ABSTRACT

The rapid growth of investment encourages investors to consider investment decisions in managing risk and return. Investors' aversion to risk is a factor in risk spreading or risk diversification. This study aims to form an optimal portfolio of stocks in the IDX Quality30 index. The data used is sample data from January 2022 to December 2024, with analysis using the Ward Clustering and Kataoka Safety-First methods. The Ward Clustering method is used to group stocks based on profitability ratios, namely Earnings per Share (EPS) and Return on Equity (ROE). Meanwhile, the Kataoka Safety-First method forms a portfolio by considering the minimum safe return limit for investors. The results of the study show that the best number of clusters is 5 clusters with the highest Silhouette Coefficient value of 0.7506973. The optimal portfolio consists of three representative stocks from each cluster selected based on the highest positive expected return values, namely BMRI, MIKA, and UNTR. The weight allocation for each stock is 50.92%, 43.09%, and 5.98% of the total investment fund. This portfolio has an expected return of 0.006488461 with a standard deviation of return of 0.04731023, a minimum return of -0.07132994, and a Sharpe ratio of 0.043938. These results indicate that the portfolio is capable of managing risk while considering the probability of achieving the minimum return. The advantage of the Kataoka Safety-First model lies in its ability to quantitatively adjust the risk that investors can tolerate, making investment decisions more rational. The combination of the Ward Clustering method and the Kataoka Safety-First approach has proven effective in forming an optimal portfolio, thereby offering an alternative investment strategy for investors.

Keywords: *Portofolio Optimal, Ward Clustering, Kataoka Safety-First, Silhouette Coefficient, Indeks Sharpe*