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

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Three Essays on Market Efficiency on the Tokyo Stock Exchange: A Microstructure-Level Analysis

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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.
# TABLE OF CONTENTS

ABSTRACT ......................................................................................................................... I  
ACKNOWLEDGEMENTS .............................................................................................. III  
TABLE OF CONTENTS .................................................................................................. IV  

Chapter 1 When is inter-trade time informative: A structural approach? .................. 1  
1.1 Introduction ............................................................................................................... 2  
1.2 Model development ................................................................................................. 8  
  1.2.1 Basic model ....................................................................................................... 8  
  1.2.2 Parameterization with time .............................................................................. 16  
  1.2.3 Model of the information content of time between trades ............................. 18  
1.3 Institutional background and descriptive statistics .............................................. 20  
  1.3.1 Institutional background .................................................................................. 20  
  1.3.2 Sample source ................................................................................................ 24  
  1.3.3 Filtering process ............................................................................................... 25  
  1.3.4 Summary statistics ........................................................................................... 28  
1.4 Estimation and discussion ....................................................................................... 31  
  1.4.1 Estimation result for four structural models .................................................. 33  
  1.4.2 Determinants of the information content of inter-trade time ....................... 39  
1.5 Conclusion ............................................................................................................. 42  

Chapter 2 Price discovery with and without trading on the Tokyo Stock Exchange .... 44  
2.1 Introduction ............................................................................................................. 45  
2.2 Institutional setting and data ................................................................................... 50  
  2.2.1 Institutional setting on the TSE ...................................................................... 50