ABSTRACT

Investment is a commitment of a certain amount of funds or resources made at the present time, with the aim of obtaining future profits. Stock prices always experience fluctuations at all times, making them difficult to predict. This requires forecasting to make investment decisions. Time series analysis is a method of forecasting the future using past data. In time series analysis, there are several data sets whose ACF plots decline hyperbolically. The phenomenon was detected as an event that follows a long memory process. Long memory is a condition when each observation has a strong correlation with other observations even though the distance between each observation is quite far. This can be addressed by modeling time series data using the ARFIMA model. The ARFIMA model assumes that the residuals are normally distributed, independent, and homogeneous. However, in financial data, the residuals are not always constant or the data is not homogeneous, thus exhibiting heteroskedasticity. This can be addressed by using ARCH/GARCH model. This research uses daily closing price data of Bank Central Asia Tbk from January 1, 2019, to February 24, 2023. The best model obtained is ARFIMA(0,0,9357968,[3]) – GARCH(2,1), has an SMAPE of 3.46% indicating an excellent forecasting ability.

Keywords: Stock price, forecast, long memory, ARFIMA, GARCH, SMAPE.