Integration of emerging stock markets with global stock markets

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**Abstract**

Financial integration for emerging economies should be seen as a long-term objective. In this paper, we examine stock market integration among five selected emerging stock markets (Brazil, China, Mexico, Russia and Turkey) and developed markets of the US, UK and Germany. The bounds testing approach to cointegration and error-correction modeling are used on monthly data from January 2001 to December 2014 to determine the short-run and long-run relationship between emerging stock market returns and the returns of the developed stock markets. The results show evidence of the existence of short-run integration among stock markets in emerging countries and the developed markets. However, the long-run coefficients for stock market returns in all emerging countries show a significant relationship only with Germany stock market return. The empirical findings in this study have important implications for academicians, international investors, and policymakers in emerging markets.

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1. Introduction

Stock market integration is a central concept to research in international finance and economics. Financial literature has presented a strong emphasis on the interaction among international financial markets. The interest has spurred by deregulation, globalization and advances in information technology in communications and trading systems (Phylaktis and Ravazzolo, 2002).

Several empirical studies have investigated stock market integration in developed markets (Dumas and Solnik, 1995; De Santis and Gerard, 1997; Gerard et al., 2003; Pukthuanthong and Roll, 2009; Bekaert et al., 2011; Donadelli, 2013). The results support the financial integration hypothesis of developed stock markets. However, an area of research that has received little attention in the literature is whether the stock markets in emerging countries exhibit integration with developed stock markets.

Many emerging countries witnessed major structural changes during the last two decades. Since the late 1980s, these countries have been interested in increasing the degree of openness of domestic financial markets to foreign investors and institutions by reducing government intervention in the financial sectors or by privatizing banks. Such policies have been expected to promote economic growth through a higher mobilization of savings or a rise in foreign capital flows (Henry, 2000; Bekaert and Harvey, 2000; Rajan and Zingales, 2003; Bekaert et al., 2011; Donadelli and Persha, 2014).

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Financial integration facilitates the flow of capital between countries and enhances production specialization. This in turn can result in larger amounts of investments and thereby increasing the rate of economic growth (Obstfeld, 1994). Another positive effect of financial integration is that it can contribute to the development of the financial system in emerging countries in order to make the flow of liquidity more efficient. However, the critical question is whether stock markets in emerging countries has become integrated with the developed market across time or is it still segmented. In this study, we attempt to fill the gap in the literature and to provide recent empirical evidence on the stock market integration among five selected emerging stock markets (Brazil, China, Mexico, Russia and Turkey) and developed markets of the US, UK and Germany. The bounds testing approach to cointegration and error-correction modeling proposed by Pesaran et al. (2001) are used on monthly data from January 2001 to December 2014. The main contribution of this study is to empirically tackle the issue of stock market integration for emerging economies. We believe that the present study could be instructive and complementary to the existing literature on stock market integration in emerging countries. Furthermore, the empirical results presented in this paper have important implications for academicians, international investors, and policymakers in emerging markets.

The remainder of this paper is structured as follows: Section 2 provides a review of empirical studies on stock markets integration. Section 3 describes the data used in the empirical analysis. Section 4 outlines model specification and estimation methodology. Section 5 presents the empirical findings. Section 6 summarizes the major findings and offers some policy implications.

2. Literature review

Financial integration is the process by which a country’s financial markets become more closely integrated with those in other countries or regions. Economic theory and empirical findings suggest that financial integration and financial markets development are likely to remove barriers to exchange, to allocate capital more efficiently and, therefore, contribute to economic growth (Calvi, 2010).

Financial literature has presented a strong emphasis on the interaction among international financial markets (Eun and Shim, 1989; Koch and Koch, 1991; Brocato, 1994; Leachman and Francis, 1995; Francis and Leachman, 1998; Bessler and Yang, 2003). However, empirical results are mixed and conflicting on the extent of financial market integration.

Some empirical studies have found that stock markets are integrated. Kasai (1992) examines stock market integration of US, Japan, England, Germany, and Canada over the period of 1974–1990. The results show the presence of a single cointegrating vector indicating low levels of integration. Espitia and Santamaria (1994) conclude that a high level of correlation exists between daily return time series for all the European markets. Moreover, Becker et al. (1990) examine the linkage among between the United States and Japan. Their empirical results show that both markets are integrated with a spillover effect from the United States to the Japanese markets.

On the other hand, other studies have found that stock markets are segmented. Roca (1999) finds no significant relationship between Australia and its major trading partners by applying cointegration analyses on weekly stock price indices data covering the period 1974 to 1995. Mahesh (2005) examines stock market integration between the developed markets of the US, Canada and UK and the emerging markets of India, Malaysia and Singapore. The empirical results show that only the pairs Malaysia-Singapore and the US-Canada stock markets exhibit long-run relationships.

Several studies have examined stock market integration in other regions. Bekker and Harvey (1995) and Carrieri et al. (2007) find that Asian and Latin American emerging markets are partially integrated with the world market and that the level of integration is time-varying. Masih and Masih (1997) use multivariate cointegration and find that all the Asian Newly Industrializing Countries (NIC) of Hong Kong, Singapore, South Korea and Taiwan share long-run cointegration relationship with markets in Japan, the U.S., Japan, U.K., and Germany. Masih and Masih (1999) apply vector error-correction as well as level VAR models and find results similar to their aforementioned study. In a recent study, Claus and Lucey (2012) investigate stock market integration among 10 economies of Australia, Hong Kong, India, Japan, South Korea, Malaysia, New Zealand, Singapore, Taiwan, and Thailand from April to May of 2006. The empirical results show that stock markets in the Asia Pacific region display a limited degree of integration but the degree of segmentation varies among the 10 economies.

Other studies have examined the integration between the Middle Eastern and North African (MENA) stock markets and the rest of the world. Darrat et al. (2000) investigate the degree to which three MENA markets (Egypt, Jordan and Morocco) are integrated both regionally and globally. Their results show that these markets are segmented globally, but appear highly integrated within the region which means that these markets offer potential diversification gains to the international investors. Neaime (2002) tests for the integration of MENA markets with world stock markets using the Engle-Granger cointegration approach. He finds a weak integration among the MENA markets (Morocco, Egypt, Jordan and Turkey) and strong integration between MENA markets and developed markets (U.S., U.K. and France).

Furthermore, Neaime (2012) examines the financial linkages between MENA stock markets and developed financial markets. The sample consists of daily observations of the national indices of the US, UK and France and the MENA major stock market indices (Egypt, Jordan, Morocco, Tunisia, Kuwait, Saudi Arabia and the United Arab Emirates). The empirical results show that stock markets in Dubai, Egypt, Jordan, and Kuwait are highly correlated with the U.S. stock market while Tunisia and Morocco are highly correlated with the French stock market, with the exception of Saudi Arabia, which is weakly correlated with developed equity markets.
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