

ABSTRACT

Gold investment is becoming increasingly popular as a way of preserving wealth amidst global economic uncertainty. Gold is widely recognized as an investment instrument offering various advantages and conveniences. However, it also presents notable challenges, particularly in terms of its highly dynamic price fluctuations. The volatility of gold prices necessitates the application of appropriate analytical methods to accurately forecast future price trends. A critical aspect of gold investment lies in the ability to predict the prices in the future using an appropriate forecasting method. The forecasting method employed in this study is Fuzzy Time Series (FTS), which is considered suitable for capturing uncertain and linguistic data patterns commonly observed in gold price behavior. This study applies and compares three FTS models using the Chen, Cheng, and Singh model in forecasting global gold prices. The data used in this study consist of historical daily global gold prices from January 1, 2024 to December 30, 2024. Each FTS model has a different approach in forming fuzzy relationships and calculating predicted values. The Chen model uses basic Fuzzy Logical Relationship Groups (FLRG) without weighting, the Cheng model incorporates weighting based on the frequency and order of relationships, while the Singh model only uses Fuzzy Logical Relationships (FLR) with a simple algorithm and linear computational complexity in the forecasting process. Forecasting accuracy is evaluated using MAPE indicator. The results show that the Singh model outperforms the other two models, achieving a MAPE of 0,60% on the training data and 0,55% on the testing data, indicating that the Singh model has excellent forecasting performance in predicting global gold prices.

Keywords: Global Gold Prices, Forecasting, Fuzzy Time Series, Chen model, Cheng model, Singh model, MAPE.