Interbank Networks and the Benefits of Using Multilayer Structures

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Abstract : Complexity science seeks the understanding of systems adopting diverse theories from various areas. Network analysis has been gaining space and credibility, namely with the biological, social and economic systems. Significant part of the literature focuses only monolayer representations of connections among agents considering one level of their relationships, and excludes other levels of interactions, leading to simplistic results in network analysis. Therefore, this work aims to demonstrate the advantages of the use of multilayer networks for the representation and analysis of networks. For this, we analyzed an interbank network, composed of 42 banks, comparing the centrality measures of the agents (degree and PageRank) resulting from each method (monolayer x multilayer). This proved to be the most reliable and efficient the multilayer analysis for the study of the current networks and highlighted JP Morgan and Deutsche Bank as the most important banks of the analyzed network.