

**Role of Market Microstructure in the Relationship between Market
Co-movement and Market Efficiency**

A Thesis Proposal

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Abstract

In finance literature, it is well known that the correlation among financial markets is time varying and is relatively strong when the market is bearish and volatile. At first glance this characteristic contradicts the exchange regulators' objective of improving market efficiency since the increasing correlation implies internal market inefficiency. Generally, the researcher attributes these characteristics to the globalization of financial markets. In this study, we suggest one alternate explanation, which is the increasing similarities of market microstructures in exchanges, based on the idea that market microstructure can impact the decision-making process of investors and the suggest that the market microstructure is affected by economic and political contexts (Lagorade-Segot, 2009). By expanding the idea of Dwyer and Wallace (1992), which suggested that the co-integration does not necessarily mean the internal market inefficiency, to the cross-market efficiency, this study hypothesize that the high correlation pattern does not necessary result in the cross-market inefficiency by investigating the degree of cross-market efficiency of four kinds of markets based on the combination of different levels (high vs. low) of internal market efficiency and market co-movement. In the vein, if the home market is self-inefficient and the correlation between two markets is strong, the two markets are cross-market inefficient as well. In the basis market, because of self-market inefficiency, the future return patterns can be predicted based on the past price movement in this market, and because of the existing linear relationship, the future price in the other market can also be estimated. In the case that the home market is self-inefficient and the

correlation is weak, the two markets are also cross-market efficient. In this case, although the future price is predictable, the future return patterns in the basis market cannot be estimated on the basis of historical market information in this market because of the weak linear relationship between prices in both markets. If the home market is self-efficient, both of the markets are cross-efficient even when the correlation of prices across markets is high. Since the price in the basis market is efficient and is close to the Geometric Brownian Motion (GBM), in which the next value of a time series varies randomly from the current value, the future price in this market cannot be estimated even given the market information in both markets. Additionally, regarding the timing of changes in market microstructure, in this study we categorize those events into convergent events and divergent events, and hypothesize that the convergent events will lead to strengthening market co-movement, whereas the divergent events are associated with the decline of market correlations. Furthermore, by investigating the development of market microstructure and corresponding effects on market co-movement from both time and frequency domains by using wavelet coherence, which suggested by Rua and Nunes (2009), we suggest that, compared to the events that have structural impacts on investors' behavior, some events do only temporarily affect investors' ways of making investment decision. Finally, by examining the cross-market efficiencies before and after changes of market microstructure, we suggest that the strong market co-movement does not result in the cross-market inefficiency neither.

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