

**THE TIME-SERIES ANALYSIS FOR
INTERACTIONS AMONG RETURNS ON
S&P 500, CSI300 AND HSI BEFORE AND
AFTER THE BANKRUPTCY OF LEHMAN
BROTHERS**

by

TANG WAI KEONG

Master of Science in Mathematics

2010



**Faculty of Science and Technology
University of Macau**

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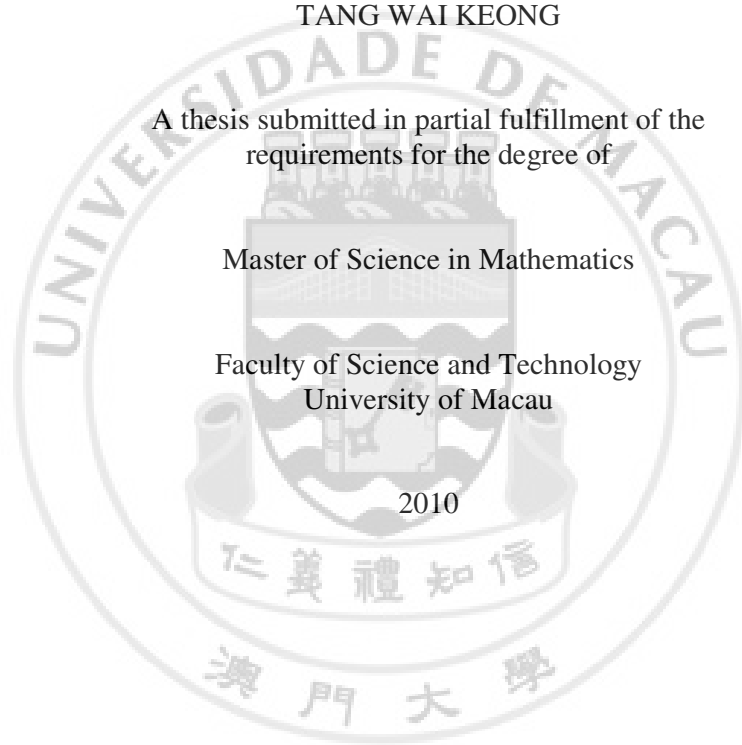
TANG WAI KEONG

A thesis submitted in partial fulfillment of the
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Faculty of Science and Technology
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2010



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Abstract

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BROTHERS

By TANG WAI KEONG

Thesis Supervisor: Prof. Ding Deng
Master of Science in Mathematics

The purpose of this thesis is to study the interactions among returns on the United States, Mainland China and Hong Kong stock markets, and examine the interactions of pre- and post-global financial crisis periods as whether the bankruptcy of Lehman Brothers on 15 September, 2008 will produce different impacts on three markets. This thesis is to take 3 stock indices, applying the time-series analysis techniques such as Unit root analysis, Granger causality test, Impulse response analysis and Forecast error variance decomposition. According to the empirical results: 1. The daily mean returns on three markets are negative before the bankruptcy of Lehman Brothers but Mainland China and Hong Kong make a positive daily mean returns after the bankruptcy of Lehman Brothers except the U.S.; 2. Granger causality test, the daily return on the U.S. stock market stills is the predictor to Mainland China and Hong Kong; 3. Impact response and Variance decomposition analysis, the shock to the U.S. has a larger impact to Mainland China compared with Hong Kong for Post-period relative to Pre-period. Mainland China and Hong Kong respond more to the shocks in the U.S. for Post-period relative to Pre-period. The daily returns on three stock markets are more interactive for Post-period relative to Pre-period.

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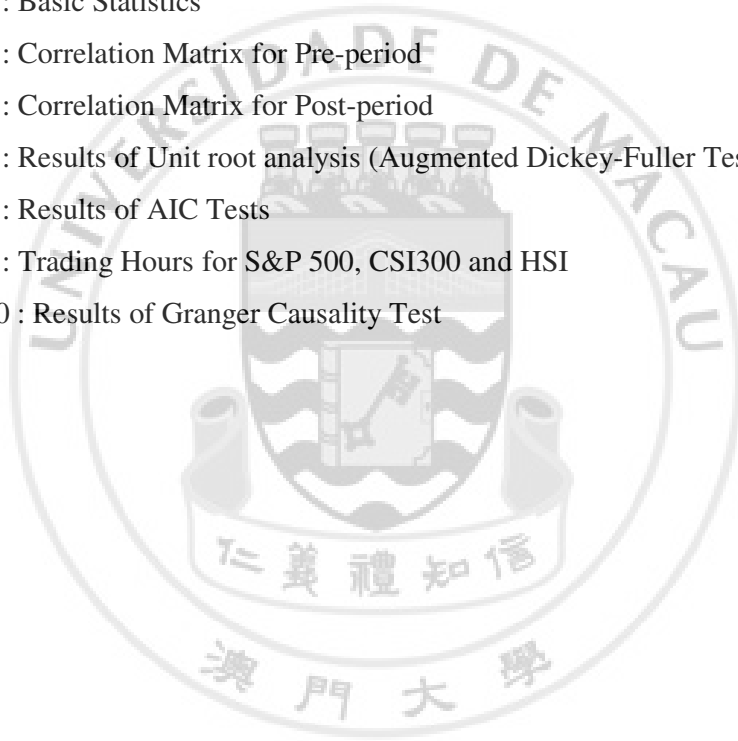
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