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Measuring Global Flow of Funds: Who-to-whom Matrix and Financial Network

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This study seeks to construct the Global Flow of Funds (GFF) matrix model based on its inherent market mechanisms to measure global financial stability. After investigating the basic situation of the savings-investment balance in G20 economies, using GFF data in combination with data from the Coordinated Direct Investment Survey (CDIS), the Coordinated Portfolio Investment Survey (CPIS), International Banking Statistics (IBS), and International Investment Position (IIP) to establish GFF statistical matrix including G20, which can evaluate the financial risks and influences in various countries. Use the GFF matrix to estimate bilateral exposures between countries in three different financial instruments within and across G20 economies. Lastly, the established CPIS matrix table is used to conduct empirical analysis. And we examine the use of who-to-whom (w-t-w) matrices to study the local propagation dynamics of quantity shocks in investment and financing. To that aim, we propose a decomposition of shocks into n-order effects on the basis of an \mathbb{R}^n -inverse of Leontief's representation of the w-t-w matrices. on this basis, we further propose an eigenvector decomposition of the effects to provide an analytical description of the propagation process. This reveals the deep connection between the propagation role of financial instruments/countries and their centrality in the w-t-w network. Using financial network analysis to run an empirical analysis of G20, focusing on the effects of the shock of Portfolio Investment between the United States, China, and Japan.