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An econometric analysis of Thai stock market in the context of global stock market integration

Surachai Chancharat
University of Wollongong

AN ECONOMETRIC ANALYSIS OF THAI STOCK MARKET IN THE CONTEXT OF GLOBAL STOCK MARKET INTEGRATION

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SURACHAI CHANCHARAT

B.Econ., Srinakharinwirot University, Thailand
M.Econ., Chulalongkorn University, Thailand

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CERTIFICATION

I, Surachai Chancharat, declare that this thesis, submitted in fulfillment of the requirements for the award of Doctor of Philosophy, in the School of Economics, University of Wollongong, is wholly my own work unless otherwise referenced or acknowledged. The document has not been submitted for qualifications at any other academic institution.

Surachai Chancharat

25 March 2008

To my dear parents, my wife and my son

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ABBREVIATIONS

ADF	Augmented Dickey-Fuller
AIC	Akaike Information Criterion
ARCH	Autoregressive Conditional Heteroscedasticity
APT	Arbitrage Pricing Theory
ASEAN	Association of Southeast Asian Nations
CAPM	Capital Asset Pricing Model
CPI	Consumer Price Index
DF-GLS	Dickey-Fuller Generalize Least Squares
ECM	Error Correction Model
EMH	Efficient Market Hypothesis
GARCH	Generalized Autoregressive Conditional Heteroscedasticity
GARCH-M	GARCH-in-mean
GH	Gregory and Hansen
IFS	International Financial Statistics
KMO	Kaiser-Meyer-Olkin
LM	Lagrange Multiplier
LP	Lumsdaine and Papell
ML	Maximum Likelihood
MSCI	Morgan Stanley Capital International
OECD	Organization for Economic Cooperation and Development
OLS	Ordinary Least Squares

PC	Principle Component
PP	Phillips-Perron
SEC	Securities and Exchange Commission
SIC	Schwartz Information Criterion
SET	Stock Exchange of Thailand
VAR	Vector Autoregressive
ZA	Zivot and Andrews

ABSTRACT

This thesis provides an econometric analysis of the Thai stock market in the context of global stock market integration. Chapter 3 examines whether stock prices for 16 countries are trend stationary or follow a random walk process using the Zivot and Andrews (1992) and Lumsdaine and Papell (1997) tests and monthly data spanning December 1987 to April 2007. With one and two structural breaks, the Zivot and Andrews and Lumsdaine and Papell test results provide evidence in favor of the random walk hypothesis in 12 and 11 countries, respectively, out of 16 countries. Thus, based on the empirical results in this chapter, the stock market price indices in the majority of countries analyzed exhibit a random walk. In addition, the key structural break in most of the cases points to the Asian crisis over the period 1996-1998.

Chapter 4 investigates the existence of cointegration and causality between the stock market price indices of Thailand and its major trading partners (Australia, Hong Kong, Indonesia, Japan, Korea, Malaysia, the Philippines, Singapore, Taiwan, the United Kingdom and the United States), using monthly data spanning December 1987 to December 2005. Both the Engle-Granger two-step procedure (assuming no structural breaks) and the Gregory and Hansen (1996) test (allowing for one structural break) provide no evidence of a long-run relationship between the stock prices of Thailand and these countries. Based on the empirical results obtained from these two residual-based cointegration tests, potential long-run benefits exist from

diversifying the investment portfolios internationally to reduce the associated systematic risks across countries. However, in the short run, three unidirectional Granger causalities run from the stock returns of Hong Kong, the Philippines and the United Kingdom to those of Thailand, pair-wise. Furthermore, there are two unidirectional causalities running from the stock returns of Thailand to those of Indonesia and the United States. The results also found empirical evidence of bidirectional Granger causality, suggesting that the stock returns of Thailand and three of its neighboring countries (Malaysia, Singapore and Taiwan) are interrelated.

Chapter 5 explores the relationships between stock market returns of 13 countries based upon monthly data (December 1987 to April 2007). Specifically, the principal component and maximum likelihood methods are used to examine any discernable patterns of stock market co-movements. Factor analysis provides evidence that stock returns in a number of Asian countries are highly correlated and, based on the resulting robust factor loadings, they form the first well-defined common factor. The results also find consistent results (based on both the principal component and maximum likelihood methods) suggesting that the stock returns of all global developed economy stock markets are also highly correlated, and constitute the second factor. That means, *inter alia*, geographical proximity and the level of economic development do matter when it comes to co-movements of stock returns and this has important implications for financial portfolio diversification if the aim is to reduce systematic risks across countries.

Chapter 6 analyzes how 15 international stock markets and five key Thai macroeconomic variables influenced monthly stock market returns in Thailand in the pre- and post-1997 Asian crisis eras. The results indicate that the Singapore stock market influenced the Thai stock market significantly in both the pre- and post-1997 periods. Before 1997 the Indonesian and Malaysian stock markets were significantly related to the Thai stock market, whereas after the crisis Korea and the Philippines played a dominant role in explaining sources of variation in the monthly returns in the Thai stock market. Therefore, to a large extent, one may conclude that the Thai stock market is very much influenced by the performance of its neighboring countries' stock markets, but non regional markets exerted an insignificant effect. This goes some way to explaining why the financial crisis of 1997 remained a primarily regional crisis.

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