Abstract

Real investment in plant, equipment, and working capital for individual firms and for the economy in aggregate, will be optimal only if the primary market for financial capital operates efficiently. The primary market, in turn, requires an efficient secondary market. Liquidity is an important measure of operational efficiency of the secondary market. We study the combined effects of characteristics of firms and trading mechanisms on liquidity.

In our research, we consider one characteristic of firms, i.e. the firm size as represented by market capitalization, and three trading systems whose classification is primarily based on the role of intermediary.

Our choice of the firm size is based on the fact that its effect on liquidity is major when compared to the other characteristics of firms. Our research design controls only this factor and assumes the effects of other factors on liquidity to be minimal.

We use samples of stocks from the Paris Bourse continuous-A trading system, NYSE and NASDAQ markets. Paris Bourse continuous-A system represents a pure order driven / agency market and provides liquidity through a limit order book. NYSE represents a combination market where a monopoly dealer competes with the limit order book to provide liquidity. NASDAQ market represents a pure dealership system where multiple dealers compete with each other to provide liquidity.

The purpose of this research is twofold. First, to establish the economic arguments in order to formulate the hypothesis that would identify the suitability of stocks, based
on the firm size, for a particular trading mechanism in enhancing liquidity and arrive at the testable propositions. **Second**, to empirically evaluate the propositions and draw conclusions.

Recent studies show that the quoted bid-ask spread covers three costs viz. order processing costs, inventory holding costs and adverse information costs. Our theoretical arguments are based on the combined effects of firm size and trading mechanisms on these three cost components of the quoted spread. We consider the effects of firm size and trading mechanisms on the three cost components and then arrive at their net effects. An analysis of the characteristics of large firms versus small firms and the different trading systems aid us in quantifying the effects of these two factors on the three cost components. From this we formulate our hypothesis and testable propositions.

**First, we consider the effects of firm size** on the three cost components. In the absence of informational trading, value of stocks traded would be in proportion to the value of shares outstanding. Large firms with higher value of outstanding shares record higher dollar volume than small firms do in any ordinary trading day. Order processing costs represent the clerical costs of carrying out the transactions, the cost of the dealer's time and the cost of physical communications and office equipment necessary to carry out the transactions. These costs are fixed in nature and so costs per dollar of stock price reduces as the value of trading increases. Hence larger firms with more dollar volume of trading incur substantially lower order processing costs per dollar of stock price when compared to smaller firms. This effect happens irrespective of the trading mechanism.
Large firms tend to have a high level of monitoring and public information dissemination by securities analysts and others [Bhide (1993) and Ho and Michaely (1988)]. Moreover large firms disseminate information about themselves to the market. This greater degree of informational efficiency helps all the market participants to have access to information cheaply in the case of large firms and reduces the adverse information costs irrespective of the trading mechanism. This is not the case with smaller firms.

Estimates by George, Kaul, and Nimalendran (1991), Hasbrouck (1988), Madhavan and Smidt (1991), and Stoll (1989) suggest that inventory holding costs appear to be relatively small. Further the inventory holding cost component depends on a number of factors viz. trade volume, initial inventory level, dealer’s wealth, relative risk aversion, risk of the stock and expected holding period. So we expect this component to show a mixed trend across different sized stocks in any trading system.

In essence, due to the effects of firm size on the cost components, larger firms experience lower total cost and smaller firms experience higher total cost.

**Design of the trading mechanisms** also affects the order processing costs, inventory holding costs and adverse information costs. Affleck-Graves, Hegde, and Miller (1994) argue that by promoting greater direct interaction of public orders, auction based exchange trading reduces the order processing cost component of the quoted spread relative to the multiple dealer market. Further they argue that unlike multiple dealers in the pure dealer market who are able to share the inventory risk, the monopoly dealer faces a large cost of absorbing a given imbalance in order flow, which increases the inventory holding cost component of the quoted spread in a
combination market. We share a similar view so we expect lower order processing costs in pure order driven and combination markets when compared to a pure dealer market. The inventory holding costs would be more in the case of the combination market though the overall contribution by this component to the quoted spread may be small.

As far as the role of adverse information cost component in each of the markets is considered, our argument runs on the following lines. In a combination market a single monopoly dealer with the sole responsibility of making market assumes greater risk. This added risk compels him to gather information in a firm in which he makes market. The information he conveys through the quotes sends sufficient signals about the stock he makes market. This effect reduces the adverse information costs in a combination market. Though in a pure dealer market the designated dealers constantly gather information in order to minimize their informational handicap with respect to informed traders, the multiple signals contain enough “noise” to increase the adverse information. We feel this noise creation in a pure dealer market puts itself in a less advantageous position even when compared to a pure agency market where there are no dealers.

The order processing costs and inventory holding costs are to a large extent within the control of the market participants. On the other hand, the firm influences adverse information costs to a large extent. Hence we expect the adverse information cost component to be the major cost component followed by the order processing costs in any market across different firm sizes.

The combination market has a distinct advantage over the other two systems as far as the two major components (i.e. adverse information and order processing cost...
components) are concerned. Consequently the total cost would be low in a combination market.

We conclude that the trading mechanisms differ in providing liquidity and the combination market has an edge over the other two markets.

The combined effects of firm size and trading mechanisms on the different costs can be summarized as below. Large firms experience very low total cost in all the three trading systems. The advantage of a combination market does not make any significant difference over the other two trading systems, as the total cost is already very low. So large firms provide liquidity irrespective of the trading mechanism.

The difference arises only in the case of small firms. As the total cost of making market for the small firms is high, the advantage of the combination market is more pronounced. So we expect the combination market to offer highest liquidity and the multiple dealer market to provide the least liquidity.

The practical implication of our hypothesis is that a combination market like the NYSE, where a monopoly dealer competes with the limit order book, provides higher liquidity than the other two types of trading systems, irrespective of the firm size.

To test the above hypothesis we formulate a series of testable propositions and empirically evaluate them. We use the Stoll (1989) methodology to decompose the bid-ask spread into its components. We use the execution cost measure developed by Hasbrouck and Schwartz (1988) to estimate liquidity. The empirical results support our hypothesis.