

BRICS EXCHANGE RATES IN THE POST-FINANCIAL CRISIS: AN EMPIRICAL ANALYSIS

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ABSTRACT

In this study, we have investigated the volatility of the exchange rate, the direction of spillover, and the long- and short-run relationships that exist in Brazil, Russia, India, China, and South Africa (BRICS). Further, we will look into how the BRICS economies' volatility is transmitted to one another so that investors can better manage risk and make prudent investment decisions. Understanding volatility transmission is an essential driver for constructing a diversified portfolio. We conducted the study using foreign exchange rate data from 2009 to 2019 for all BRICS economies covering the period after the financial crisis but before the outbreak of COVID 19. To obtain equilibrium relationship dynamics and the asymmetric effect of information in the market, we have applied the Johansen cointegration test, the pairwise Granger causality test, and the GARCH model. The study successfully analyzed long-term relationships and explained the direction of impact as well as volatility transmission in some market segments. We found significant volatility spillovers among the emerging markets that led to convergence between these economies. Within the BRICS economic bloc, Brazil has shown the highest number of associations with other members. Additionally, we discovered weak association between the selected economies. The findings of this study will provide insights into the behavior of exchange rates in the BRICS economies.

Keywords: BRICS, Foreign Exchange Rate, Cointegration, Granger Causality, Volatility.

1. INTRODUCTION

Macroeconomic uncertainty, such as volatility in inflation, growth, and exchange rates, usually remains high in developing economies compared to developed countries (IMF 2002; Serven 2003). Due to these volatilities, it continues to attract the attention of investors to benefit from internal as well as external markets (Serven 2002, 2003; Chowdhury et al., 2015). The volatility of exchange rates affects many important financial variables and thus significantly influences investment decisions, making it one of the most important sources of uncertainty (Serven, 2003; Chowdhury et al., 2015). Many researchers in multiple disciplines have demonstrated the effects of volatility in exchange rates in various economies. (Bhandari and Upadhyaya, 2010; Chowdhury et al., 2015; Bahmani et al., 2010; Antonakakis, Floros, & Kizys, 2016; Sehgal et al., 2017; Du, Hu, & Wu, 2014; Shafighi & Gharleghi, 2016; Stoupos & Kiohos, 2017; Mittal et al., 2019). However, only a few have studied the BRICS economies, which are emerging as a powerful economic force from a global perspective (Wilson and Purushothaman 2003; Gol 2012).

According to the available literature, investors in global portfolios of emerging markets have an insatiable hunger for the ability to foresee buy/sell signals that yield exceptional returns. For better stock return forecasting, Cao and Tsay (1992) investigated the use of threshold autoregressive (TAR) models along with ARMA in linear conjunction and GARCH and EGARCH models to characterize monthly nonlinear volatility series. Different variance estimators and volatility predictions using the GARCH (1,1) model were empirically tested by Figlewski (1994). Akgiray (1989) studied stock market daily returns using the GARCH model and found forecasts were superior to other traditional statistical models. Brailsford and Faff (1996) examined daily Australian data to investigate several traditional statistical forecasting models' accuracy and found that forecasting volatility is a notoriously tricky task. Scores of researchers (e.g.,