ABSTRACT

Investment involves allocating funds into productive assets with the aim of generate future profits. Stock investment is popular due to its high return potential, accompanied by risks that must be managed through portfolio diversification. This study aims to identify the best securities for constructing a Mean Absolute Deviation (MAD), using Ward Clustering for stock selection on the IDX Quality30 index. The dataset includes stocks consistently listed in the IDX Quality30 index from November 2023 to October 2024. Ward Clustering forms clusters with minimal internal variance by merging two clusters that produce the smallest increase in Sum of Squared Error (SSE), resulting in more homogeneous clusters. Stock grouping was conducted based on financial ratios: Earning Per Share (EPS), Price to Earning Ratio (PER), Debt to Equity Ratio (DER), and Return On Equity (ROE). The optimal number of clusters was determined using the Silhouette Coefficient. From each cluster, representative stocks with the highest positive expected return were selected. Optimal stock weights in the portfolio were determined using the Mean Absolute Deviation (MAD) model. The MAD model minimizes portfolio risk through an objective function expressed in absolute deviation, with constraints including a minimum target return and stock weight limits. The results show that the optimal number of clusters is five cluster. The portfolio consists of four stocks with optimal weights: ADRO (30%), BBCA (30%), MIKA (10%), and UNTR (30%), while ACES was excluded from the portfolio due to its insignificant contribution to the overall portfolio performance. The portfolio achieved an expected return of 0,00090 and a risk level of 0,01018. The portfolio performance evaluation based on the Sharpe Index yielded a positive value of 0.07224. This indicates that the portfolio outperforms risk-free investments, and thus can be considered a viable stock investment alternative for investors.

Keywords: IDX Quality30 Index, Ward Clustering, Mean Absolute Deviation Portfolio, Sharpe Index