THREE ESSAYS ON MARKET EFFICIENCY ON THE TOKYO STOCK EXCHANGE: A MICROSTRUCTRUE-LEVEL ANALYSIS

CHEN TAO

DOCTOR OF PHILOSOPHY
CITY UNIVERSITY OF HONG KONG
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CITY UNIVERSITY OF HONG KONG
香港城市大學

Three Essays on Market Efficiency on the Tokyo Stock Exchange: A Microstructure-Level Analysis
三篇關於東京證券交易所市場效率的研究：基於微觀結構層面的分析

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Chen Tao
陳濤

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ABSTRACT

This thesis involves three essays on market efficiency on the Tokyo Stock Exchange (TSE) based on a microstructure-level analysis. The first essay reinvestigates the role of inter-trade time in price discovery. The GH model (Glosten and Harris, 1988), the VAR model (Hasbrouck, 1991a), the MRR model (Madhavan, Richardson, and Roomans, 1997), and the HS model (Huang and Stoll, 1997) are extended by the parameterization (Dufour and Engle, 2000) to analyze a cross-sectional sample of 472 composite stocks of the Nikkei 500 on the TSE. My results indicate that the price impact is negatively related to the inter-trade time without model selection bias. Additionally, I find that the inter-trade time effect reveals an inverse U-shaped intraday pattern. Finally, my findings suggest that the inter-trade time still matters after controlling for the observed trading intensity and intraday periodicity.

In the second essay, I compare price discovery between the non-trading (auction) mechanism in the preopening period and the trading mechanism in the normal trading period on the TSE. My empirical findings show that the preopening quote in the absence of trading does produce a significant, albeit inefficient, price discovery. Both a high weighted quoted price contribution and a low signal-to-noise ratio in the preopening

period imply that, although the non-trading mechanism used to discover the opening price discourages informed trading, it remains effective to reflect the market impact of both public and highly depreciable private information. In addition, there is evidence to indicate that the preopening noise is triggered by price manipulation and thus hampers price discovery per quote. However, from an aggregate perspective, this adverse impact on price discovery reverses as market participants observe quotes by quotes consecutively instead of individual quotes separately.

Recent work argues that institutional investors play an important role in the short-term market efficiency. In the final part, I provide new evidence on the prevalence of such efficiency-enhancing effect by characterizing institutions into different types: foreign institutions, financial institutions, securities companies, government and regional public authorities, and other institutions. I find that the presence of institutional investors, particularly financial institutions, improves the information environment in the Japanese market. However, with respect to foreign institutions, the clearest evidence of the efficiency-enhancing influence occurs with the measures of trading costs and order imbalances. Eventually, robustness checks confirm that my results are not driven by the endogeneity of ownership structure.

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