

## **Estimation of Multi-country Exchange Rate Model**

**Khandakar Qudrat-I Elahi**

After the breakdown of the Bretton Woods System in 1973, exchange rates around the world became highly volatile and often chaotic, which attracted tremendous academic interests. Academic interests were particularly focused on theoretical aspects, but empirical problems were little discussed (Krueger 1983). Additionally, empirical studies were mostly conducted under two-country frameworks whose purpose was to test the theories (Backus 1984, Branson et al. 1977, Dornbusch 1980, Frankel 1983).

The objective of this paper was to estimate a multi-country exchange rate model. Multi-country exchange rate models can be estimated under both general and partial equilibrium frameworks. The general equilibrium models have been estimated by the Economic Planning Agency of Japan and the Organization of Economic Cooperation and Development (Holtham 1984, Kaneko and Yashara 1986). The partial equilibrium models are simple and easy to estimate. A partial equilibrium multi-country model was estimated in this study. The theoretical framework was developed by the project LINK a U.S. based organization (Pauly and Petersen 1986).

The paper has been organized as follows. Section I discusses the theoretical model. The empirical model is discussed in Section II. The exchange rate policies of model countries are discussed in Section III. The empirical model is estimated in Section IV. In Section V, the exchange rate model is simulated and validated. The final section provides the conclusions of the paper.

### **I. The Theoretical Model**

The theoretical basis of the exchange rate model estimated here is the portfolio balance approach. The model assumes a three-asset financial market. In a multi-country framework, each country may be assumed to hold foreign bonds denominated in currencies of all other countries. Therefore, total wealth of country *i* may be defined as :