

# Multiplex interbank networks and systemic importance

## An application to European data<sup>\*</sup>

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### Abstract

Research on interbank networks and systemic importance is starting to recognise that the web of exposures linking banks balance sheets is more complex than the single-layer-of-exposure paradigm. We use data on exposures between large European banks broken down by both maturity and instrument type to characterise the main features of the multiplex structure of the network of large European banks. This multiplex network presents positive correlated multiplexity and a high similarity between layers, stemming both from standard similarity analyses as well as a core-periphery analyses of the different layers. We propose measures of systemic importance that fit the case in which banks are connected through an arbitrary number of layers (be it by instrument, maturity or a combination of both). Such measures allow for a decomposition of the global systemic importance index for any bank into the contributions of each of the sub-networks, providing a useful tool for banking regulators and supervisors. We use the dataset of exposures between large European banks to illustrate the proposed measures.

**Keywords:** *interbank networks, systemic importance, multiplex networks*

**JEL Classification:** *G21, D85, C67.*

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