

ABSTRAK

Azriel Ikmal Choiry Sulaiman. 2025. *Analisa Perbandingan Metode Autoregressive Integrated Moving Average (ARIMA) dan Metode Double Exponential Smoothing (Holt) dalam Peramalan Harga Saham (Studi Kasus Saham PT Telkom Indonesia)*. Tugas Akhir. Program Sarjana. Program Studi Teknik Informatika. Universitas Muhammadiyah Jember.

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Ketidakstabilan pergerakan harga saham menjadi salah satu faktor yang menyulitkan investor dalam menentukan keputusan investasi secara optimal. Kondisi tersebut menuntut adanya pendekatan peramalan yang mampu meminimalkan ketidakpastian melalui estimasi yang akurat. Penelitian ini bertujuan untuk menganalisis dan membandingkan kemampuan dua metode peramalan deret waktu, yaitu Autoregressive Integrated Moving Average (ARIMA) dan Double Exponential Smoothing (metode Holt), dalam memprediksi harga saham PT Telkom Indonesia Tbk (TLKM). Data penelitian berupa harga penutupan saham TLKM bulanan yang dikumpulkan selama periode Januari 2018 hingga Desember 2023. Kinerja masing-masing model dievaluasi menggunakan ukuran kesalahan peramalan yang meliputi Mean Absolute Error (MAE), Mean Squared Error (MSE), dan Root Mean Squared Error (RMSE). Hasil pengujian menunjukkan bahwa model ARIMA dengan spesifikasi (1,1,1) menghasilkan tingkat kesalahan yang lebih rendah dibandingkan metode Holt, dengan nilai MAE sebesar 787,71; MSE sebesar 771.844,2; dan RMSE sebesar 878,55. Sementara itu, metode Holt menghasilkan nilai MAE sebesar 837,19; MSE sebesar 878.393,4; dan RMSE sebesar 937,23. Berdasarkan temuan tersebut, dapat disimpulkan bahwa metode ARIMA memiliki kemampuan yang lebih baik dalam merepresentasikan pola pergerakan harga saham yang kompleks serta lebih tepat digunakan pada kondisi pasar yang cenderung volatil.

Kata Kunci: ARIMA, Holt, Peramalan Saham, *Time Series*, PT Telkom Indonesia

ABSTRACT

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Volatile stock price movements represent a major challenge for investors when formulating effective investment decisions. This condition necessitates the use of forecasting approaches that are capable of reducing uncertainty by providing reliable and accurate estimates. This study aims to evaluate and compare the performance of two time series forecasting techniques, namely Autoregressive Integrated Moving Average (ARIMA) and Double Exponential Smoothing (Holt's method), in forecasting the stock prices of PT Telkom Indonesia Tbk (TLKM). The dataset consists of monthly closing stock prices of TLKM observed from January 2018 to December 2023. The performance of each forecasting model was assessed using three error measurement indicators: Mean Absolute Error (MAE), Mean Squared Error (MSE), and Root Mean Squared Error (RMSE). The empirical results reveal that the ARIMA(1,1,1) model produces lower forecasting errors compared to Holt's method, with MAE, MSE, and RMSE values of 787.71, 771,844.2, and 878.55, respectively. In contrast, Holt's method records higher error values, namely a MAE of 837.19, an MSE of 878,393.4, and an RMSE of 937.23. These findings indicate that the ARIMA model demonstrates superior capability in capturing complex stock price dynamics and is more suitable for forecasting under high market volatility.

Keywords: ARIMA, Holt, Stock Forecasting, Time Series, PT Telkom Indonesia