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Economic integration and stock market comovement in the Americas

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Abstract

Using daily returns from 1988 through 1999 for Argentina, Brazil, Chile, Mexico, and Canada, and from 1993 to 1999 for Colombia, Peru and Venezuela, we investigate to what degree these equity markets are integrated with the US equity market and examine the factors that affect the level of economic integration. We find a statistically significant high percentage of contemporaneous association between the eight equity markets of the Americas and the stock market in the United States. A high share of trade with the United States has a strong positive effect on stock market comovements. Conversely, increased bilateral exchange rate volatility and a higher ratio of stock market capitalization relative to that of the United States contribute to lower comovement.

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1. Introduction

Capital market integration provides the opportunity for better diversification as investors shift to higher risk/expected return projects because they are able

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to diversify their overall risk (Obstfeld, 1994). International market integration has been the subject of considerable empirical investigation. Since the expected returns and variances are required to construct optimal risk/return portfolios, investors, portfolio managers, and financial market regulators can benefit from new insights into the comovements among international equity markets.

We first examine to what degree equity markets in the Americas are integrated with the US equity market. The relatively large size of the US economy and the comparatively close proximity of the other American equity markets suggest a high degree of integration. On the other hand, the rapid economic growth of some of the emerging economies in the region combined with a prolonged economic slump in others could have resulted in divergent behavior.

We next examine the extent to which macroeconomic variables that are usually associated with economic integration explain the changes in the degree of stock market integration. As the degree of economic integration varies over time for a given pair of countries, we expect the extent of equity market integration to vary systematically.

The financial literature offers much research on the risk reduction benefits of international diversification (e.g. Grubel, 1968; Agmon and Lessard, 1977). Harvey (1993) points out that emerging markets have high average returns, low overall volatility, low exposure to world factors, and little integration. Higher returns and lower risk can be obtained by incorporating emerging market stocks in investor's portfolios. Numerous studies investigate the transmission mechanism of stock price movements across international equity markets. Hamao et al. (1990), using an autoregressive heteroskedastic (ARCH) model, report evidence of a price spillover effect from New York to Tokyo. In a subsequent study, Becker et al. (1992), document that consistent with market efficiency, the Japanese market reacts within the first hour to the previous returns in the United States. Employing a multivariate generalized autoregressive heteroskedastic (GARCH-M) model, Theodossiou and Lee (1993) find that statistically significant mean spillovers radiate from stock markets of the United States to the UK, Canada, and Germany, and then from the stock markets of Japan to Germany. Significant volatility spillovers radiate from the US stock market to all four stock markets, from the UK stock market to the Canadian stock market, and from the German stock market to the Japanese stock market. Recently, Ng (2000) examines the magnitude and changing nature of the return and volatility spillovers from Japan and the United States to six Pacific-Basin equity markets. In addition to the effect of the world factors, there are significant spillovers from the region to many of the Pacific-Basin countries. Using cross-spectral analysis to examine pre- and post-1987 crash comovements among several Pacific Rim markets, Smith (2001) finds increased post-crash median and mean coherences. Pacific Rim equity markets are becoming increasingly interdependent thereby tending to reduce the benefits of international diversification.