Abstract

The foreign exchange market is a global financial market that is influenced by economic, political, and psychological factors that are interconnected in complex ways. This complexity makes the foreign exchange market a difficult time-series prediction. At the end of 2019, the world was faced with the COVID-19 pandemic that has not only affected public health but also the foreign exchange market, which makes the trading behaviour affected. Long Short-Term Memory network (LSTM) is a type of recurrent neural network (RNN) that can solve long-term dependencies and is suitable to be a financial time-series model. This study implemented the LSTM model to predict the foreign exchange rate at a timeframe of 1 hour and daily in 2020 to get the best hyperparameter based on the RMSE evaluation results. Furthermore, with the obtained hyperparameters, the prediction result of 2020 was then compared with the 2018 and 2019 prediction results. The best RMSE result was obtained in 1-hour timeframe and when 2020's RMSE result was compared to 2018's and 2019's RMSE result, the prediction of 2019 gave the best RMSE result. The LSTM model is able to achieve good results in the 2020 prediction, proven by the RMSE result which is 0.00135.

Keywords: COVID-19, forex, hyperparameter, long-short term memory, prediksi