

**DEALERSHIP MARKETS AND TRANSPARENCY:
A BRIEF REVIEW OF THE ACADEMIC LITERATURE**

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1 To date electronic trading in asset markets has been greatly associated with the introduction of order books. This brief review considers the relative merits of dealership versus order books. It also examines the impact of increasing transparency on the costs and profits of various market participants. Given that electronic trading tends to be associated with greater levels of transparency, it is also useful to consider this literature at this juncture.

2 The market micro-structure literature on the relative merits of dealership markets versus auction agency (order book) markets has primarily focussed on equity markets. There are, however, some fundamental differences between equities and government bonds, principally regarding the information that determines the prices of securities in each of the two markets. In addition, there is generally a large difference in the trade characteristics between these two asset classes, with a greater proportion of small investors active in the equity markets. Therefore, a structure that is appropriate in one market may not necessarily be suited to the other. Nevertheless, this literature does offer some insights into the issues and behaviours that affect the choice of market structure.

3 Dattels (1995) provides a useful background to the subject of choice of market structure. He identifies and discusses various issues surrounding the design of market structure for government debt including the incentives of the various official bodies. He identifies the key role of intermediaries as that of providing a bridge between the sporadic and uneven arrival of public orders, offering immediacy at a cost. He characterises a pure dealer market as one where a public order does not have the opportunity to be exposed to another public order, which is the essence of an auction-agency (or order-book) market. Electronic dealer markets tend to be characterised by quotes centralised on a screen-based network; such a system effectively eliminates IDBs. However, he notes that centralised trading with transparent reporting reduces the opportunities for dealers to compete for order flow and may lower the incentives to participate. Additionally dealers in such an environment where automatic trade execution is facilitated are unable to differentiate between trades, which may reduce their appetite for risk, so trade size is likely to get smaller and spreads may widen. In general, in markets characterised by a high

proportion of block size trades, a dealer market may be preferred. Block traders can have a high demand for immediacy that is best satisfied by dealers.

Theoretical literature

4 Pagano and Roell (1996), consider the trading costs associated with dealership markets relative to continuous and transparent auctions. They find that uninformed 'noise' traders face lower trading costs on average over all trade sizes in the continuous (and transparent) auction structure relative to the dealership market. However, large traders may benefit from the opaque dealership structure. If the trader is uninformed, he can reveal that to the dealer (minimising the dealer's need to compensate himself for adverse selection risk). Alternatively, if he is informed, then the dealer can benefit from his information in subsequent trades and may pass some of that benefit back to the trader. However, Pagano and Roell's analysis does not take account of execution risk so there is no allowance for the impact this might have on traders' utility functions. They conclude that if policy makers want to reduce the transaction costs of uninformed traders then they should encourage transparency; however, some traders may be worse off, i.e. large traders may gain from the lack of transparency at the expense of uninformed traders.

5 Again on the theoretical front, Naik, et al (1999) show that in a dealership market, order flow is informative and dealers will compete for that information by offering preferential prices. This means that in some circumstances the spread declines with the information content of the trade. It is difficult to conceive of circumstances where this would be the case in an auction market. Their model shows that spreads are narrower for uninformed investors when there is full and prompt disclosure because disclosure facilitates more efficient inventory risk sharing. They also show that in an auction (order book) market spreads will be monotonic in order size, i.e. spreads increase as trade size increases. They conclude that no one market structure stands out as one that offers better prices for all types of trade and for all trade sizes. Trades with little information can fare better in a dealership market with full disclosure than in a standard auction market. However, auctions appear to be best where trades contain intermediate amounts of information, while dealership with limited disclosure favours informed trades. They also show that increasing transparency works against the execution of large trades which perhaps explains why many

electronic trading systems, including SETS and LIFFE Connect, have special facilities for executing block trades.

6 The model of Forster and George (1992) shows that the degree of anonymity provided by a market will alter the distribution of wealth across agents and the depth of the market. They show that revealing the direction and size of liquidity trades in advance of trading can decrease the expected transaction costs of liquidity motivated traders, providing a motivation for so-called 'sunshine trading'.

7 Handa, et al (1997) model the investor's decision to place a market or a limit order in an order driven market where there are some informed investors present. They show that the spread is maximised in this market, where there are no committed liquidity providers, when the proportion of buyers is equivalent to the proportion of sellers. This is in contrast to the position where a risk-averse dealer provides liquidity; in the dealer market, the spread is minimised when there is an equal number of buyers and sellers.

Empirical literature

8 Much of the empirical work on government bond markets focuses on measuring liquidity in the market. Work by the Euro-currency Standing Committee (published by the Bank for International Settlements) on market liquidity identified the market impact of macroeconomic announcements in a range of markets including the UK gilt market, building on the work of Fleming and Remolana (1997). In addition, a number of papers have considered trading costs in European government bond markets including Proudman (1995), for UK gilts, and Scalia and Vacca (1998), for Italian bonds. Others have examined market maker revenues (Hansch and Saporta (1999)) and the information content of inter-dealer trades (Vitale (1998)). However, few have addressed explicitly the choice of structure of the market and considered how it should evolve. Most of the empirical studies that consider the question of competing market structures are based on equity markets.

