

## ABSTRACT

The acquisition of investment is closely related to the potential risks that investors will receive. Portfolios are present as an effort to minimize risk in investing by combining several assets. Investors must be able to determine strategies in selecting and determining asset weights in order to form an optimal portfolio, in order to get the maximum expected return with a certain level of risk. This research discusses the determination of Mean-Value at Risk portfolio weights and risk measurement with the Monte-Carlo Simulation method. Value at Risk (VaR) measures the maximum potential loss forecast at a certain time period with a certain level of confidence. Determining the weights to achieve the optimal portfolio is often done with the Mean-variance optimization process. The Mean-Variance optimization process has a weakness, namely the variance in Mean-Variance is often questioned as a risk parameter in determining the optimal weight because the variance measure is symmetrical and does not pay attention to the direction of price movement. An alternative method to overcome the weaknesses in Mean-Variance is to use Mean-Value at Risk (Mean-VaR) with VaR used as variance optimization to be able to prevent investors from losses in the same way as from profits. Mean-Value at Risk is an optimization process that has advantages over Mean-Variance because it does not limit the possibility of profit to be obtained. The determination of the optimal portfolio weight is based on the Mean-Value at Risk method and the risk of the portfolio is measured using the Value at Risk Monte-Carlo Simulation method. Mean-VaR portfolio optimization in this study was carried out using a matrix algebra approach and Lagrange multipliers to obtain the optimal weight point in the formed portfolio. Best on the results of the analysis 41 LQ45 stocks listed on the evaluation of August 2023 - January 2024 that have been analyzed, the composition of shares in the optimal portfolio is 48.684% PT Sumber Alfaria Trijaya Tbk; 16.936% PT Bank Syariah Indonesia Tbk; and 34.380% PT Barito Pacific Tbk from the weight proportion. While the loss or estimated risk of the portfolio at the 95% confidence level is IDR 18.087.860,00 within one day after December 29, 2023.

**Keywords:** Portfolio, Optimization, Risk Measurement, Mean-Value at Risk, Monte-Carlo Simulation.