

Classification of Countries in Global Banking Network

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In this work, we analyze the global network of cross-border bank lending connections among countries from 1977 to 2016. The network includes core countries that lend and borrow money and peripheral countries that only borrow money from core countries. We built a matrix of connections between core and peripheral countries for each year and used principal component analysis (PCA) to analyze our dataset. PCA is a dimension reduction technique that by reducing features (core countries) of the system (cross-border bank lending network) can classify samples (peripheral countries) that have similarities in feature space. We find the core countries that play more important role in bank lending network and track the evolution of these roles over the years. We explore three clusters of peripheral countries over all the years that mostly financially connected to some specific core countries. PCA-1 and 2 components in Figure (1) show that among 29 core countries, 7 countries have a more important role in the network; France (FR), United Kingdom (GB), United States (UM), Japan (JP), Germany (DE), Taiwan (TW) and Switzerland (CH). Countries bellow or up the zero value in both components mostly lend money to the countries in the same cluster.

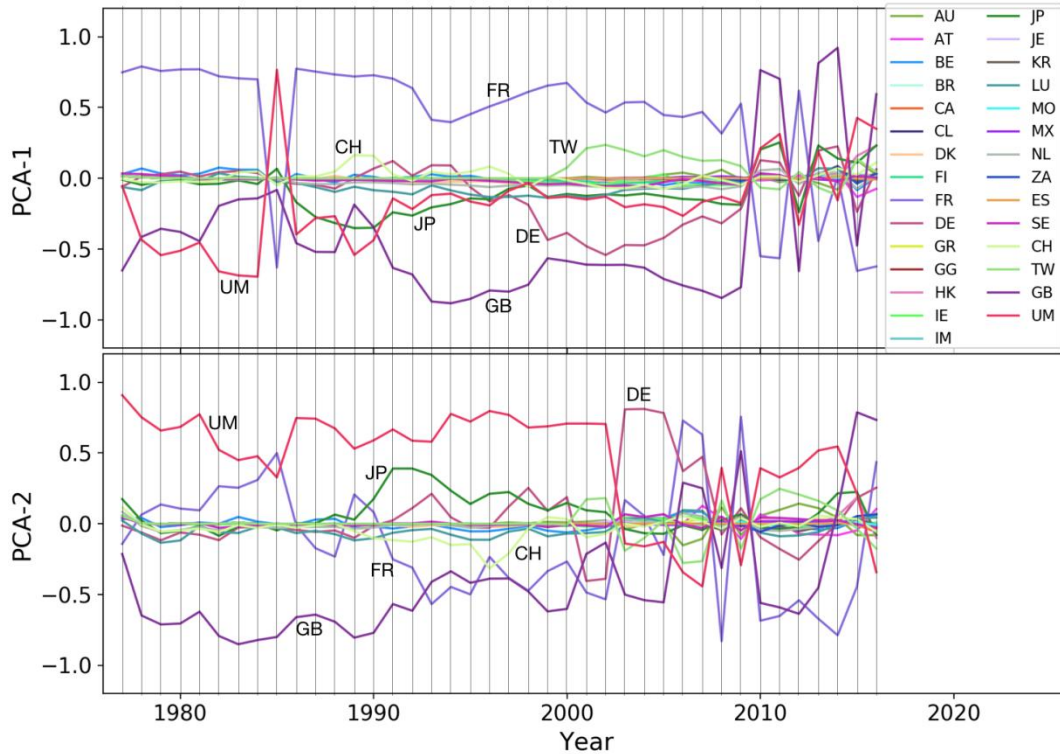


Figure: Role of core countries in the classification of peripheral counters in PCA-1 and PCA-2