

**The Microstructure of Trading
Processes on the Singapore Exchange**

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Certificate of Authorship / Originality

I certify that the work in this thesis has not previously been submitted for a degree nor has it been submitted as part of requirements for a degree except fully acknowledged within the text.

I also certify that the thesis has been written by me. Any help that I have received in my research work and the preparation of the thesis itself has been acknowledged. In addition, I certify that all information sources and literature used are indicated in the thesis.

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Abstract

This thesis contains three papers that examine various issues pertaining to the market structure and trading processes on the Singapore Exchange (SGX). Through the use of proprietary data from SGX, each paper addresses a unique area that is often overlooked in literature but is a well-documented practice among market participants in global financial markets. The conclusions drawn from these papers provide a thorough understanding of the structure and trading processes used on SGX. Hence, empirical evidence presented in this thesis will be of considerable interest to academics and non-academics alike. In particular, the evidence presented here can potentially aid policy developments for the Singapore financial market. The first paper investigates the effects of a reduction in the minimum tick size on SGX. Although both quoted and effective spreads are found to decrease, trading volume and market depth are adversely affected. Despite this, execution quality has not worsened. Front-running behaviour, an area which is keenly discussed in the literature but not tested directly due to data limitations, is also examined. Conducting a direct test on order submissions shows that the tick size reduction has caused front-running to exacerbate. The second paper examines the price impact costs of all trades. Although investors are known to break up large trades into smaller orders, a majority of the empirical literature calculates price impact costs from individual trades. Through implementing a more accurate re-packaging process, this paper shows that misleading results might be inferred when an individual trade is supposedly part of a trade package. In addition, this paper extends the literature by proposing a new measure to evaluate the execution performance of trade packages. The third paper examines the evolution of liquidity in a pure order-driven market. Two distinct sets of literature dominate this area. One set suggests that liquidity provision can be entirely endogenous, thus eschewing the need for designated market makers. The other argues and presents empirical evidence into the importance of designated market makers. However, the former overlooks the known fact that some traders

follow a market making strategy. Hence, this paper proposes that pseudo market makers might already exist in a pure order-driven market. Examining order submissions from access to information for all trading accounts, the evidence shows that the largest active trading accounts act as pseudo market makers. This result suggests that liquidity formation is not only intertwined between informed and uninformed investors, but also shows that pseudo market makers play an important role in the evolution of liquidity.