

## ABSTRACT

Company's stock prices in the market are very fluctuating, where its value experiences up and down according to market condition. Based on that fact, stock price become very difficult to be predicted or even estimated. Therefore, analysis of stock price movement predictions is heavily required as investment decision reference for investor.

The method used technical analysis with Artificial Neural Network Backpropagation method as one of *machine learning* methodology which has commonly used along with rapid development of data mining and big data analytic that produces a prediction with high accuracy and the least error. The objects in this paper were four companies in the agricultural and mining sector, which was among Kompas100 index with the largest market capitalization in the period of 2013 to 2018.

Based on the results of research with several variations of the experiment using varying hidden layer values 10, 20, 30 with variations in SGD values: 0.01, 0.001 and 0.0001 as well as variations in epoch 100, 200 and 300 values, resulting in network predictive models that provide training with error rates the minimum error is in the 5-20-1 model with a value of SGD 0.01 and epoch 300. Accuracy performance produces 83,05 as an average value of Agricultural Stock MAE, where mining stock MAE is 134,23. The average value of agricultural stock MSE is 0.00149, which is lesser than 1.00157 MSE mining stock average value. The average value of agricultural stock RMSE is 0.03801, which is lesser than the average value of mining stock RMSE with a value of 0.03896, meanwhile the average value of MAPE in agricultural stocks is 1.77% lesser then average value of MAPE in mining stocks is 2.32%.

**Keyword:** *Artificial Neural Network, Backpropagation, Machine learning, Stock Price Prediction*