ABSTRACT

Indonesia's capital market continues to expand, marked by a steady rise in the number of investors. This development encourages investors to select stocks more carefully while constructing portfolios that can deliver optimal returns with measurable risk. Stock selection is often challenging due to the numerous criteria that must be considered; therefore, this study integrates the ELECTRE-III method and Particle Swarm Optimization (PSO) to construct a Mean–Semivariance portfolio using stocks listed in the IDXV30 Index. The data consist of daily closing prices of IDXV30 stocks, the IHSG, the BI Rate, and financial statements for the second quarter of 2025. The initial stage involves calculating returns and expected returns, which identify seven stocks with positive expected returns. These seven stocks are then evaluated using the ELECTRE-III method based on six financial ratios: EVA, ROA, ROE, EPS, P/E, and Tobin's Q. The ranking results indicate three top scoring stocks ASII, INDF, and PGAS which are subsequently used as portfolio candidates. The optimal portfolio is constructed using the Mean–Semivariance approach optimized with PSO to maximize the Sharpe Ratio without generating negative weights. The findings show an optimal portfolio composition of 32 percent for ASII, 0 percent for INDF, and 68 percent for PGAS. This portfolio yields a Sharpe Ratio of 0.035975. The Value at Risk (VaR) estimation using Historical Simulation indicates a maximum one-day potential loss of Rp220,462 for an investment of Rp10,000,000. The integration of ELECTRE-III and PSO proves effective in generating an optimal portfolio aligned with the preferences of investors who avoid short selling.

Keyword: Optimal Portofolio, *Mean–Semivariance*, ELECTRE-III, *Particle Swarm Optimization* (PSO), IDXV30, *Sharpe Ratio, Historical Simulation*.