Asymmetric Stock Market Interdependencies: US Dominance and Spillover Effects into Asia and Europe

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1 Introduction

This paper analyses the causal relationships and dynamic links between the United States stock exchange and selected European as well as Asian stock markets from January 1995 to August 2004. We use the data of one representative index of each market.

Stock markets linkages between national capital markets have been studied since the early 1990s (i.e., after the stock market crash of October 1987 on Wall Street). The reason why shocks in one market should affect other markets are explained for example by JANAKIRAMANAN/LAMBA (1998) as follows:

- *Dominant economic power*: During the early 20th century when Britain was the world economic power, actions taken by the Bank of England reverberated al-

most immediately around the world. In the post-World War period, the US became the most influential economy, since most of the international trading has been dominated by US dollars.

- *Common investor groups*: Geographically close countries normally have a similar group of investors in their markets. Therefore, these markets influence each other.
- *Multiple stock listing*: When a stock is dually-listed in two markets, shocks in one market can be transmitted to the other market. For example, GJERDE and SAETTEM (1995) find that Switzerland is influenced by most of other European markets because a large of portion of stocks traded on the Swiss market are multi-listed in other European markets.

Other possible reasons as explained by ARSHANAPALLI/DOUKAS (1993) are “the relaxation of controls on capital movements and foreign exchange transactions, and improvements in computer and communication technology that have lowered the cost of cross-border information flows and financial transactions”.

The previous studies concerning this issue have mainly focused on the US and other developed markets in the western countries. The main results of the previous studies are (ROLL 1988; ARSHANAPALLI/DOUKAS 1993; GJERDE/ SAETTEM 1995; EUN/SHIM 1989; ACHSANI/STROHE 2004): (i) the European as well as international markets are becoming increasingly integrated, especially after the global shock in October 1987, and (ii) the US are dominant and influence the other stock markets while the other markets have little, if any, influence on the US market.

Linkages among Asian stock markets have also been explored for example by ELYASIANI (1998), JANAKIRAMANAN/LAMBA (1998) and ACHSANI/ STROHE (2002). ELYASIANI (1998) studied the interdependence and dynamic linkage between the stock market of Sri Lanka and its major trading partners. The result showed that there was no significant interdependence between the stock markets of Sri Lanka on the one hand and the US and other Asian markets on the other. The study of JANAKIRAMANAN/LAMBA (1998) using the data of 1988-1996 showed that Pacific-Basin stock markets are integrated with each other, except for Indonesia, and the US market influences all of these markets. ACHSANI (2004) analysed the interdependence between the stock exchanges of the Pacific Basin Region and showed that all markets were integrated with each other, except for China. After the Asian financial crisis 1997, the markets were more greatly integrated.

In this paper, we re-explore this dynamic interdependence of international stock exchanges and include markets of the US, of Western Europe and of South-East Asia region in the analysis. Due to the economic dominance, we hypothesize that the US stock markets are still the most dominant ones which thereby influences all of the markets in Europe and Asia.

For this purpose we analyse the daily rates of return of the stock market indices of the US, Germany, Great Britain and France as well as of Japan, Hong Kong, China, Singapore, Malaysia, Thailand, Indonesia and the Philippines from January