ABSTRACT

Gold is not only used as jewelry, but also as a profitable investment. However, several factors can affect gold price fluctuations, causing the risk of investing in gold to increase. Therefore, gold price prediction has an important role in helping to reduce investment risk for people who invest in gold. Convolutional Neural Network algorithm combined with Long Short Term Memory (CNN-LSTM) is one method that can be used to predict gold prices, CNN can extract data features that become input data while LSTM can capture information sequence patterns, these advantages will be useful in predict the price of gold. This study separates the training data and test data, which are then normalized to minimize the error prediction value. The final results of the predictions of this study were evaluated by looking at the values of the Root Mean Square Error (RMSE) and Mean Absolute Error (MAE). The test is carried out using two datasets with different time frames and test data ratios, in the daily time frame data test with a test data ratio of 40%, the best RMSE value is 13,67953 and the best MAE value is 9,40998, while the test data ratio is 20%. The best RMSE is 15,53199 and the best MAE value is 10,32953. In the weekly time frame data test with a test data ratio of 40%, the best RMSE value is 37,59087 and the best MAE value is 28.01416, while in the 20% test data ratio the best RMSE value is 32,68774 and the best MAE value is 22,65841. Those results indicate that the tuned CNN-LSTM model can predict gold prices on the daily time frame

Keywords: *Gold Price,* CNN-LSTM*, Deep Learning, Price Prediction, Hyperparameter*