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Title: **The statistical physics of financial networks: structure and dynamics**

### Abstract

Thanks to its deep connection with information theory, statistical physics is successfully used to define null models for complex networks, which reproduce some features of real-world systems and are otherwise as random as possible.

These models have been widely used in various contexts to detect statistically significant structural patterns, as well as to reconstruct the network structure in cases of incomplete information.

Here we discuss the network reconstruction problem in the paramount case of financial networks, whose detailed structure is typically hidden by privacy issues.

We show how reconstructed financial networks allow running network-based stress tests and thus monitoring systemic risk.

Finally we discuss the relationship between economic and thermodynamic equilibrium in the context of interbank networks.