ABSTRACT

The capital market is fluctuating and will uncertainty to collect investment return in the future. This uncertainty reflects that there are risks that need to be faced by investors. In general, investors usually want to maximize the expected return based on the level of risk. Therefore, the growth of stock market needs to be observed so the risk in investing can be minimized. Stock market conditions are reflected in the Indonesia Composite Stock Price Index.

The purpose of this study is to predict the Indonesia Composite Stock Price Index using the macroeconomy variables able as a reflection of the actual economic conditions. The macroeconomic variables used are Interest Rate, Inflation, Money Supply (M2), and Exchange Rates. This study uses secondary data from Bank Indonesia and Yahoo Finance.

In this research, the methods used are ARIMA, LSTM, and Artificial Neural Network. This method is considered to be dealing with problems, representing complex pattern of each macroeconomic variable and predicting accurate. Hoped that result of this study can be a reference and evaluation consideration for investors and the government in making decision.

Based on the research results, shows the accuracy of root mean square error (RMSE) for ARIMA model is 0.087, for LSTM model is 0.0427, and for Artificial Neural Network model is 0.0646. The best time to predict is 2 months before the prediction month. The RMSE proves the variable of Interest Rate, Inflation, Money Supply (M2), and Exchange Rates are good to be indicators to predict the Composite Stock Price Index.

With this research, investors can consider and deal with future economici changes, and for government, can consider making or reviewing economic policies. Reviewing policies properly will have an impact on economic stability and strong investment activities, thereby increasing people's welfare.

Keywords: ARIMA, LSTM, Artificial Neural Network, Macroeconomic, Prediction, Indonesia Composite Stock Price Index.