Implementation of α -Sutte Indicator to Forecasting Consumer Price Index in Turkey

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Abstract

α -Sutte Indicator (α -Sutte) was originally from developed of Sutte Indicator. Sutte Indicator can using to predict the movement of stocks. As the development of science, then Sutte Indicator developed to predict not only the movement of stocks but also can forecast data on financial, insurance, and time series data. This method called α -Sutte Indicator (α -Sutte). α -Sutte was developed using the principle of the forecasting method of using the previous data. The data used in this research is Consumer Price Index and Indices by Regions (Turkey) data from January 2003 - June 2017. This data is divided into 2 parts, namely training data and test data. Training data starts from January 2003 - October 2016 and test data from November 2016 - June 2017. To see the accuracy of α -Sutte, it will be done benchmarking the results of forecasting with other forecasting method is Automatic Time Series Forecasting: The forecast Package for R (AutoARIMA) developed by Hyndman-Khandakar (2008). Comparison of this accuracy is to compare the value of MSE forecasting result on test data by using training data as reference data. Results obtained from this study that the MSE value of α -Sutte is smaller (5.697723) than MSE from AutoARIMA (292.5125). This indicates that α -Sutte is more suitable for predicting Consumer Price Index and Indices by Regions (Turkey) data.

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Introduction

Sutte
Indicator

2015

Predicting the movement of
Stock

α -Sutte
Indicator

2017

Predicting the data

Ahmar, A. S., Rahman, A., Arifin, A. N. M., & Ahmar, A. A. 2017. Predicting movement of stock of "Y" using Sutte indicator. *Cogent Economics & Finance*, 1347123.

Ahmar, A. S. 2017. Sutte Indicator: an Approach to Predicting the Direction of Stock Market Movement. *Songklanakarin Journal of Science and Technology (SJST)*.

α -Sutte Indicator

$$a_t = \frac{\alpha \frac{\Delta x}{A} + \beta \frac{\Delta y}{B} + \gamma \frac{\Delta z}{C}}{3}$$

$$\delta = a_{t-4}$$

$$\alpha = a_{t-3}$$

$$\beta = a_{t-2}$$

$$\gamma = a_{t-1}$$

$$\Delta x = \alpha - \delta = a_{t-3} - a_{t-4}$$

$$\Delta y = \beta - \alpha = a_{t-2} - a_{t-3}$$

$$\Delta z = \gamma - \beta = a_{t-1} - a_{t-2}$$

$$A = \frac{\alpha + \delta}{2}$$

$$B = \frac{\beta + \alpha}{2}$$

$$C = \frac{\gamma + \beta}{2}$$

Research Method

Accuracy

Comparison α -Sutte with other Methods

Type	MSE	RMSE
AR	768,17	27,72
HW-Mul	109,48	10,46
HW-Add	123,29	11,10
Reg	718,34	26,80
Reg.seas	709,59	26,64
SARIMA	108,09	10,40
SARIMA.log	84,82	9,21
α -Sutte	5,70	2,39
AutoARIMA	292,51	17,10

Conclusion

Results obtained from this study that the MSE value of α -Sutte is smaller (5,70) than MSE of other methods. This indicates that α -Sutte is more suitable for predicting Consumer Price Index in Turkey.

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