9 Blennerhassett and Bowman's (1998) empirical work provides support for the conclusions of Naik, et al (1999). They present evidence that a move from a telephone dealership market to a screen-based order book on the New Zealand stock exchange led to a reduction in trading costs. However, they also found that the

spread became more sensitive to trade size that might impose disproportionate costs on large quantity traders.

10 Recent empirical work (such as Naik and Yadav (1999)) on the impact of the change from dealership market to order book in the London equity market has addressed this issue and it appears that investors have benefited from this change in that they now face lower trading costs. However, these benefits are restricted to the most actively traded stocks so that the possible impact of a switch to an order book for less actively traded securities remains uncertain.

11 Madhavan and Sofianos (1998) study the behaviour of specialists on the NYSE. Specialists supplement the public auction process by occasionally acting as dealer. There is one specialist per stock traded on the NYSE; specialists, however, can be registered in several stocks. Specialists are required to buffer temporary shifts in supply or demand, thereby allowing prices to move from one point to another in an orderly fashion, reducing volatility. They also supply liquidity to the market in this fashion. Madhavan and Sofianos establish a number of facts – most of which are unsurprising. First, specialist participation rates are negatively related to trading frequency and capitalisation of the stock, so liquidity provision becomes less important the more frequently securities trade. Specialists' participation is more sensitive to inventory when the stock is small; this means that they perceive their risk to increase with the proportion of stock that they hold. Again a significant proportion of stock in specialists' hands would be indicative of an illiquid security. However, the authors show that their participation does help reduce execution costs and stabilises prices.

12 Much of the empirical literature can be classed as event studies and as such changes directly resulting from an 'event' are difficult to distinguish from other unrelated changes in trading behaviour or trading patterns. Given this, experimental research could provide a clearer insight into the impact of changes in trading environment on trading behaviour.

Experimental literature

13 Bloomfield and O'Hara (1999) conduct a laboratory experiment to examine the impact on trading costs and price efficiency of changing the level of transparency in a

multiple dealership market. They examine three settings classified as 'opaque', equivalent to a telephone dealership market where prices are sought by the trader from a number of dealers simultaneously; 'semi-opaque', where firm quotes are posted centrally for all to observe; and 'transparent', where all firm quotes and transaction prices and quantities are observed by all.

14 The authors find that there is little difference between price-efficiency and spreads between the 'opaque' and 'semi-opaque' settings. However, they find that prices move very quickly to their new equilibrium level in response to new information about the security's value in the transparent setting, but that this increase in price efficiency is achieved at the cost of increased trading costs.

15 They also find that transparency has a significant impact on traders' returns. Informed traders' profits are lower in the transparent setting than in either of the other two settings. However, the difference in profits between the opaque and semi-opaque is not significant. Liquidity traders (who need immediacy) do badly in every market setting. However, their losses are also affected by the degree of transparency in the market; they are significantly larger in the transparent setting. This is in contrast to the findings of Pagano and Roell and Forster and George, who would expect the change in the level of transparency to change the distribution of returns away from informed traders but towards the uninformed, liquidity traders. Bloomfield and O'Hara find that while the informed traders lose as transparency increases, uninformed traders also lose. Consequently, and perhaps counter-intuitively, market makers benefit as transparency increases (although quote disclosure has no discernible effect on market makers' earnings). The authors attribute this to the fact that transparency reduces the need for market makers to compete for order flow by narrowing spreads, allowing market makers to earn greater returns. This is a significant departure from standard microstructure theory (which would have predicted that their winnings would have been unchanged but that the winnings of informed traders would have been redistributed to uninformed traders).

16 The authors suggest their findings call into question the Securities Exchange Commission's single-minded view that full price transparency should be the ultimate goal of a market regulator/designer. Transparency will benefit the market if the regulator's aim is to make markets fully price efficient, but this will not benefit the

uninformed investor in terms of the transaction costs he faces. Indeed, if the market is characterised by a large number of liquidity traders who demand immediacy, then opaqueness may be the preferred/optimal setting. The results also lend support for delays in publishing details of large block trades as this less transparent setting might have value in promoting market liquidity.

17 Flood et al (1999) conduct a similar experiment, although their experiment is conducted in a more dynamic setting. They find that increasing the level of pre-trade transparency, by moving to the 'semi-opaque' setting, generates new trading interest so that the volume of trade increases, although there is little significant impact on the trading costs of investors. In contrast to Bloomfield and O'Hara they find that prices actually become less efficient as the trading environment becomes more transparent.

Conclusions

18 The academic findings are far from conclusive. There is some evidence that introducing more pre-trade transparency into a market may generate new trading interest due to the reduction in search costs faced by investors. This is unlikely to change investors' trading costs significantly. However, in an automatic trade execution environment, this greater price transparency should be accompanied by pre-trade anonymity. There is evidence that there is a significant role for liquidity providers in less liquid securities but that introduction of a full order book might bring benefits to investors active in very liquid securities. However, the impact of introduction of an order-book has only been tested to date in equity markets; the different trading characteristics of bonds means that there is not necessarily a straight read across to bonds. The evidence of the impact of increasing post-trade transparency in the market is mixed. Everyone appears agreed that informed traders (who can be thought of as large block or professional wholesale traders in government bond markets as there is no private information in these markets) will be worse off. Standard theories suggest that there would be a redistribution of wealth from these informed traders in favour of uninformed traders; however, the experimental literature casts some doubt on this assumption.

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