Forecasting Gold and Silver Prices: Comparative Analysis of Linear and Nonlinear Models

Sarveshwar Kumar Inani
Assistant Professor
Jindal Global Business School, Jindal Global University, India

Abstract This study compares the accuracy of different forecasting techniques for gold and silver returns in a leading emerging economy. The study employs four forecasting models: autoregressive integrated moving average (ARIMA), artificial neural network (ANN), hybrid, and ensemble models. The training sample includes the period from January 2009 to June 2016, whereas out-of-sample forecasting is carried out for the month of July 2016, for different forecast horizons varying from 1- to 20-steps ahead. The results reveal that ARIMA model is the best model to predict the gold returns, whereas, the ANN model along with the ensemble model are the best to predict the silver returns. The results also indicate that there exists nonlinear patterns in the time-series data of gold and silver returns. The study has significant implications for investors, academics, and policymakers.

Keywords: ARIMA, Artificial Neural Network, Hybrid models, Ensemble, Forecasting, Gold, Silver, Market Efficiency

JEL Classification: C45, C53, G14, G17