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Equity market integration in Latin America: A time-varying integration score analysis

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Abstract

We develop a measure of market integration score by extending the methodology of Akdogan [J. Portf. Manage. (1996) 33; J. Portf. Manage. (1997) 82] to reflect the degree of integration of domestic equity markets with other markets in and beyond the region. We empirically estimate the integration scores for a sample of six Latin American markets between January 1988 and December 2001. We find a trend towards increased regional integration relative to global integration until the mid-1990s. A distinct change in trend is noted during the second half of the 1990s, with global integration proceeding faster than regional integration.

JEL classification: F36; G15
Keywords: Regional integration; Global integration; Time-varying integration

1. Introduction

The emerging equity markets in a number of developing countries in Asia, Eastern Europe, Latin America, and the Middle East grew rapidly during the second half of the 1980s and throughout most of the 1990s. This growth was made possible to a significant degree by market-oriented, financial liberalization policies. Despite temporary fluctuations during the Mexican peso crisis of 1994–1995 and the Asian crisis of 1997–1998, portfolio equity flows into developing economies increased from US$140 millions to US$51 billions[1] over the 15 years from 1985 to 2000. This rapid growth of emerging equity markets raises the question as to whether these markets are becoming increasingly integrated, both with respect to each other and with respect to the developed equity

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[1] Source: *Emerging Stock Markets Factbook*, 2001.

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markets. This is an important question to the extent that international portfolio investment strategies depend on the degree of integration of these markets.

There exists an extensive literature on the topic of international equity market integration. Only a handful of studies, however, have compared the degree of financial integration of a group of countries on a global level with that on a regional level. Yet the growing tendency among nations in recent years has been to form regional economic blocs. The objective of this study is to develop a theoretical measure of market integration by extending Akdogan (1996, 1997) to reflect the degree of integration of domestic equity markets with other markets within their region as well as outside their region, and to empirically estimate the integration scores for a sample of emerging markets in Latin America. Following Barari and Sengupta (2002), we highlight the time-varying nature of integration by calculating integration scores over different time windows. Given that the process of financial liberalization has been gradual, this time-varying approach provides additional insights into the issue by depicting the historical evolution of a country's financial integration, regionally as well as globally. We use a sample of six Latin American countries, namely, Argentina, Brazil, Chile, Colombia, Mexico, and Venezuela. We calculate their respective integration scores against a regional Latin America index as well as a global index (comprising both developed and emerging equity markets). Our findings suggest increased regional relative to global integration for most of the Latin markets during the late 1980s and the first half of the 1990s. However, the pace of global integration accelerated around the mid-1990s and has remained strong in the aftermath of the Asian crisis.

The paper is structured as follows. In Section 2, we provide a brief literature review and discuss the contribution of the present study to the existing body of research on the topic. In Section 3, the regional and global integration scores are theoretically derived. In Section 4, we provide empirical estimation of integration scores using a time-varying approach for the six Latin American markets, and we analyze the results. Concluding remarks are provided in Section 5.

2. Review of the literature

Early studies of equity market integration tracked the correlation coefficients across national equity returns over time, and/or tested the validity of interest rate parity relations across national boundaries. More recent studies have tended to use variations of the capital asset pricing model (CAPM). Intuitively speaking, the degree of integration refers to the absence of risk premium differentials across countries for similar securities (see, for example, Aburachis, 1993; Akdogan, 1995; Errunza & Losq, 1985; Kearney, 1996; Solnik, 1974; Stehle, 1977). In addition, several studies have applied the cointegration methodology to investigate the degree of financial integration. These studies have explored the existence of long-run equilibrium relations among a group of national equity markets. If these markets are cointegrated, common stochastic trends will dominate their behavior in the long run, thereby reducing the diversification opportunities over time (see, for example, Aggarwal, Lucey, & Muckley, 2003; Allen & MacDonald, 1995; Barari & Sengupta, 2002; Chan, Gup, & Pan, 1997; Kanas, 1998; Olienyk, Schwebach, & Zumwalt,