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Stock and foreign exchange market linkages in emerging economies

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ABSTRACT

This paper investigates bi-directional linkages between the stock and foreign exchange markets of a number of emerging economies. This is accomplished by estimating a vector autoregressive model with Generalized Autoregressive Conditional Heteroskedasticity (VAR-GARCH) for each of twelve emerging economies. Included in model dynamics are the effects of global and regional stock markets on the stock and foreign exchange markets. We find significant bi-directional spillovers between stock and foreign exchange markets. Moreover, we investigate whether a country's choice of exchange rate regime or the Asian financial crisis had a significant effect on the volatility spillover mechanism.

1. Introduction

It is widely acknowledged that international financial markets have become substantially more integrated in recent years. On the one hand, the collapse of the Bretton Woods system was followed by greater exchange rate fluctuations. On the other, the liberalization of stock markets and capital flows in the 1990s was followed by a huge increase in the volume of cross border transactions in both securities and currencies. The interlinkage between the stock and foreign exchange markets has been a topic of interest of academic researchers and practitioners alike.

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There is a lot of interest in the financial press on the linkage between returns in the stock and foreign exchange markets in light of the implications of this issue for international portfolio management. There are contrasting views in the financial press, however, on the direction of linkage. For instance one article ("Asia Currencies Stay Buoyant Amid Storms," *Financial Times*, August 18, 2011) reports that the 'traditional' correlation between higher equity returns and appreciating currencies appears to have broken down recently in Asia while another ("Weakest currency areas give best returns," *Financial Times*, March 4, 2012) reports that higher stock returns in emerging economies are correlated with depreciating currencies.

There is a considerable academic literature examining linkages between stock and foreign exchange markets. The flow and portfolio-balance theories of exchange rate determination posit theoretical links between changes in the value of a country's currency and stock prices. This issue has been examined empirically by a number of studies most of which have focused on advanced economies. In view of the increasing significance of the emerging economies in the global financial system, more recent studies have directed emphasis on these economies.

Parallel to the literature on the linkage between the stock and foreign exchange market, another branch of the literature has focused on geographic linkages between stock markets. In particular, the mechanism by which shocks in mature stock markets (stock markets of developed economies) are transmitted to stock markets in emerging economies has been the subject of numerous theoretical and empirical studies. The literature on this issue is large and we provide a very brief review in the next section by way of motivating our inclusion of geographic (global and regional) spillovers between stock markets.

Despite extensive research on these interrelated issues, there has been very little work incorporating all of them within a unified empirical framework. The purpose of this paper is to estimate empirically such a framework in order to examine the link between the stock and foreign exchange market in emerging economies allowing for geographic linkages across stock markets. Based on this framework, we provide evidence on a number of hypotheses and test various facets of stock and foreign exchange market interaction in emerging economies.

The paper is organized as follows. Section 2 is a brief summary of the literature. Section 3 presents the methodology and Section 4 the data. Section 5 discusses the evidence from the estimation and tests of the empirical framework and the final section concludes the paper.

2. Theoretical considerations and a brief literature review of the empirical evidence

Theory suggests two broad channels that link return in the stock and foreign exchange market. The first approach known as the flow or traditional approach (Dornbusch, 1980) focuses on the current account, or more specifically the trade balance. According to this approach, a depreciation in the value of a country's currency affects its external competitiveness and thus its trade balance, and ultimately real output. This will alter the profitability and (expected) cash flows of firms and thus stock returns. According to this approach, improved stock market returns would be associated with a depreciating domestic currency.

The second approach, known as the portfolio-balance approach (Frankel, 1983), focuses on the choice between holding assets denominated in domestic and foreign currency. Specifically, it postulates that increases in equity returns increase domestic wealth and this, in turn, will lead to appreciation of the domestic currency. This comes about when domestic residents have a higher propensity to hold wealth in the form of domestic bonds than foreign residents. In this case, the increase in domestic wealth increases the net demand for domestic bonds and the domestic currency appreciates to balance relative (domestic and foreign denominated) bond supplies.

When it comes to considerations of volatility spillovers between stock markets or between the stock and foreign exchange markets there is a large empirical literature. The 1987 stock market crisis in the US and the 1992 ERM crisis in Europe gave rise to one branch of the literature on cross-border volatility spillovers among mature (developed economy) stock markets. Early studies covered mostly the G7 economies, e.g. Hamao et al. (1990), King and Wadhwani (1990), Schwert (1990), and Karolyi (1995). Later research expanded the sample to other developed economies. For example, Theodossiou and Lee (1993) examined interlinkages between a larger set of countries and Lin et al. (1994) examined