

Prediction of Indonesian Composite Stock Price Index with LSTM

by Agus Maman Abadi, Lusi Harini, Thesa Adi Saputra Yusri

ABSTRACT

The economic impacts of the COVID-19 pandemic have prompted a search for supplementary sources of income, resulting in a surge in stock market investments. This study focuses on the Indonesian stock market and utilizes the Jakarta Composite Index (JCI) for assessment. It incorporates Long Short-Term Memory (LSTM) networks, a type of deep learning, to forecast stock prices based on technical analysis parameters.

Six LSTM models were analyzed for Mean Squared Error (MSE), unveiling the most effective model with four layers, 100 epochs, and a window size of 50. This model attained an MSE of roughly 3652.807872, demonstrating outstanding predictive potential for JCI stock prices through the use of previous data and technical analysis parameters. The model performs exceptionally well in capturing nuanced long-term changes, exhibits superior performance with increased epochs, and utilizes extra layers to extract patterns, thus enhancing its predictive capacity. A comparison between neuron count of 50 and 75 models highlights the crucial role that neuron count plays in prediction accuracy, with the latter consistently delivering improved results.

In conclusion, this study highlights the benefits of utilizing LSTM networks, specifically the optimized model, as a valuable resource for investors navigating the ever-changing financial landscape. The low Mean Squared Error further reinforces the dependability and accuracy of this LSTM model in predicting JCI prices, leading to a sturdy foundation for well-informed decision-making when investing in the stock market.

Kata Kunci: *LSTM, JCI, stock*