

ABSTRAK

Investasi saham semakin diminati masyarakat, khususnya pada saham *blue chip* yang memiliki kapitalisasi pasar besar dan cenderung lebih stabil. Namun, harga saham bersifat fluktuatif sehingga diperlukan metode peramalan yang akurat untuk mendukung pengambilan keputusan investasi. Penelitian ini bertujuan untuk melakukan peramalan harga penutupan saham *blue chip* pada emiten BBRI, ANTM, dan TLKM yang terdaftar di Bursa Efek Indonesia (BEI) menggunakan metode *Bidirectional Long Short Term Memory* (BiLSTM) dengan optimasi hyperparameter menggunakan *Bayesian optimization*. Pengujian dilakukan menggunakan enam skenario yang merupakan kombinasi rasio pembagian data 70:30, 80:20, dan 90:10 serta jumlah iterasi *Bayesian optimization* sebanyak 25 dan 50. Kinerja model dievaluasi menggunakan *Root Mean Square Error* (RMSE) dan *Mean Absolute Percentage Error* (MAPE). Hasil penelitian menunjukkan bahwa skenario terbaik pada saham BBRI menghasilkan RMSE sebesar 134,88 dan MAPE sebesar 2,58%, pada saham ANTM menghasilkan RMSE sebesar 62,30 dan MAPE sebesar 2,17%, serta pada saham TLKM menghasilkan RMSE sebesar 59,49 dan MAPE sebesar 1,35%. Seluruh nilai MAPE yang diperoleh berada di bawah 10%, sehingga menunjukkan bahwa metode BiLSTM yang dioptimasi menggunakan *Bayesian optimization* mampu menghasilkan tingkat kesalahan peramalan yang rendah dan memberikan performa yang sangat baik dalam peramalan harga penutupan saham *blue chip*.

Kata kunci : *Bidirectional Long Short Term Memory, Bayesian optimization, Peramalan saham, Saham Blue chip.*

ABSTRACT

Stock investing is becoming increasingly popular among the public, particularly in blue-chip stocks, which have large market capitalizations and tend to be more stable. However, stock prices are volatile, so accurate forecasting methods are needed to support investment decision-making. This study aims to forecast the closing prices of blue-chip stocks for the issuers BBRI, ANTM, and TLKM listed on the Indonesia Stock Exchange (IDX) using the Bidirectional Long Short-Term Memory (BiLSTM) method with hyperparameter optimization via Bayesian optimization. Testing was conducted using six scenarios—combinations of data split ratios of 70:30, 80:20, and 90:10—with 25 and 50 iterations of Bayesian optimization. Model performance was evaluated using Root Mean Square Error (RMSE) and Mean Absolute Percentage Error (MAPE). The results show that the best scenario for BBRI stock yielded an RMSE of 134.88 and a MAPE of 2.58%; for ANTM stock, an RMSE of 62.30 and a MAPE of 2.17%; and for TLKM stock, an RMSE of 59.49 and a MAPE of 1.35%. All MAPE values obtained were below 10%, indicating that the BiLSTM method optimized using Bayesian optimization is capable of producing low forecasting error rates and delivering excellent performance in forecasting the closing prices of blue-chip stocks.

Keywords: *Bidirectional Long Short Term Memory, Bayesian optimization, Stock Forecasting, Blue-Chip Stocks.*