Abstract

Minimizing risk is an important point in portfolio optimization. In an investment, investors expect to get a high return with low risk. The concept of the portfolio was first discovered by Markowitz in 1952. In optimizing the portfolio, two things are considered, namely the standard deviation and the expected return. In this study, portfolio selection will be carried out using the K-Means clustering approach. Historical data used is from January 1, 2013 - January 1, 2020. Where the data uses closed prices for LQ45 stocks on a weekly, biweekly, and monthly basis. The results given in this study are data that is divided into nine groups where each historical data is weekly, biweekly, and monthly. The test is carried out by taking into account the lowest standard deviation, the highest expected return, and the compromise of the standard deviation and expected return. From these nine groups, portfolio selection was carried out using equal weight and mean-variance with a clustering approach. This study also uses the backtesting method to test how accurate the portfolio selection results are. From the experimental results, the meanvariance method produces an average expected return, standard deviation, and a more optimum final result than the equal weight method.

Keywords : *k-means, mean-variance, clustering, backtesting*