

Saham merupakan salah satu instrumen investasi di pasar modal yang paling banyak diminati karena memiliki potensi keuntungan yang tinggi. Namun, saham juga memiliki risiko tinggi akibat pergerakan harga yang fluktuatif dan sulit diprediksi. Hal ini menjadikan peramalan harga saham penting dalam membantu pengambilan keputusan investasi. Penelitian ini menyajikan analisis komparatif model *Long Short-Term Memory* (LSTM), Facebook Prophet, dan Neural Prophet dalam peramalan harga saham Indeks Harga Saham Gabungan (IHSG). Penelitian ini juga menguji pengaruh variasi karakteristik data runtun waktu harga saham, yaitu saham *blue chip* (BBCA, ASII, UNTR) dan saham *non-blue chip* (SILO, ACES, TRIS), metode *imputation* (*forward fill*, *backward fill*, dan interpolasi), serta penggunaan volume perdagangan harian sebagai fitur pendukung terhadap performa model.

Hasil penelitian menunjukkan bahwa Neural Prophet memberikan performa terbaik dengan nilai MAE sebesar 60,4248, RMSE sebesar 88,0914, dan MAPE sebesar 0,71% pada saham BBCA menggunakan metode interpolasi dan penambahan fitur volume perdagangan harian. Secara keseluruhan, Neural Prophet memiliki performa paling baik dalam peramalan harga saham IHSG. Selain itu, penelitian juga mengonfirmasi bahwa karakteristik data saham, metode *imputation*, serta penambahan fitur pendukung berpengaruh terhadap performa model peramalan.

Kata kunci : LSTM, Facebook Prophet, Neural Prophet, peramalan harga saham, IHSG, *blue chip*, *non-blue chip*, kovariat, regresor, variabel eksogen, metode *imputation*

## ABSTRACT

*Stocks are one of the most popular investment instruments in the capital market due to their high potential returns. However, they also carry significant risks because price movements are volatile and difficult to predict. This volatility makes stock price forecasting essential for informed investment decision making. This study presents a comparative analysis of Long Short-Term Memory (LSTM), Facebook Prophet, and Neural Prophet models in forecasting stock prices within the Jakarta Composite Index (IHSG). The research evaluates the impact of variations in time series data characteristics, specifically blue chip stocks (BBCA, ASII, UNTR) and non-blue chip stocks (SILO, ACES, TRIS), imputation methods (forward fill, backward fill, and interpolation), and the use of daily trading volume as a supporting feature on model performance.*

*The results indicate that Neural Prophet delivers the best performance, achieving an MAE of 60,4248, RMSE of 88,0914, and MAPE of 0,71% for BBCA stocks using the interpolation method and the addition of daily trading volume features. Overall, Neural Prophet exhibits the best performance in forecasting IHSG stock prices. Furthermore, this study confirms that stock data characteristics, imputation methods, and the inclusion of supporting features significantly influence the performance of forecasting models.*

**Keywords :** LSTM, Facebook Prophet, Neural Prophet, stock forecasting, IHSG, blue chip, non-blue chip, covariate, regressor, exogenous variable, imputation method