Abstract

Predicting the price of Cocoa Futures is needed by farmers and also the government in determining policies. The uncertainty of price movements can affect farmers' income and also foreign exchange savings because Indonesia is the largest cocoa-producing country in the world. In this study, we use the cocoa futures dataset to train using Multi-Layer Perceptron (MLP) and Long Short-Term Memory (LSTM) to make a prediction of the cocoa futures price. In that way, this study resolves the uncertainties using the MLP method and also the LSTM, where these two methods produce a model using the input of data train and data test to predict the price of cocoa futures contracts and then be compared to see which one is the right one for the cocoa dataset. The dataset used is quoted from the Investing.com page taken from 2003 to 2021. The result of this study is the best model between MLP and LSTM model, where the LSTM can produce the best model using 50-50 Train to test data ratio, 128 batch size, and 64 Neurons on the hidden layer with evaluation metrics value in RMSE is 2.27, MAE is 32.11, and MAPE is 1.29 or 98.71% accuracy. This is because the LSTM model has logic gates in the layers that have an advantage on time series data using memory, where the LSTM model could memorize the output and use the output again as an input to achieve the best output.

Keywords: Prediction, Cocoa Futures Price, Comparison, Multi-Layer Perceptron, Long Short-Term Memory.