

DOCTORAL THESIS

Three essays on the dynamic relationships between index futures and individual cash assets

Lau, Chun Kit Francis

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**Three Essays on the Dynamic Relationships between Index
Futures and Individual Cash Assets**

LAU Chun Kit, Francis

A thesis submitted in partial fulfillment of the requirements
for the degree of
Doctor of Philosophy

Principal Supervisor: Prof FUNG Kwun Wing Joseph

Hong Kong Baptist University

August 2015

DECLARATION

I hereby declare that this thesis represents my own work which has been done after registration for the degree of PhD at Hong Kong Baptist University, and has not been previously included in a thesis or dissertation submitted to this or any other institution for a degree, diploma or other qualifications.

Signature: _____

Date: August 2015

ABSTRACT

In a perfect market with no limit on arbitrage, the price movements or returns of an index futures contract must be perfectly and positively correlated with those of the underlying cash index and the component stocks of the index. However, transaction costs, capital limits and regulatory restrictions reduce arbitrage efficiency which is being revealed by a wealth of findings that index futures and the underlying cash assets do not move in perfect unison. It is an important issue to practitioners, exchange and regulatory authorities, and academics to understand which and how different market and idiosyncratic factors drive the dynamic temporal relationships between an index futures contract and the related individual cash assets.

Chapter 1 of the thesis examines how and to what extent the sampling frequency for return calculation affects the intraday correlation and lead-lag relationship between index futures, the underlying cash index and individual cash assets.

Chapter 2 tests how and to what extent index weight, liquidity, idiosyncratic information of a single cash stock, market conditions and regulatory restrictions affect the intraday correlation between the futures and individual cash asset.

Following the line of argument in Chapter 2, Chapter 3 analyzes the impact of stock-specific and market factors on the intraday lead-lag relationship between the futures and single cash assets.

The study deduces that stock-specific and market factors significantly affect the intraday dynamic relationship between index futures and individual cash assets and it is a phenomenon that could be explained by the optimal strategies adopted by index arbitrageurs.

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