

ESTIMATION OF INDONESIA COMPOSITE INDEX WITH GENERALIZED AUTOREGRESSIVE CONDITIONAL HETEROSKEDASTICITY DISTRIBUTE STUDENT-T MODEL

ABSTRACT

Indonesia Composite Index (ICI) is a value to measure the combined value of all shares on the Indonesia Stock Exchange (IDX). Financial data such as stock index data generally has high volatility and the error variance is not constant (heteroscedasticity). High volatility makes it difficult to estimate stock price index data. Estimating the stock price index is important so that investors can estimate the profits to be obtained later. One model that can estimate a stock price index that has high volatility and an unstable error variant is Generalized Autoregressive Conditional Heteroskedasticity (GARCH). The normally distributed GARCH model cannot accommodate the presence of leptokurtic properties. Leptokurtic properties are characterized by a kurtosis value that exceeds 3. The model that can accommodate the presence of leptokurtic properties is GARCH with Student-t distribution. The aim of this research is to estimate the ICI value using the GARCH model with the Student-t distribution. The data used is daily closing data for the ICI for the period January 2 2020 to December 30 2020. This research begins by selecting the best ARMA model for data returns. Next, a heteroscedasticity test was performed on the ARMA model residuals. If there is heteroscedasticity, then the estimation of the model uses the GARCH model. Before being modeled into the GARCH model, the residuals were examined for leptokurtic properties. If there is a leptokurtic, then proceed with the estimation of the GARCH model with the Student-t distribution. After obtaining the GARCH model with Student-t distribution, then estimate the JCI value. Based on the analysis that has been done, the best model for estimating the ICI is GARCH (2,3) with a Student-t distribution. ICI estimation results show movements that are close to actual data. The MAPE value obtained in this study was 2.00%. This means that the GARCH model (2.3) with Student-t distribution can be used to estimate the ICI value.

Keywords: ICI, leptokurtic, GARCH *Student-t*