

ABSTRACT

Cluster analysis is a technique for categorizing data based on their similar characteristics. This method can be applied to select stocks for investment portfolios, as portfolios are a diversification strategy that aims to maximize profits. K-Harmonic Means Clustering is commonly used for this purpose, grouping stocks based on key financial indicators. The Davies-Bouldin Index value is used to validate the clusters and determine the most optimal one. The Capital Asset Pricing Model (CAPM) is subsequently applied to calculate the weight values for the portfolio. The portfolio with the highest Sharpe Ratio value is considered the optimal one. In the case of clustering LQ45 stocks, the optimal portfolio consists of 4 stocks: ADRO, BFIN, HRUM, and PTBA. The optimal weight for each stock, determined using CAPM, is 45.37% for ADRO, 39.48% for BFIN, 7.04% for HRUM, and 8.11% for TLKM, with a better Sharpe Ratio value.

Keywords: Cluster analysis, K-Harmonic Means Clustering, Davies-Bouldin Index, Capital Asset Pricing Model, Sharpe Ratio.