⁵ Securities with less than one year of original maturity are excluded

¹⁶ *ibid*

¹⁷ It should be noted however, that, to the extent that voice broking operates in tandem with electronic broking, some of the advantages of electronic broking have spilled over to voice broking.

¹⁸ Estimates made by ICAP, one of the leading voice and electronic brokers in the US and one of the leading voice brokers in Europe.

¹⁹ “European Government Bond Markets: transparency, liquidity, efficiency,” Dunne, P., Moore, M., Portes, R. 24 May, 2006, CEPR, www.cepr.org.

spreads across the largest platforms and so we compare European data on MTS in May 2004 with US data on e-Speed in May 2005.

Dunne et al have a measure of “best liquidity” which estimates the euro amount of liquidity available on the best three quotes and is one measure of how much liquidity lies beneath the best quotes, or market depth. The last column of Table 3, documents this best liquidity for a range of local-MTS markets and e-Speed. Although the best bid-offer spreads are zero across the platforms (the first column), the amount of liquidity available at the three best spreads on local MTS platforms is only around one-third to one-quarter of the liquidity available in the US on e-Speed.

Dunne et al estimate the price-impact of trading in Europe and the US by doubling the difference between the transaction price and the mid-point of the bid-offer price just before a transaction (multiplied by 100 in order to convert this measure into basis points). They refer to this as the effective spread. They record all of these spreads for the duration of the period and then they rank these spreads from lowest to highest. This enables them to identify the median spread and the average spread for different quartiles.

We are not sure that comparing quartiles is a good way of measuring different market depths as it effectively normalises the information. However, it is interesting to note that the median spread on the local MTS platforms is 2 basis points away from the best quotes, suggesting that the typical trade is not carried out at the best quotes. In the US, the median and best quotes on e-Speed are the same, indicating a market where the best quotes are reflective of the underlying market. Although 2 basis points is a small margin, it is important to note that this difference is recorded during a “quiet time” in the markets when volatility was modest. We might not expect to see any shallowness at all during a quiet time. These two observations of shallowness (a relatively low level of liquidity available at the best quotes, and a deterioration in the spread between the best quotes and the average quote) at a time when the market was not under stress, are significant.

Table 3:
Effective Spreads and Best Liquidity from Dunne et al (May 2006) using May 2004 (MTS) and May 2005 (e-Speed) data

Country	Effective Spread (Q1)	Effective Spread (Median)	Best Liquidity (Median)
MTS Austria	0	1.87	40
MTS Belgium	0	1.83	50
MTS Denmark	0	1.91	30
MTS France	0	1.92	30
MTS Italy	0	0.00	35
MTS Netherlands	0	1.96	20
MTS Portugal	0	1.89	50
MTS-Spain	0	0.00	60
e-Speed US	0	0.00	123

2.4 Liquidity summary

Four measures of market depth (volumes, proportion of electronic trading for benchmark issues, amount of liquidity available at the three best quotes and the difference the best spreads and the median spread) suggest that the measure of market tightness we observe on MTS is not well matched by measures of market depth. Liquidity without depth is not liquidity. It would appear that restrictive requirements placed on primary dealers’ secondary market trading have merely created “artificial liquidity”, liquidity that appears to be there but has no resilience to market pressure.

Section 3

Monopoly behaviour and consumer welfare costs

3.1 Electronic trading costs in European government bonds

In addition to the substantial concentration in the structure of the market and low volumes, electronic trading in European cash government bonds is characterised by a trading cost that is a multiple of costs on other electronic platforms.

Each “local” MTS in the EU has a separate fee structure. The transaction fees are based on a tiered structure that relates to the amount of volumes traded. The larger the traded volume, the lower is the commission. For the first tier, the transaction fee is around 10 euros per million for market takers. In addition there are membership fees payable annually or quarterly. There are also various other additional fees exclusive to a particular MTS platform such as connectivity fees and post-trade matching fees in the case of MTS Italy. On average, we estimate the all-in costs to be above €15 per €1m of bonds traded.

As a result of the market restrictions identified above, volume on the other electronic platforms in European cash government bonds, Eurex, BrokerTec and e-Speed, is very low and these platforms are likely to suffer from diseconomies of small scale. These diseconomies may or may not be offset by superior technology (except where technology is out-dated, most trading platforms exhibit economies of scale allowing them to lower costs with increased volumes.) However, despite this, the cost of trading on these platforms is approximately €7 per €1m of bonds or less than half of the cost of trading on the designated European platform, MTS.

Trading restrictions requiring primary dealers to use MTS if they wish to maintain their primary dealer status gives the trading platform the power to behave independently of competitive cost pressures, allowing it to profitably charge higher prices than if it faced effective competition from the existing lower cost venues or new entrants.

The direct transfer from consumers to MTS as a result of this market power is the difference between MTS prices and prices on other platforms and the size of volume carried out in the market. Even though volumes on MTS are low, given the size of the market, this still represents €18m per year²⁰. It is probable that primary dealers view these additional costs of using MTS as a cost to being a primary dealer and therefore pass these costs back to the DMOs, who of course are the agents of European taxpayers and citizens. The persistence of sizeable pricing

²⁰ $(€15 - €7) \times (€183,108^*) \times 12 = €17,578,368$; * monthly electronic trading volumes on MTS.

power for MTS, along with a market share of 88.7% outside Greece is evidence of the anti-competitive effect of these exclusionary arrangements.

