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Integration and interdependence of stock and foreign exchange markets: an Australian perspective

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Abstract

This paper examines the integration of the Australian stock market with its two leading trading partners, the US and Japan. In investigating the extent of integration, this study takes into account the interdependence between foreign exchange rates and stock prices, since exchange rates influence international competitiveness of firms, and, via interest rates, the cost of capital. The results indicate that there was a stable long-run relationship among the Australian, US and Japanese markets prior to the Asian crisis but that this relationship disappeared in the post-Asian crisis period. An analysis of the short-run dynamic linkages among markets suggests that, following the Asian crisis, the US influence on the Australian market diminished while the influence of Japan remained at a modest level. Furthermore, the impulse response analysis indicates only a contemporaneous transmission of shocks from one market to other markets. Confidence intervals for impulse responses are estimated using the bootstrap-after-bootstrap method.

Keywords: Integration; Asian crisis; Dynamic linkages

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1. Introduction

This paper investigates the extent of stock market integration between Australia and its two leading trading partners, the US and Japan. The interdependence between stock prices and foreign exchange rates is taken into consideration in evaluating the transmission of stock price shocks across countries. In addition, this study determines whether the extent and nature of stock market integration in the period of the post-Asian crisis differs from that of the pre-Asian crisis. Despite Australia's sound macroeconomic fundamentals, its growing business links with newly industrializing Asian countries and geographical proximity to Asia made it vulnerable to this crisis. In this paper, an attempt is made to identify whether the Asian crisis has changed the extent of Australia's integration with the US and Japanese stock markets. Our interest in this study was spurred by several factors.

First, any potential gain from international diversification of a portfolio is inversely related to the extent of stock market integration. A low correlation between returns on national stock indices allows investors to minimise portfolio risk by international diversification. Thus, an analysis of the long-run comovement of national stock prices and their short-run temporal relationships is important for managing an international portfolio.

Second, financial deregulation increased the extent of integration between the Australian and US markets (Ragunathan et al., 1999). Moreover, the financial influence of Japan on Pacific-Basin countries following the deregulation of their markets has increased and overtaken that of the US (Phylaktis, 1999). Thus, it is important to examine whether the findings for those Pacific-Basin countries hold for Australia in the post-deregulation period.

Third, previous studies generally indicated that intermarket relationships at the time of the stock market crash of October 1987 intensified temporarily for a period around the crash, but then quickly resumed their pre-crash relationships (Roll, 1989). A recent study by Janakiramanan and Lamba (2000) also confirms the finding of a high degree of integration for the brief periods around the October 1987 crash and the 1997 Asian crisis. However, previous studies do not shed light on whether the Australian stock market has become more or less sensitive to the US and Japanese markets in the post-Asian crisis period. At the onset of the Asian crisis, the Federal Treasurer, Peter Costello, proclaimed that the Australian economy was 'fireproof', i.e. not vulnerable to crisis in Asian emerging markets. This assertion was based on Australia's sound economic fundamentals and the general premise that the Australian market is primarily influenced by its top trading partners and major international stock markets such as the US and Japan. However, subsequent events indicated that both the Australian dollar and stock prices fell significantly following the crisis in South Korea and Indonesia. If these events did lead to any permanent changes in investors' perceptions about Australia's linkage with the developed, vis-à-vis emerging, Asian markets, then one would expect a persistent change in Australia's linkage with Japan and the US following the Asian crisis.

Fourth, interdependence in stock prices across countries reflects economic integration in the form of trade linkages and foreign direct investment. The widely