ABSTRACT

Tasya Banafsaj Wibowo. 16119289

SELECTION OF THE BEST ARIMA MODEL WITH AKAIKE INFORMATION CRITERION IN FORECASTING THE CLOSING STOCK PRICE INDEX

Information Systems, Faculty of Computer Science and Information Technology, Gunadarma University, 2023

Keywords : *Stock Price*, *Akaike Information Criterion*, ARIMA, statsmodel, pmdarima

(xiv + 62 + attachment)

Stocks are securities traded in the capital market. Stock prices are volatile and stochastic so that investment activities in the form of stocks have a high risk for investors. Stock prices forecasting can help investors to minimize risk. In this research, a stock price forecasting model is built using the ARIMA method with three parameter estimation methods, namely based on the Autocorrelation Function (ACF) and Partial Autocorrelation Function (PACF) plots, the Grid Search technique and auto-ARIMA using *library* python pmdarima. The dataset used in this research is the closing stock price dataset of PT. Unilever Indonesia Tbk with the code UNVR.JK for the period 1 April 2013 to 28 April 2023. The stock price dataset is tested for null data test, then the dataset is resampled to become the average closing stock price data per week, the total data is 521 datas and the average closing stock price data average per month, the total data is 120 datas. Data results of the resampling process are each tested for data stationarity and split data into training data and testing data. Parameter estimation generated by PACF and ACF plot patterns, Grid Search and auto-ARIMA techniques using both datasets are checked for diagnosis and tested for parameters to determine if the ARIMA model has met the requirements for model suitability, namely the white noise assumption test and data normality test. Eligible ARIMA models are selected using the Akaike Information Criterion and evaluated with the RSME to get the best model. The research results are expected to produce the best ARIMA model based on the AIC value in forecasting the stock price of PT Unilever. In this research, the best ARIMA model result based on AIC value is ARIMA(2,1,2) with an AIC value of 1578,869.

Bibliography (2019-2023)