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# Evaluating Portfolio Performance by Highlighting Network Property and the Sharpe Ratio in the Stock Market

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**Abstract :** Selecting a portfolio for investing is a crucial decision for individuals and legal entities. In the last two decades, with economic globalization, a stream of financial innovations has rushed to the aid of financial institutions. The importance of selecting stocks for the portfolio is always a challenging task for investors. This study aims to create a financial network to identify optimal portfolios using network centralities metrics. This research presents a community detection technique of superior stocks that can be described as an optimal stock portfolio to be used by investors. By using the advantages of a network and its property in extracted communities, a group of stocks was selected for each of the various time periods. The performance of the optimal portfolios compared to the famous index. Their Sharpe ratio was calculated in a timely manner to evaluate their profit for making decisions. The analysis shows that the selected potential portfolio from stocks with low centrality measurement can outperform the market; however, they have a lower Sharpe ratio than stocks with high centrality scores. In other words, stocks with low centralities could outperform the S&P500 yet have a lower Sharpe ratio than high central stocks.

**Keywords :** portfolio management performance, network analysis, centrality measurements, Sharpe ratio
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