



A NETWORK ANALYSIS OF THE TURKISH STOCK MARKET

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ABSTRACT

Financial markets are complex systems composed of many subsystems. An important and challenging task is to describe the collective behavior of interacting edges as well as their associated information flows between these subsystems. Collective behavior can be modeled by a variety of approaches, including dynamical models, agent-based models, and network theory. In this study, complex networks are constructed to study the cross-correlations between the daily closing prices of 214 stocks listed on the Turkish stock exchange market from January 2006 to May 2021 to analyze the collective behavior and information flow within the market. In these networks, the nodes represent the stocks, and the edges are determined by cross-correlations of the stock returns within the selected time frame. Scale-free degree distribution is observed for all networks, suggesting that the variation in stock returns is largely determined by a relatively small number of stocks. Furthermore, we list the key stocks in the market applying a different class of centrality measures from network theory.

Keywords: Turkish Stock market, Complex network, Scale-Free, Centrality measures

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