Abstract

The investment return of shares cannot be determined because the price of a stock is typically uncertain. To minimize losses, a time series forecasting is needed to predict stock price data. In this study, the method used in predicting stock prices is the Autoregressive Moving Average (ARIMA). To get the stock price prediction results using the ARIMA model more optimally, the Hidden Markov Model HMM method can be used by making the stock price prediction results on the ARIMA model as the observed state as input. The results of this study indicate that the stock price prediction of PT. Astra Agro Lestari, Tbk. by using the ARIMA model (0,1,0) has a Root Mean Square Error (RMSE) value of 103.0264. While the results of the most optimal sequence from PT. Astra Agro Lestari, Tbk. by using the HMM method in the form of a row consisting of 3 conditions, namely bullish, bearish and sideway. So the analysis that can be taken from the HMM method using the viterbi algorithm on stock market trend movements is if the trend is bullish then the decision that can be taken is to sell shares. Meanwhile, if the stock market trend is in a bearish state, then the decision that must be taken should wait for an increase in stock prices and the trend is in bullish condition.

Keywords: ARIMA, *Hidden Markov Model, forecasting*, Stock Price