ABSTRACT

Stock investment is one of the alternatives for individuals to grow wealth by achieving optimal returns with controlled risk. Portfolio construction is necessary to optimize returns while considering risk. This study aims to construct an optimal stock portfolio using the Downside Capital Asset Pricing Model (DCAPM) combined with sectoral diversification for asset selection and the mean–semivariance method for portfolio optimization.

The data consist of monthly closing prices of 30 companies listed in the IDX30 index and the Indonesia Composite Index (IHSG) from January 2021 to September 2025. BI Rate data from February 2021 to September 2025 are also used as the risk-free rate. Stock selection is based on positive historical expected returns and expected returns greater than or equal to those estimated by DCAPM. The selected stocks are grouped by sector, and the best-performing stock in each sector is chosen as a portfolio candidate. Four stocks are selected: AMRT, BBNI, BRPT, and MEDC.

Spearman correlation is applied to examine diversification among the selected stocks. The optimal portfolio formed using the mean–semivariance method allocates 24.74% to AMRT, 54.35% to BBNI, 10.95% to BRPT, and 9.96% to MEDC. The portfolio generates an expected return of 0.01195 with a risk of 0.04048. The Sharpe Index value of 0.19300 indicates that the portfolio provides returns above the risk-free rate. At a 95% confidence level, the Value at Risk (VaR) using historical simulation shows a maximum potential loss of 34.32% for an initial investment of IDR 10,000,000.

Keywords: Investment, DCAPM, mean–semivariance, IDX30, Value at Risk.