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BRICS market nexus for cross listed stocks: A VECX* framework

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Abstract

This paper delves into the dynamic price transmissions of the dually listed BRICS shares traded in the US market based on a value-weighted portfolio using efficient estimation of vector error correction model containing exogenous I(1) variables or VECX*. Our results provide convincing evidence that in the short run the domestic and global destabilising factors cause varying levels of vulnerability in the BRICS stock and ADR portfolio price movements. But in the long run the BRICS stock markets tend to become a homogenous asset class and spearheaded by USBRICS developments and consequently offer trivial benefits from portfolio diversification to international investors as these markets are internationally unified over years.
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Keywords: Cross listed stocks; VECX*; ADR; BRICS stock market

1. Introduction

The economies of the BRICS countries (Brazil, Russia, India, China and South Africa) have matured hastily and are becoming imperceptibly integrated with the most developed economies related to trade and investment. The BRICS together constitutes for more than a quarter of the world's land area, more than 40% of the world's population and about 15% of global GDP. According to a global economic report of the Goldman Sachs (2003) predicted that over the next 50 years the BRICS economies could become a much larger force in the world economy. The rampant growth of the BRICS countries also has substantial effects for the capitalization of their stock markets moreover for their financial dependence with other stock markets.

The inquisitiveness of investors for investments in BRICS countries financial markets has augmented substantially for the benefits of international diversification since they determine comparatively low correlations between developed and emerging markets. Consequently, diversification benefits are greater when the correlation amidst the markets is low.

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Studies on the BRICS economies are countless, because the advancement of the emerging countries and their transition towards industrialized countries is virtually inevitable. Recently, there is a high concentration of cross-listed firms in the leading financial centers of the BRICS countries. Cross-listing on a foreign market curtails the cost of capital through an enhancement of the firm's information environment. The optimal method of cross-listing is to use American Depository Receipts (ADRs). Foreign companies trade their shares in the US capital market as ADRs. ADRs are priced in US dollar and it will be analogous to the underlying share in its home market after incorporating the exchange rate factor. The price differential between the ADRs and their underlying shares could be attributed to foreign exchange risk and limits to arbitrage such as transaction costs, different market locations and different trading hours. ADR programs may be sponsored or unsponsored. Unsponsored ADRs are not registered with the SEC. Most of the ADRs that are currently listed are sponsored programs, issued at the request of the firm whose securities underlie the ADR. There are four grades of sponsored ADRs. Level I ADRs are traded in the OTC market usually by institutional investors. Level II ADRs has to go through complete disclosure requirements as specified by SEC and cannot be used to raise new capital. If new capital is raised during the process of issuing sponsored ADRs, then the ADRs are categorized as Level III. Level IV ADRs are privately listed, and are usually issued under rule 144A of the US Securities and Exchange Commission.

The purpose of the study is to identify in a broader framework the propagation mechanism of prices among the BRICS Stock Portfolio and BRICS ADR portfolio with respect to the BRICS -US Indices and explicate how susceptible emerging financial markets are to both emerging and global shocks. Previous studies examined only the effects of pricing factors namely, the underlying shares and the foreign markets, on the overseas listed shares such as ADRs based on a value-weighted portfolio in the developed markets. This paper aims to examine the dynamics of price transmission of the dually listed BRICS shares traded in the US market based on a value-weighted portfolio using cointegration test, and evaluation of vector error correction model comprising exogenous I(1) variables or VECX* since there is a likelihood of weak exogeneity among the BRICS stock indices. Pesaran[1] suggested that tests that permit for the existence of exogenous I(1) variables and/or restrictions on the short-run coefficients are likely to perform better in small samples.

The novel contribution of the study is that we have used the BRICS stocks and its ADRs value weighted portfolio as the endogenous variables and the BRICS-US Indices as the exogenous variables. The Johansen Cointegration is applied to test for probable long-run cointegrating relationship between pricing factors, namely, the portfolio of BRICS ADRs and its underlying shares. We also developed vector error correction model with exogenous variables (VECX*) to estimate the short-run dynamics of the pricing factors for BRICS countries. The inclusion of exogenous variables facilitates to analyze the impact of a global shock on the transmission of prices between the BRICS stocks and its ADRs. Our empirical results alleviates both investors and academicians to know whether stock markets are entwined and also assists policy makers to ascertain that if stock markets are found to be closely linked, then there is a danger that shocks evolving from one market may spill over to other markets.

This paper is organized as follows. The related literature is discussed in Section 2. Our data and the econometric model are described in Section 3. The results are presented in Section 4. The concluding remarks are given in Section 5.

2. Literature review

The study of interdependence across international equity markets has become a prominent area of research in finance. Further the Cross Listing of Emerging markets have become a hot research topic on which the literature is growing steadily. Hence the review is fortified in two perspectives. viz., studies related to US- BRICS markets and on Cross listing of markets.

The dependence structure between the BRICS stock markets and global economic and financial factors was examined[2] using the quantile regression approach. Their results show that dependence structure is asymmetric and affected by the inception of the recent global financial crisis and also found that economic policy uncertainty has no impact on the BRICS stock markets in both lower and upper quantiles.

The co-movement between the BRICS and the U.S. markets during the post-crisis period (from early 2009 onwards) was analysed.[3] The results implied that the dependence was larger in bullish market than in bearish markets specifying the low probability of simultaneous breakdown of the markets. Similarly, the extreme comovements of BRIC and the U.S. markets were evaluated[4] using multivariate copula approach. Their results indicated that

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