Table 4
Estimated total transaction costs per €1m bonds traded on all major electronic platforms

Country	Total transaction Fees, €	Combined membership fees, €
MTS Austria	15	35,000
MTS Belgium	15	50,000
MTS Denmark	15	50,000
MTS France	14	60,000
MTS Italy	15	35,000
MTS Netherlands	9	32,000
MTS Portugal	12	50,000
Avg. e-Speed, BrokerTec (Europe)	7	0
Avg. e-Speed, BrokerTec (US)	3	0

3.2 Deadweight and dynamic costs from a loss of competition

It is likely that as a result of scrutiny and pressure MTS would lower its fees. But consumers are harmed in more ways than just paying higher prices. European consumers in general are ill served by an electronic market in cash interest rates that is so restricted in size. It is hard to identify and measure all of the ill effects of these restrictions, but it is clearly an impediment to financial innovation that elsewhere is an important source of economic growth.

In other markets, most notably the global foreign exchange market, trading in European interest rate futures and the secondary market for European equities, competition between trading platforms has delivered a raft of benefits including improved trading technology and straight through processing. These in turn have reduced potential systemic “unavailability of liquidity”, lowered trading costs, improved price discovery, created access to new sources of liquidity, led to the development of new financial products and boosted volumes.

Removing the exclusionary restrictions which exist today in the cash government bond market would transform these markets from one used as an expensive ranking exercise, where there are incentives for users to restrict demand, to a low cost market for hedging interest rate and Sovereign credit risk in a way that would support the innovation of new financial products for European consumers.

There are many tangible benefits from competition, however, it is important to highlight that the evolution of competitive markets is a “process of experimentation and discovery whose outcome is unpredictable”²¹. A clear indication of this has been the recent developments at exchanges like Deutsche Börse, Euronext and LSE. We do not know what competition will bring by way of innovations in liquidity provision and technology. “If business leaders could predict the outcome of markets there would be no need for them”²².

Today volumes on the electronic cash government bond market are just 5% of those in the US. It would not be an unreasonable expectation that, as a result of market integration efforts, volumes in the European cash government bond market could rise to at least one half of those in the US market, if not on par. In the former case, the deadweight loss to all consumers of European interest rate markets from the current restrictions is an estimated €119m²³ per year.

²¹ Quoted from “Big Bang shows the power of competition to surprise”, John Kay, FT, October 24, 2006

²² *ibid*

²³ (€15 - €3) x 0.5 x (€1,833,171* - €183,108) x 12; * Half of electronic cash US government bond volumes in euro terms

Section 4

Conclusions

The single European electronic platform is able to use the exclusionary restrictions on where primary dealers trade in the secondary markets to exert substantial market power. Although alternative, tried and tested trading venues charge approximately €7 per €1m of bonds transacted, MTS is able to charge approximately €15 per €1m bonds transacted. This market power results in a €18m transfer of consumer welfare to MTS, compared with what we would expect to see if MTS was in effective competition with the market's other trading platforms. We can expect this cost to be passed through to European taxpayers.

European consumers are harmed in more ways than just paying higher prices. Elsewhere competition between trading platforms has delivered improved trading technology and straight through processing. These innovations in turn have reduced potential systemic problems, created access to new sources of liquidity, led to the development of new financial products and boosted volumes. Assuming that the European cash government bond market could have at least half as much electronic volume as the US market (a market that is one third smaller) then the deadweight loss of these restrictions to all users of European interest rate markets is an estimated €119m per year.

The principal argument for maintaining these restrictions is that they produce production efficiencies by pooling liquidity in one location. But today's technological and regulatory changes mean that users of multiple electronic trading platforms can see the best bids and offers from different locations, at the same time on the same screen, leading to an automatic aggregation of liquidity. Therefore, this has now become a redundant argument. Price discovery on one platform informs the others. Today there are many examples of competition between electronic platforms leading to cost-reducing innovations, higher volumes and deeper markets with no reduction in market "tightness". *There is no liquidity advantage of quoting and pricing obligations on one trading venue.*

Indeed, we find a range of evidence to suggest that *these obligations may be creating artificial liquidity and systemic fragility* - a suggestion reinforced by the 2 August 2004 Citigroup trade. Our findings support those of the Second Giovannini Group Report (Giovannini Barrier 10) and

those in the Commission's May 2006 Securities Issues Paper questioning the national restrictions placed on primary dealers in Europe's secondary government bond markets.

We conclude that restrictions in European government bond trading, settlement and clearing deliver questionable benefits in terms of liquidity, raise systemic concerns and are a substantial cost to consumer welfare. Integration and development of national government bond markets in Europe will best be achieved through establishing a platform neutral regulatory framework.

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ICAP plc

2 Broadgate
London
EC2M 7UR
United Kingdom

Telephone + 44 20 7000 5000
Facsimile + 44 20 7000 5975

www.icap.com



**Intelligence
Capital**

Intelligence Capital Limited

2nd Floor, 145-147 St. John Street
London
EC1V 4PY
United Kingdom

Telephone + 44 20 7788 7804
Facsimile + 44 20 7788 2951

www.intelligence-capital.com