Measuring Global Flow of Funds: Cross-Border Country-Sectors Interconnected via 'Who-to-whom' Accounts

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This study presents a new statistical approach to measure the Global Flow of Funds (GFF) and establishes a new statistical model based on the economic theory of the GFF. It also discusses the data sources needed to establish the GFF matrix (GFFM) and the integration of the dataset. Based on the transaction shares in the international financial market, we selected countries and regions including G7, Hong Kong, China, India, Korea, Luxembourg, Netherlands, Singapore, and Switzerland as the observation objects. The statistical matrix of the observation objects based on W-t-W is established through empirical analysis; the analysis method of GFFM is discussed, and the influence and sensitivity of the countries in GFF are measured. To observe the relationship between the GFFM and the cross-border country-sectors, we tried to make a sectoral financial inflow-outflow matrix (FIOM). The sectoral FIOM which including the United States (US), China (CN), Japan (JP), and the United Kingdom (UK) economies is established using their financial account and sectoral data. GFFM and FIOM are regarded as financial networks, and the network analysis method is introduced into the GFF analysis. This study discusses risk exposure at the country level of US, CN, JP, and UK as well as cross-border exposures. The study makes the following four main contributions to measure GFF.

First, the statistical framework of GFF, which builds on prior theoretical constructs and is the core of this study, is an innovation due to its provision of an operational statistical system framework. Thus, the data contained in GFFM make GFF a reality and connect useful metrics in FIOM and integrate a system analysis of the GFFM and FIOM. Thus, other financial instrument matrices can be constructed to meet the needs of policy-making authorities.

Second, this is the first study to compare national financial exposures across the observation objects economies using the GFF analysis framework. We use CDIS, CPIS, and LBS data to estimate bilateral financial exposures between the observation objects economies and connect national financial networks through cross-border exposures by merging information from the CDIS and CPIS datasets.

Third, this study prepares a counterparty sectoral matrix. The GFFM meets the needs of the GFF data by employing the W-t-W benchmark, which can be used to observe the financial exposure at the country level. However, it is not possible to provide more detailed financial information of bilateral exposures between financial and non-financial sectors in different financial instruments within and across countries to observe the impact channel of bilateral exposure. Therefore, we construct the theoretical framework of the GFFM and establish a practical GFFM to further develop an FIOM for identifying sectoral interlinkages, which uses CN, JP, the US, and UK as a case study, and puts forward the basic concept, data source, and compilation method for building the sectoral FIOM.

Fourth, regarding the GFF as a network, the established GFFM and FIOM are both square matrices. By denoting each country and sector as nodes in the network and the scale of bilateral debt as the edge of the network, network analysis can be conducted for GFFM and FIOM using the network theory.

This research still has the following subjects to be broken through. First, the accuracy of the GFF table, especially in processing reserve data, needs to be improved. The data of reserves are not included in the GFFM because of the mismatch of data sources. CPIS, CDIS, and LBS have their own information system, all of which can be carried out on the basis of the W-t-W matrix. However, the data of reserves are from IIP and cannot be carried out on the basis of the W-t-W matrix. Therefore, the integration and matching of data systems between IIP with CPIS, CDIS, and LBS should be strengthened.

The second is to enhance the function of the GFFM. The BSA and external-sector matrices could potentially be extended to flow data to identify changes in transactions and other changes in the volume of an asset/liability. This could be a rather challenging task, given that the flow data would need to be decomposed by contributing country.

Third, we will improve the financial network analysis method, explore new approaches, and expand the network theory. This will include the development of centrality measures of GFF that directly represents the interlinks, capturing direct and indirect links with financial instruments.