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Can order exposure be mandated? ☆

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Abstract

In this paper, we examine whether the hidden portion of limit orders represents depth that would be revealed if traders were not allowed to hide it, and the associated market quality implications. Specifically, we examine the decisions by the Toronto Stock Exchange to first abolish the use of hidden limit orders in 1996, and then reintroduce them in 2002. We find that quoted depth does not change following either decision, suggesting that the hidden portion of orders represents depth that would otherwise not be exposed. Using confidential order data for the period following the reintroduction of hidden limit orders, we find that total inside depth increases. For both events, volume does not change and the usage of the limit order book increases if hidden limit orders are allowed. This suggests that if traders are required to expose their orders they will not exit the market, but instead will switch to using market orders. We also find evidence to suggest that informed traders use hidden limit orders to minimize price impact if the probability of non-execution is small.
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Transparency in the trading process has recently emerged as an area of sharp disagreement among regulators, exchanges, market participants and academics. The Securities and Exchange Commission is clear on its stand that the more transparent

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a market, the better it is for the investors.[1] In contrast, recent studies suggest that while some forms of transparency improve market quality, others may actually result in a decline in market quality. These academic studies have also shown differing trader behavior for different types and levels of transparency.

In this paper, we contribute to the pre-trade transparency literature by examining the impact of mandated order exposure on market quality and trader behavior. Specifically, we examine the Toronto Stock Exchange's decisions first to abolish the use of hidden limit orders for the stocks traded on its electronic Computer Aided Trading System (CATS) on March 18, 1996, and then to reintroduce them six years later, on April 12, 2002.[2] These exogenous shocks with opposite predictions over two different time periods provide us with a unique opportunity to study the market quality implications of hidden limit orders. The availability of confidential order data for the 2002 sample also allows us to observe hidden liquidity and thus allows us to directly test hypotheses regarding the usage and placement of hidden limit orders.

The exchange's decision in 1996 to abolish hidden limit orders may have been an attempt to improve quoted depth in the belief that higher displayed liquidity would attract additional order flow from market order traders. If such an influx of additional order flow were to occur, then the probability of execution for limit order traders would increase as well, thus making the market more attractive to limit order traders. However, market participants determine the success of any regulation. Therefore, we focus our study on the motivations for the use of hidden limit orders. Limit order traders hide quantity in the limit order book to limit the option value of their order, to reduce the risk of being front run, to minimize losses due to trading with informed investors, or, if they are informed, to hide their information and minimize price impact. Once order size can no longer be hidden, traders are faced with three choices: (1) display the hidden portion of their order, (2) exit the market, or (3) manage their orders actively. Each of these choices would have significant, and different, implications for market quality.

We find that spreads, quoted depth, total liquidity (measured by Kyle's lambda) and volume are not affected by the abolition of hidden limit orders. This leads us to conclude that limit order traders did not simply reveal the hidden portion of their orders, but instead actively managed their orders. This is corroborated by a decrease in the number of quote updates indicating fewer limit orders being placed on the book. We find no evidence that market quality either improved or deteriorated as a result of the exchange's decision to disallow the use of hidden orders.

The results of the period surrounding re-introduction of hidden limit orders are consistent with those around their abolition. We find that once again spreads, execution costs and visible depth remain unchanged. The availability of order data allows us to directly observe hidden depth in this period. We find that total depth at the inside, which includes displayed as well as undisclosed depth, shows a statistically

[1] SEC Market 2000 Study.

[2] Orders which allow a part of the order to be hidden are also known as iceberg orders or undisclosed limit orders.

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