ABSTRACT

The volatility of the stock market makes predicting stock price movements a challenge for investors in making investment decisions. One of the largest market capitalizations and highly liquid stocks on the Indonesia Stock Exchange (IDX) is PT Bank Central Asia Tbk (BBCA), which, despite having strong fundamentals, still experiences price fluctuations due to economic factors and market sentiment. Therefore, this study aims to predict the rise and fall of BBCA stock prices using Extreme Learning Machine (ELM), a machine learning method capable of producing high-accuracy predictions with fast execution time. Unlike conventional neural networks that require iterative training processes, ELM can determine optimal weights directly, making it more efficient in handling large stock market data. In this study, BBCA stock price data from January 7, 2020, to October 3, 2024, were used, with features such as opening price (open), highest price (high), lowest price (low), and closing price (close). The model was tested with variations of hidden nodes (10, 50, 100, 500, and 1000) and evaluated using Mean Absolute Error (MAE), Mean Squared Error (MSE), and Root Mean Squared Error (RMSE). The results show that the ELM model with 100 hidden nodes performed best, with MAE, MSE, and RMSE values of 0.016735, 0.000460, and 0.021447, respectively, indicating that this model can accurately predict the rise and fall of BBCA stock prices. This research is expected to serve as a reference for investors in making more optimal investment decisions and contribute to the development of artificial intelligence-based prediction methods for stock market analysis.

Keywords : Stock Price Prediction, Market Volatility, Extreme Learning Machine, BBCA Stock