Chapter 103
Dynamic Relationship between Stock Prices and Exchange Rates in Emerging Markets:
Evidence from Fragile Five Economies

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ABSTRACT

All the emerging markets are vulnerable to the fears of capital outflows after the US Federal Reserve's tapering on May 22, 2013. The term "Fragile Five" was introduced by a research note of Morgan Stanley to refer to the countries of Brazil, India, Indonesia, South Africa and Turkey. The aim of this study is to examine whether there are stock and foreign exchange markets integration among Brazil, India, Indonesia, South Africa and Turkey. The authors employ cointegration-based tests, vector error correction modeling techniques, and Granger causality tests to examine the long-run and short-run linkages between stock prices and exchange rates. The results of cointegration tests suggest that there is one long-run stationary relationship between the stock indices and the foreign exchange rates. Four of the Fragile Five (excluding Brazil) show that the stock prices are positively associated with exchange rates. Finally, vector error correction estimates lead to miscellaneous results.

INTRODUCTION

The dynamic relationship between stock prices and foreign exchange rates has received considerable attention because they both play crucial roles in influencing the development of a country's economy. Understanding the relationship between stock prices and exchange rates is

important from the point of view of policy makers, and the investment community to manage their risk levels efficiently. In the literature, there are two main approaches to the exchange rate determination as flow-oriented models and stock-oriented models. Flow-oriented models or the traditional approach assume that the exchange rate is determined largely by a country's current account or trade balance performance. Dornbusch and Fisher (1980) claims that changes in exchange rates affect international competitiveness and trade balance. The depreciation of the domestic currency makes local firms more competitive, leading to an increase in their export, and affects current and future cash flows of firms. Stock value of a firm is usually defined as a present value of future cash flows of that firm. Thus, flow oriented models suggests that there is a positive relationship between stock prices and exchanges rates with direction of causation running from exchange rates to stock prices. Stock oriented models can be divided in two categories: portfolio balance models and monetary models. According to portfolio balance models approach, movements in the stock market may also affect exchange rates. The inference from this approach suggests that a rise in domestic stock prices leads to the appreciation of domestic exchange rate through direct and indirect channels (Branson, 1983). Similar links can be traced through the monetarist models of exchange rate determination. Stocks, being part of wealth, may affect the behaviour of exchange rates through the demand for money (Gavin, 1989). Monetary models assume that exchange rates are determined in the same manner as the prices of assets such as bonds, gold or real estate by the market mechanism. Since developments of stock prices and exchange rates may be driven by different factors the asset market approach emphasizes no linkage between stock prices and exchange rates (Stavárek, 2005: 141-142; Phylaktis and Ravazzolo, 2005: 1032).

In this study we investigate short-run and long-run linkages between stock prices and exchange rates of Brazil, India, Indonesia, South Africa and Turkey, known as the Fragile Five. The sample period spans from April 2004 to December 2013. This paper employs the time series econometric techniques in order to quantify the relationship between stock prices and exchange rates. We adopted the Johansen cointegration method to test the existence of any long-run cointegration relationship between stock prices and exchange rates of Fragile Five. In order to test for Granger causality in the presence of cointegration among the variables, a vector error correction model (VECM) is employed. The contribution of this study to the existing literature arises from its originality. To our best knowledge, this is the first study that specifically addresses the relationship between these two variables for the Fragile Five.

The rest of the paper is organized as follows. "Fragile Five" term is introduced in the next section. Section 3 gives a survey of the existing literature including empirical evidences on the relevant theory, short and long-run integration, and dynamic linkages between stock prices and exchange rates in developed and emerging markets. Then, the following section presents data and discusses research methodology used. Empirical results are given in section 5 and subsequent discussions followed by conclusion in Section 6.

FRAGILE FIVE

Eleven years ago, Wilson and Purushothaman (2003) considered Brazil, Russia, India and China (BRIC) as the emerging markets with the brightest economic growth prospects in a report of the Goldman Sachs. On the other hand, Morgan Stanley analyst James Lord has recently declared Brazil, India, Indonesia, Turkey and South Africa as the "Fragile Five" in an August 2013 research

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