

Financial and macroeconomic dynamics using multi-layered networks

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Abstract:

We present the existence of the empirical linkage between the dynamics of financial networks and networks constructed from macroeconomic variables. The temporal scales of the dynamics of the financial variables and the macroeconomic fundamentals are very different, which makes the multi-layered network structure and the empirical linkage even more interesting and significant. We also construct the nominal return correlation networks from daily returns to encapsulate sector-level dynamics and infer the relative importance of the sectors in the nominal network. The data science methodology using network theory, coupled with standard econometric techniques constitute a new approach to studying multi-level economic phenomena in a comprehensive manner.