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The information content of special orders☆

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ABSTRACT

We consider the role of special orders in informed traders' order submission strategies and their effect on the market price discovery process. Special orders, such as Fill-and-Kill and All-or-Nothing orders, are not entered in the order book; instead, they are executed immediately. This means they do not require costly monitoring and are not visible to other traders. Due to the fact that informed institutional traders, including high-frequency traders, use aggressive special orders, they generate higher price impacts than normal orders, particularly in volatile markets.

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1. Introduction

What order types do informed traders use? An extensive body of literature has attempted to answer this question, but has failed to produce conclusive evidence. Early studies by [Glosten \(1994\)](#) and [Seppi \(1997\)](#) present theoretical models of limit order markets in which informed traders carry out trades using market orders. This preference for market orders over limit orders reflects informed traders' presumed impatience to capitalize on their information. [Harris \(1998\)](#) incorporates limit orders in informed traders' order submission strategies, but argues that informed traders are less likely than liquidity traders to use limit orders. In contrast, recent studies argue that informed traders may prefer limit orders ([Chakravarty and Holden, 1995](#); [Anand, Chakravarty, and Martell, 2005](#); [Bloomfield, O'Hara, and Saar, 2005](#); [Wald and Horrigan, 2005](#); [Kaniel and Liu, 2006](#)).

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The current debate on the order choice of informed traders focuses almost exclusively on the choice between limit and market orders. Exchanges, however, allow traders to submit orders with special features. For example, hidden orders allow traders to hide part of their order size. Intermarket Sweep Orders allow traders to simultaneously access the display books of all market centres.

This study contributes to the current debate on informed traders' order submission strategies by examining the information content of a group of special orders: Fill-and Kill (FK) and All-or-Nothing (AK) orders. In Fill-and-Kill orders, traders ask for the orders to be filled as much as possible; the orders' unfilled portions are then cancelled. In All-or-Nothing orders, traders ask for the orders to be completely filled; if an order cannot be filled completely, it is cancelled. These two order types dominate the category of special orders traded in Australia. We find that these special orders account for a large proportion of trades on stocks listed on the S&P/ASX 200 in 2009 in the lit market. Overall, the volume (number of shares) traded using special orders account for 7.41% of the total traded volume. In addition, the number of trades initiated by special orders in 2009 was approximately 11.45% of the total number of trades by all orders.

There are various reasons informed traders may wish to use special (i.e., Fill-and-Kill and All-or-Nothing) orders instead of normal limit orders. First, informed traders do not want their orders to be visible in the limit order book, since this may allow other traders to detect their information. Second, special orders also do not linger in the order book, which can cause them to become stale and ultimately to be 'picked' off. As a result, by using special orders, traders gain two advantages: first, their private information is not leaked to the market, and second, their monitoring costs are reduced, since they do not need to worry about orders staying in the order book and becoming stale.

We examine the information content of special (i.e., Fill-and-Kill and All-or-Nothing) orders for the constituent stocks of the S&P/ASX 200 index for the period between January 2nd, 2009, and December 31st, 2009. We choose 2009 to avoid the potential impact of the introduction of Centre Point, the ASX-operated dark pool, in June 2010, and the effect of the introduction of a second stock exchange (Chi-X) in October 2011. We show that special orders have a higher price impact than equivalent/matched normal orders and observe this finding for both buy and sell orders. This finding suggests that special orders are more informed than matching common orders. We also use alternative windows (five minutes, ten minutes, fifteen minutes, and thirty minutes) to measure price impact and obtain consistent results.

We next attempt to explain why special orders have higher price impacts or information content. We conduct two main analyses. First, prior studies document that institutional investors are better informed than individual investors (see, for example, [Szewczyk, Tsetseko, and Varma, 1992](#); [Alangar, Bathala, and Rao, 1999](#); [Chakravarty, 2001](#); [Dennis and Weston, 2001](#)).¹ Thus, the higher price impact of special orders may be due to the prominent use of these orders by institutional investors. We find evidence supporting this conjecture. By classifying institutional orders as orders submitted by institutional brokers ([Fong et al., 2014](#); [Tian et al., 2015](#)), we find that institutions account for 99% of all special order submissions in 2009 and that special orders submitted by institutions have higher price impacts than non-institutional special orders.

We further show that, amongst the institutional brokers, six brokers contribute over 85% of special order submissions. Based on broker identities and [Australian Securities and Investment Commission \(ASIC\) \(2013\)](#) criteria for categorising traders as high-frequency traders (HFTs), we verify that two of the six are well-known HFTs with a global presence, while the other four are investment banks (with either proprietary trading desks, broking arms, or both). One of the two brokers classified as HFTs uses special orders in 80% of all of its order submissions. The price impact for this broker's special orders is also significantly higher than that of the other brokers' special orders.

Second, if special orders are information-driven, we should observe higher price impacts for special orders in volatile markets. This is because information arrival is often associated with higher volatility ([Clark, 1973](#); [Epps and Epps, 1976](#); [Tauchen and Pitts, 1983](#); [Harris, 1986](#); [Andersen, 1996](#)). Higher volatility also implies a greater "picking-off" risk for limit orders ([Foucault, 1999](#)). Since special orders are submitted primarily by institutions, and institutions often monitor the limit order book more closely ([Aitken et al., 2007](#)), we can expect higher price impacts and greater "picking-off" activity from institutions when volatility increases. We find that special orders have higher price impact than common orders during markets with high volatility. This is consistent with our argument that special orders are information-driven.

Our study is novel because it makes the following contributions to the literature. We provide the first comprehensive analysis of Fill-and-Kill and All-or-Nothing orders. No prior research has explored the use of these orders in comparison to common market or limit orders. In 2009, a total of 5,040,416 special orders were traded on the ASX. Our findings show that these orders have higher price impacts than their equivalent normal orders. These findings complement the scant literature documenting the significant information content of orders with special features (see, for example, [Chakravarty et al. \[2012\]](#) for evidence on intermarket sweep order). Our results highlight the importance of incorporating special orders (i.e., Fill-and-Kill and All-or-Nothing) to understand informed traders' order submission strategies and price discovery processes.

Second, we contribute to the emerging literature on algorithmic and high-frequency trading. The Australian Securities Exchange estimates that, in Australia, around 40 % of stock trading is attributable to such trades. Prior studies document that algorithmic trading enhances price discovery and price efficiency ([Brogaard, Hendershott, and Riordan, 2014](#); [Chaboud, Chiouine, Hjalmarsson, and Vega, 2014](#)). [Brogaard et al. \(2014\)](#) show that HFTs' limit orders have 50% larger price impacts than those of non-HFTs. We extend these studies by documenting (1) the frequent use of special orders by brokers that exhibit characteristics of HFTs and (2) the higher price impact of special orders submitted by these brokers. Our findings provide new insights into the

¹ [Duong and Kalev \(2013\)](#) also show that institutional orders have larger price impacts than individual orders in the Australian market.

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