



Liquidity in auction and specialist market structures: Evidence from the Italian bourse

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ABSTRACT

Several studies find that bid-ask spreads for stocks listed on the NYSE are lower than for stocks listed on NASDAQ. While this suggests that specialist market structures provide greater liquidity than competing dealer markets, the nature of trading on the NYSE, which comprises a specialist competing with limit order flow, obfuscates the comparison. In 2001, a structural change was implemented on the Italian Bourse. Many stocks that traded in an auction market switched to a specialist market, where the specialist controls order flow. Results confirm that liquidity is significantly improved when stocks commence trading in the specialist market. Analysis of the components of the bid-ask spread reveal that the adverse selection component of the spread is significantly reduced. This evidence suggests that specialist market structures provide greater liquidity to market participants.

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1. Introduction

Stock exchanges worldwide implement various methods of trading equity securities. Each exchange has a set of rules which dictate how orders are submitted, who handles and processes these orders, and ultimately how prices are set (O'Hara, 1995). The organisation of trading directly affects the provision of liquidity to market participants. Individual and institutional investors both prefer liquid markets that offer low trading costs, and which can absorb large orders without severe price penalties. The provision of liquidity has attracted considerable interest from both academics and market regulators. In particular, comparing specialist markets (such as the NYSE) with other market structures (such as the dealer structure of NASDAQ) to determine which facilitates the greatest liquidity is an important practical issue. This paper investigates the change in liquidity caused by a shift from an auction market to a specialist market on the Italian Bourse.

Almost all liquidity comparisons of specialist and non-specialist market structures are US based. The overwhelming majority of studies find that the NYSE specialist market is associated with a lower cost of trading when compared to the NASDAQ dealer market. Affleck-Graves et al. (1994), Huang and Stoll (1996) and Bes-

sembinder and Kaufman (1997) examine bid-ask spreads for NYSE/AMEX stocks relative to NASDAQ stocks. They document that execution costs are lower for NYSE/AMEX listed companies.¹

Christie and Huang (1994) and Barclay (1997) examine whether structurally induced changes in trading costs occur when firms relocate from a dealer market to a specialist market. Their results confirm that the move away from NASDAQ leads to a significant reduction in transaction costs.² Amidst these studies finding lower costs on the NYSE (and AMEX), several studies find that liquidity is higher on OTC markets. Dubosky and Groth (1984) and Cooper et al. (1985) find that the highest liquidity exists for NASDAQ/OTC stocks. Chan and Lakonishok (1997) document that the cost of trading in small firms is lower on NASDAQ, while the NYSE provides better execution for larger firms.

While these studies compare liquidity across exchanges, the exact nature of the comparison (i.e. the market structure) is unclear. NASDAQ is a 'competitive' dealer market, employing several market makers for each security. The NYSE, however, is ambiguous.

¹ Neal (1992) compares the bid-ask spread for options on AMEX, which operate a specialist structure and the Chicago Board of Exchange (CBOE), which operate a competitive market maker structure. He finds that when trading volume is low, the specialist structure provides more liquidity, although the benefit decreases when trading volume increases.

² Nimalendran and Petrella (2003) find that specialist intervention improves liquidity for the most illiquid stocks on the Italian Stock Exchange.

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Brock and Kleidon (1992) describe specialists on the NYSE as monopolistic market makers. Huang and Stoll (1996) describe the NYSE as an auction market that employs a specialist for each security. Affleck-Graves et al. (1994, p. 1473) describe the specialist as “enjoying an exclusive franchise to make a market in a listed stock and to manage the book of public limit orders”. The adoption of a limit order book to provide additional liquidity is considered as competition to the specialist (Glosten, 1994). Overall, the exact nature of trading on the NYSE cannot be classified as a single, definitive market structure.

Demsetz (1997) argues that the limit order book alongside the specialist makes comparisons using the NYSE difficult. In particular, customer limit orders can obscure the link between observed bid-ask spreads and the costs of market making. Bid and ask quotes could reflect supply and demand conditions of investors rather than the inventory, order processing and adverse selection components of professional market makers. This is confirmed by Kavajecz (1999) who finds that public limit orders are represented in about 64% of NYSE specialists’ quotes, and Ross et al. (1996) who report that limit orders account for 65% of all executed orders. This, as Demsetz clearly states, “. . . must yield an average NYSE bid-ask spread that, for similar stocks, is smaller than on the NASDAQ” (1997, p. 92). Thus comparing bid-ask spreads on the NYSE and NASDAQ can be misleading as bid-ask spreads on the NYSE do not accurately represent the costs of making a market.

