ABSTRACT

Stock returns in the capital market are often not normally distributed, displaying asymmetric distributions with thick or thin tails, which poses challenges for optimal portfolio formation. Mean-Variance-Skewness-Kurtosis (MVSK) portfolio optimization provides a solution by considering skewness and kurtosis, allowing for the management of asymmetric distributions and extreme risks. Selecting the best stocks for the portfolio is crucial to minimizing specific risk. In this study, ELECTRE-III is employed to evaluate company performance based on rankings as the first step in stock selection. Investor risk preferences—risk-loving, risk-aversion, and risk-neutral—are also taken into account, particularly for stocks in the IDXBUMN20 index, which comprises highly liquid stocks with large market capitalizations. This study aims to apply the MVSK method to form optimal portfolios using the Newton-Raphson algorithm based on the best stock selection via ELECTRE-III. Using daily stock price data from August 3, 2023, to August 2, 2024, the results identify four top-performing stocks: PTBA, BMRI, JSMR, and PGAS. The optimal portfolio is formed in alignment with investor risk preferences. Based on Value at Risk (VaR) Historical Simulation, risk-loving portfolios have the highest risk at 20.7014%, risk-aversion portfolios show the lowest at 4.4430%, and risk-neutral portfolios present a moderate risk of 5.5878%. This study demonstrates the MVSK model's effectiveness in forming portfolios under volatile market conditions while accommodating investor risk preferences.

Keywords: Mean-Variance-Skewness-Kurtosis, ELECTRE-III, Newton-Raphson, Value at Risk Historical Simulation.