

INTISARI

Nilai tukar Rupiah terhadap US Dollar merupakan indikator ekonomi yang krusial bagi stabilitas perekonomian Indonesia, mempengaruhi berbagai aspek seperti perdagangan, inflasi, dan investasi. Fluktuasi nilai tukar yang signifikan, terutama selama krisis global, menekankan pentingnya model peramalan yang akurat untuk pengambilan Keputusan yang strategis. Penelitian ini bertujuan untuk menganalisis dan membandingkan efektivitas serta efisiensi empat metode analisis teknikal yaitu *Fractal*, *Moving Average*, *Stochastic Oscillator*, dan *Relative Strength Index* (RSI) dalam meramalkan nilai tukar Rupiah terhadap US Dollar. Menggunakan pendekatan kuantitatif deskriptif, penelitian ini menganalisis data historis nilai tukar harian periode 2001-2024 dengan mengevaluasi kinerja masing-masing metode menggunakan indikator statistik MAD, MAE, MAPE, MSE, RMSE, dan *Theil's U*. Hasil penelitian menunjukkan bahwa metode *Fractal* merupakan metode terbaik dengan nilai *Theil's U* terendah (0,0124), mengungguli metode lainnya dalam hal efisiensi. *Moving Average* menunjukkan akurasi tertinggi dalam kondisi pasar stabil dengan nilai MAD terendah (135,5021), namun kurang efisien dengan nilai *Theil's U* yang lebih tinggi. *Stochastic* memiliki tingkat kesalahan tertinggi (MAPE 3,12%), sementara RSI menunjukkan kinerja moderat. Penelitian ini menyimpulkan bahwa metode *Fractal* menawarkan keseimbangan optimal antara efektivitas dan efisiensi, terutama dalam kondisi pasar yang dinamis dan volatil, menjadikannya pilihan terbaik untuk peramalan nilai tukar Rupiah terhadap US Dollar.

Keywords : *exchange rate forecasting, fractal analysis, Moving Average, Stochastic oscillator, Relative Strength Index , technical analysis*

ABSTRACT

The Rupiah to US Dollar exchange rate is a crucial economic indicator for Indonesia's economic stability, affecting various aspects such as trade, inflation, and investment. Significant exchange rate fluctuations, particularly during global crises, emphasize the importance of accurate forecasting models for strategic decision-making. This study aims to analyze and compare the effectiveness and efficiency of four technical analysis methods—Fractal, Moving Average, Stochastic Oscillator, and Relative Strength Index (RSI)—in forecasting the Rupiah to US Dollar exchange rate. Using a quantitative descriptive approach, this research analyzes daily historical exchange rate data from 2001 to 2024 by evaluating the performance of each method using statistical indicators MAD, MAE, MAPE, MSE, RMSE, and Theil's U. The results demonstrate that the Fractal method is superior with the lowest Theil's U value (0.0124), outperforming other methods in terms of efficiency. Moving Average shows the highest accuracy in stable market conditions with the lowest MAD value (135.5021) but is less efficient with a higher Theil's U value. Stochastic Oscillator exhibits the highest error rates (MAPE 3.12%), while RSI shows moderate performance. This study concludes that the Fractal method offers an optimal balance between effectiveness and efficiency, particularly in dynamic and volatile market conditions, making it the ideal choice for forecasting the Rupiah to US Dollar exchange rate

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