

ABSTRACT

ARIMA (Autoregressive Integrated Moving Average) is a forecasting method that is effectively used for data that is not stationary and has rapidly decreasing autocorrelation. There is some data that is not stationary and the autocorrelation decreases slowly, which shows that there is a long memory effect. The ARFIMA (Autoregressive Fractionally Integrated Moving Average) is a development method of the ARIMA, where the difference value is non integer so it can overcome long memory effects. The research data used is weekly bulk cooking oil price data in Semarang City from the third week of February 2016 to the second week of March 2024, where the in sample data contains long memory effects and heteroscedasticity. The ARFIMA method with the GARCH (Generalized Autoregressive Conditional Heteroscedasticity) effect can be used for time series analysis of data that contains long memory effects and overcomes heteroscedasticity. The results of the analysis deduced that the ARFIMA(1,d,0)-GARCH(1,0) model with a d value of 0.6393253 is the best model. The best model that has been selected has an AIC value of -22.478 and a MAPE of 17.1377%, which means good forecasting.

Keywords: *Forecast, long memory, ARFIMA, GARCH*