This hybrid nature of trading on the NYSE makes comparing liquidity across dealer and specialist markets ambiguous. In this paper, we have access to a dataset that allows an accurate comparison between two market structures. On April 2, 2001, a specialist segment was introduced on the Italian Bourse. Stocks that originally traded in an auction market commenced trading in a specialist market. This specialist, rather than competing with limit order flow, receives *all* orders and decides whether to execute these against his/her own inventory, or to post them in a limit order book which he/she *controls*.

In addition to this ‘clean’ experimental design, we directly test for the advantages of a specialist market over an auction market. Madhavan and Smidt (1993) show that quote revisions are related to order imbalances. The increased volume at the open and close of trading leads to greater order imbalances, and thus higher expected specialist bid-ask spreads. Brock and Kleidon (1992) consider specialists as monopolistic market makers. As fund managers and institutional investors concentrate the majority of their trading at the close, the specialist can discriminate during these periods and widen bid-ask spreads. Pagano and Roell (1996) argue that the transparency of the market is important, with an auction market more transparent than a specialist market in that more information can be made available to all participants. In particular, market participants are able to see what price incoming orders can be executed at, leading to reduced risk and thus tighter bid-ask spreads.

However, there are several arguments as to why a specialist is better able to manage the risks of providing liquidity, thus leading to reduced bid-ask spreads. Several studies, including Benveniste et al. (1992), Kavajecz (1998) and Dupont (2000), argue that specialist’s are better able to differentiate between informed and uninformed traders compared to limit order traders, and can adjust the adverse selection component of the spread accordingly. Chung et al. (1999) show that the specialist’s ability to manage inventory leads to a reduction in specialist quotes in the final 30 min of trading on the NYSE. Harris (2003) argues that the advantage derived by the specialist of receiving the entire order flow compensates for increased inventory management and order processing costs compared to limit order traders. Based on these conflicting arguments, we hypothesize that the bid-ask spread (and quoted depth) will change when stocks commence trading in the Star specialist market, however the direction is an empirical issue.

Our results indicate that there is a significant reduction in bid-ask spreads, while quoted depth is significantly reduced, when stocks move to a specialist market. After controlling for changes in volume and volatility, the reduction in bid-ask spreads is confirmed, while quoted depth is insignificantly different around the change. Examination of execution costs reveals that execution costs are significantly reduced for *all* trade-sizes, confirming a significant increase in liquidity after the move to a specialist market. Further analysis reveals that the reduction in bid-ask spreads is driven by a reduction in the adverse selection component of the spread, suggesting that the specialist is better able to manage adverse selection risks compared to limit order traders.

The remainder of this paper is structured as follows: The following section describes the institutional details of the Italian Bourse. Section 3 describes the data and empirical results. Section 4 summarizes the paper.

2. Institutional detail

The Italian Bourse operates a segmented market structure. Prior to 1991, all trading took place by means of an open outcry auction system on ten regional stock exchanges. Since April 1994, all trading has been centralized through an electronic auction market. The market is supported by a network linking all authorized securities firms throughout Italy and abroad (*Handbook of World Stock Exchanges, 2001*). It enables trading in real time of all securities, independently of physical location. With this system, liquid equity securities trade continuously over an entire trading day, while a parallel system for less liquid securities trade continuously for approximately half the trading day.

On April 2, 2001, the two categories of shares (liquid and less liquid) were replaced by three new segments, primarily based on market capitalization. Financial instruments above a pre-defined level set by the Exchange were classified as “Blue Chip”. Trading for these securities continues as for the auction market described. For financial instruments below the level, the issuer decided to be included in one of two market segments. The first is the ordinary segment of the market, known as “SBO”. Trading in this segment continues as for the auction market described. Alternatively, the issuer could be included in the “Star” segment.³

The Star segment differs in that each security is assigned a specialist to control trading. All orders originally sent to the electronic order book are now channeled to the specialist. Rather than competing with the limit order book (like NYSE specialists), the Star specialist controls the limit order book. Thus the specialist can execute the order against his/her own inventory. Alternatively, the specialist can post the order in the electronic order book visible to other participants.

Additional to these three primary segments, the Italian Bourse also has the “Nuovo Mercato” (herein New Market), a market designed to handle high-growth companies. Trading in the New Market commenced in June 1999. Companies in this segment are also appointed a specialist to sustain liquidity. These specialists must expose all orders until a minimum daily quantity is transacted. However, the specialist has monopolistic powers for institutional block orders, where he/she can hold the order for five minutes before deciding to either transact the order, or post it in the electronic limit order book (*Handbook of World Stock Exchanges, 2001*).

3. Data and empirical results

To test the effect of moving from an auction market to a specialist market, we identify firms that were listed on the original

³ All three segments trade continuously over the entire trading day.

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