

ABSTRACT

Analyzing Time Series Data for Gold Price Prediction with Deep Learning LSTM

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The price of gold has a complex relationship with financial and macroeconomic factors, making it difficult to forecast. The complexity of price forecasting provides the motivation for developing a model that can predict daily gold prices with high accuracy and the smallest possible error. This study proposes the Long Short-Term Memory (LSTM) method to optimally forecast gold prices. This research uses features such as the opening, closing, highest, and lowest gold prices. External features are also used as additional features, like crude oil prices, silver prices, stock indices, and the United States (US) Dollar Index. Based on the results obtained, LSTM achieved optimal results with the lowest error metrics: an MSE of 165.77, an RMSE of 9.36, an MAE of 12.88, and a MAPE of 0.37%. With these results, the LSTM method proves itself as an effective and reliable methodology for forecasting gold prices. LSTM can be relied upon as a primary choice for forecasting future gold prices, providing an important contribution to the world of finance and investment.

Kata Kunci : *LSTM, Deep Learning, Time-Series Forecasting, Gold Prices, Analyzing Time Series*