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On the stability of long-run relationships between emerging and US stock markets

Jian Yang [a,*], James W. Kolari [b], Peter Wibawa Sutanto [c]

[a] *Department of Accounting, Finance and Information Systems, P.O. Box 638, Prairie View A&M University, Prairie View, TX 77446, USA*
[b] *Department of Finance, Texas A&M University, College Station, TX 77843, USA*
[c] *Department of Management and Marketing, P.O. Box 638, Prairie View A&M University, Prairie View, TX 77446, USA*

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Abstract

While most studies have found no cointegration between emerging and US stock markets, some recent studies do find a long-run relationship exists between these markets. In view of these mixed findings, this study examines the stability of long-run relationships between a number of emerging stock markets and the US stock market using recursive cointegration analysis. The results show that no long-run relationship exists between emerging markets and the US market over most of the sample period throughout 1997. However, we do find clear evidence of cointegration in response to the recent global emerging market crisis in 1997–1998. We conclude that significant crisis events can change the degree of cointegration between international stock markets and, therefore, need to be taken into account in studies of long-run relationships between international stock markets.

JEL classification: G15; C32

Keywords: Emerging stock markets; Recursive cointegration analysis; Financial crisis

1. Introduction

Numerous studies have examined long-run cointegration relationships between emerging stock markets and the US stock market (for Asian countries see e.g. Chan et al., 1992;

* Corresponding author. Tel.: +1-936-857-4011; fax: +1-936-857-2797.
E-mail address: jian_yang@pvamu.edu (J. Yang).

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DeFusco et al., 1996; Ghosh et al., 1999; Sheng and Tu, 2000; Darrat and Zhong, 2002; for Latin American countries see e.g. DeFusco et al., 1996; Choudhry, 1997; and Soydemir, 2000).[1] Cointegration between two stock markets suggests that these two markets are highly correlated in the long run and thus the long-run gains from international diversification across them will be slight (Taylor and Tonks, 1989, p.335–336; DeFusco et al., 1996, p. 344–345).[2] Most of the above studies (e.g., Chan et al., 1992; DeFusco et al., 1996; Soydemir, 2000) have found no long-run relationship (i.e., cointegration) to exist between emerging markets and the US market. This evidence implies that investors holding US stock portfolios can reap substantial diversification benefits from investing in emerging stocks markets. However, some recent studies (e.g., Ghosh et al., 1999; Sheng and Tu, 2000; Darrat and Zhong, 2002) have reported evidence of cointegration.

In view of these mixed findings, the present study considers the possibility of instability in long-run relationships between international stock market movements. To our knowledge no study has investigated the *stability* of long-run relationships between emerging and developed equity markets.[3] In this regard, recent work by Elyasiani and Kocagil (2001) has demonstrated that major events or policy changes can cause structural breaks in long-run relationships in foreign exchange markets. Specific factors, such as financial market liberalization (Bekaert and Harvey, 2000), the 1987 stock market crash (Arshanapalli et al., 1995), and the 1997–1998 global emerging stock market crash (Ghosh et al., 1999) could cause shifts in long-run equity market relationships. To examine the stability of long-run relationships between emerging and U.S stock markets, we apply the relatively new technique of recursive cointegration (Hansen and Johansen, 1993, 1999). This technique enables us to test for the existence of cointegration relationships at each point of time during the sample periods 1976–2001 and 1985–2001. In brief, we find no cointegration between emerging and the US stock markets over the beginning of these sample periods to 1997, but clear evidence of cointegration between most emerging markets and the US markets in response to the global emerging market crisis in the period 1997–1998. This instability in the long-run relationship between stock markets helps reconcile the findings of no cointegration in earlier studies and the evidence of cointegration presented in some recent studies employing data covering this global event. Our results suggest that significant events can potentially cause structural breaks in cointegration tests of long-run stock market relationships, such that instability needs to be taken into account in studies of long-run relationships between financial markets. The organization of the paper is as follows. Section 2 overviews the methodology. Section 3 describes the data. Section 4 presents the empirical results. Section 5 provides a conclusion.

[1] There is also a large body of literature on long-run cointegration relationships between the US and other developed stock markets. See Bessler and Yang (2003) and Yang et al. (2003) for recent examples.

[2] As pointed out in DeFusco et al. (1996, p. 345), the correlation between two cointegrated variables tends to approach 1.0 over long horizons. When more than two variables are involved, such an interpretation needs to be modified. See DeFusco et al., (1996) for more discussion on the case of multiple cointegrated variables.

[3] Some related studies (see Cheung and Ho, 1991; Cheung, 1993; Tang, 1996) have explored the stability of short-run relationships between emerging stock markets and the US and other major developed equity markets, which is based on correlations of stock market returns.