

ABSTRACT

Stock price movement is a complex phenomenon influenced by internal market factors, such as historical trends, volatility, and liquidity, as well as external factors, such as information and news sentiment. This makes multi-horizon stock closing price prediction important for supporting investment decision-making, risk management, and more measurable portfolio planning, although financial time-series forecasting remains challenging because it is dynamic, nonlinear, and sensitive to new information. This study aims to develop and evaluate a Temporal Fusion Transformer (TFT) model and compare it with LLM-TFT, a TFT model enriched with news sentiment features derived from Really Simple Syndication (RSS) and extracted using a Large Language Model (LLM), for predicting the closing prices of blue-chip stocks listed on the Indonesia Stock Exchange. The study covers four issuers, namely ASII, BBRI, BMRI, and TLKM, with forecasting horizons from H+1 to H+3. The research involves collecting and preprocessing stock price and news data, aligning the trading calendar, constructing technical indicators and daily sentiment features, preparing the dataset, training the models, and evaluating performance using MAE, RMSE, MAPE, R^2 , and Directional Accuracy (DirAcc). Global evaluation on the testing data shows that LLM-TFT delivers better aggregate performance than TFT across all evaluation metrics. TFT achieves an RMSE of 132.585, MAE of 96.158, MAPE of 2.259%, R^2 of 0.986, and DirAcc of 52.343%, whereas LLM-TFT achieves an RMSE of 125.285, MAE of 91.024, MAPE of 2.131%, R^2 of 0.988, and DirAcc of 58.269%. These findings indicate that adding news sentiment features provides a positive contribution to aggregate stock price prediction performance, both in terms of numerical accuracy and directional accuracy.

Keywords : blue-chip stocks, closing price prediction, LLM-TFT, multi-horizon forecasting, news sentiment analysis, Temporal Fusion Transformer