

**PERBANDINGAN AKURASI METODE *FUZZY TIME SERIES* MODEL
MARKOV CHAIN, *SINGH*, DAN *CHEN* DALAM MEMPREDIKSI NILAI
TUKAR RUPIAH TERHADAP EURO**

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ABSTRAK

Fuzzy Time Series merupakan metode prediksi yang menggunakan prinsip-prinsip logika *fuzzy*. Penelitian ini bertujuan untuk membandingkan akurasi tiga model *Fuzzy Time Series*, yaitu model *Markov Chain*, *Singh*, dan *Chen* dalam memprediksi nilai tukar Rupiah terhadap Euro. Data yang digunakan berupa nilai tukar harian Rupiah terhadap Euro sebanyak 98 data, diperoleh dari situs resmi Bank Indonesia pada periode 1 November 2024 hingga 27 Maret 2025. Pengujian akurasi dilakukan menggunakan MAPE (*Mean Absolute Percentage Error*) sebagai ukuran tingkat kesalahan prediksi. Hasil penelitian menunjukkan bahwa model *Singh* memiliki akurasi tertinggi dengan MAPE sebesar 0,32%, sedangkan model *Markov Chain* memperoleh MAPE sebesar 0,39% dan model *Chen* sebesar 0,44%. Berdasarkan hasil tersebut, *Fuzzy Time Series* model *Singh* memberikan hasil prediksi terbaik dibandingkan dua model lainnya.

Kata kunci: *Fuzzy Time Series*, nilai tukar Rupiah-Euro, *Markov Chain*, *Singh*, *Chen*, prediksi.

**COMPARATIVE ACCURACY OF FUZZY TIME SERIES METHODS
MARKOV CHAIN MODEL, SINGH, AND CHEN IN PREDICTING THE
RUPIAH TO EURO EXCHANGE RATE**

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ABSTRAK

Abstract:

Fuzzy Time Series is a forecasting method based on fuzzy logic principles. This study aims to compare the accuracy of three Fuzzy Time Series models, namely the Markov Chain model, the Singh model, and the Chen model, in predicting the exchange rate of the Indonesian Rupiah against the Euro. The data used consist of 98 daily exchange rate records of Rupiah to Euro, obtained from the official website of Bank Indonesia for the period from November 1, 2024, to March 27, 2025. The accuracy evaluation is conducted using MAPE (Mean Absolute Percentage Error) as a measurement of forecasting error. The results show that the Singh model achieves the highest accuracy with a MAPE of 0.32%, followed by the Markov Chain model with a MAPE of 0.39%, and the Chen model with a MAPE of 0.44%. Based on these results, the Fuzzy Time Series Singh model provides the most accurate prediction compared to the other two models.

Keywords: Fuzzy Time Series, Rupiah-Euro exchange rate, Markov Chain, Singh, Chen, forecasting