Abstract

Portfolio is a collection of assets owned by individuals or group that aims to make profit. Stocks are a form of investment. In investing there are two things that can be considered by investors, namely the expected return and risk. With portfolio optimization, it is expected to be able to generate profits from investments, and get high returns but with small risks. Over time, it is possible to form a portfolio optimization considering return predictions using machine learning. Based on these problems, this study uses the Holt-winter method to predict stock prices and stock returns. The Holt-Winter method is an accurate method for estimating seasonal time series data, whether the pattern shows a trend or not. In previous studies, the Mean-Variance method was used to obtain portfolio optimization, after analyzing the results were not satisfactory, therefore this study formed an optimal portfolio using the Mean-Variance with Forecasting model. Based on the results of optimal portfolio performance testing, it is carried out using the best sensitivity, namely with a large average return value, small standard deviation, and large sharpe ratio. Compared to the performance of the LQ45 index portfolio as measured by the largest average return, the smallest std and the largest sharpe ratio, the portfolio performance using sensitivity produces a higher value.

Keywords: Portfolio Optimization, Stocks, Return, LQ45, Holt-Winter, Mean-Variance.