

INTISARI

Prediksi Harga Saham Menggunakan Indikator Teknikal Dengan Convolutional Neural Network-Long Short Term Memory (CNN-LSTM)

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Jumlah investor pada pasar modal Indonesia telah meningkat secara signifikan sejak 2020. Bagi para investor, prediksi harga saham merupakan salah satu hal yang penting dalam membuat keputusan di pasar saham.

Dalam studi ini, model Deep Learning CNN-LSTM diaplikasikan untuk kasus time series untuk memprediksi harga saham. Riset ini menggunakan data harga saham historis dari salah satu perusahaan terbesar di Indonesia, Bank BCA. Data harga saham di ekstraksi untuk mendapatkan indikator-indikator teknikal untuk dapat dipisahkan ke dalam beberapa set data tipe indikator yang berbeda; trend-following, oscillator, dan keduanya. Riset ini juga mengidentifikasi set data terbaik untuk masing-masing model dalam memprediksi harga saham. Performa dari model untuk masing-masing set data diukur dengan beberapa metrik; Mean Absolute Error, Root Mean Squared Error, Mean Absolute Percentage Error dan R-squared. Student's t-test juga digunakan untuk melihat signifikansi CNN-LSTM dibanding model lainnya dalam memprediksi harga saham.

Studi ini membuktikan bahwa CNN-LSTM berhasil dalam menaikkan performa prediksi dibanding LSTM dan CNN

Kata kunci : prediksi harga saham, CNN-LSTM, indikator teknikal, trend-following, oscillator

ABSTRACT

Predicting Stock Price Using Technical Indicators With Convolutional Neural Network – Long Short Term Memory (CNN-LSTM)

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The number of investors in Indonesia capital market has increased significantly since 2020. For these investors, stock price prediction is one of the most important concerns in decision making in stock market.

In this study, CNN-LSTM model was applied for regression time series case in order to predict stock price. This research used historical stock price data of an Indonesian company, Bank BCA. The data was extracted to get the technical indicators so that they can be split into datasets that have different type of indicators; trend-following, oscillator and both. This research also identified which dataset that is best for each model to perform prediction. The performances of models on each dataset were measured by Mean Absolute Error, Root Mean Squared Error, Mean Absolute Percentage Error and R-Squared. A student's t-test was also applied to see if CNN-LSTM was significantly better in predicting stock price.

This study proved that CNN-LSTM was successfully improved performance compared to LSTM and CNN, although the student's t-test showed that it was not significantly better than other models.

Keyword : stock price prediction, CNN-LSTM, technical indicators, trend-following, oscillator