

**ANALYSIS OF THE INFLUENCE OF RUPIAH EXCHANGE RATE FOR  
US DOLLARS, SHARIA INDONESIA STOCK INDEX (ISSI), AND  
INFLATION ON CLEAN ACTUAL VALUE OF SHARIA REKSADANA IN  
2013 – 2017 PERIOD 2019**

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**Abstract**

The purpose of this research is to analyze the influence of Indonesia Sharia Stock Index (ISSI), Rupiah exchange rate, and Inflation towards Sharia Equity Fund's Net Asset Value (NAV) from first quarter of 2013 to forth quarter of 2017. This research used the quantitative approach method with panel data regression. The result shows that partially and simultaneously, Indonesia Sharia Stock Index (ISSI), Rupiah exchange rate, and Inflation have significant influence to Sharia Equity Fund's Net Asset Value (NAV)

**Keywords:** ISSI, inflation, rupiah exchange rate, net asset value, sharia equity fund

**1. Preface**

Mutual funds are a new alternative for investors in investing. Mutual funds in Indonesia take the form of PT mutual funds and Collective Investment Contracts(KIK) regulated in Law Number 8 Of 1995 concerning Capital Market(UUPM). The existence of mutual funds in Indonesia can be said to have started when the capital market was reactivated in Indonesia. The term mutual fund was better known in 1990 with the permission of capital market players to issue mutual funds through Presidential Decree No.53 of 1990 concerning Capital Market. Wira (2017) states that there are some shortcomings in investing in mutual funds, namely, it is difficult to choose the best mutual fund, the returns on mutual funds fluctuate, the amount of costs, and investors cannot analyze mutual funds.

Wira (2017) states, in investing in mutual funds, there are several risks that can bring harm to investors. This is because in every investment there will always be a risk of loss. Even though the investment portfolio diversification strategy has been carried out by spreading risk in a balanced manner, investment in mutual funds still creates potential risk of loss.

Widjaja and Ramaniya (2006) state that one of the risks of investing in mutual funds is market risk. Market risk is a situation when investment instrument prices decline due to the drastic decline in the stock market or bond market performance. This situation is usually referred to as a bearish condition, ie the prices of shares or other investment instruments have experienced a very drastic price decline. Market risks that occur indirectly will result in Net Asset Value (NAV) in the Mutual Fund Participation Unit will also experience a decline.

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Widjaja and Ramaniya (2006) state that market risk also includes macroeconomic factors that fluctuate from time to time. These risks can include exchange rates, inflation, or the Stock Index. Fluctuating global economic conditions will have an impact on the condition of the country's economy and capital market movements. Stock mutual funds as one of the investment instruments also have variables that affect the value of net assets and returns of mutual funds owned. In managing mutual fund investments, Investment Managers certainly consider everything in investing their managed funds, such as fundamental, technical analysis of issuer's shares, but of course global macroeconomic variables such as the exchange rate of the rupiah against the US dollar, the Indonesian Sharia Stock Index (ISSI) And inflation might have an effect.

Muthalib (2005) found that the variable exchange rate of the rupiah against the US dollar had no significant effect but had a positive correlation with the level of mutual fund performance. Rachman and Mawardi (2015) found that the rupiah exchange rate had a significant effect on net asset value (NAV) and was positively correlated with sharia equity funds partially.

Nandari (2017) found that the inflation variable had a positive and significant effect on the net asset value (NAV) of Islamic Mutual Funds. The exchange rate variable also has a positive and significant effect on the net asset value (NAV) of Islamic sharia funds.

The link between JII and Sharia mutual fund NAVs was put forward by Putratama (2007) which concluded that JII had a positive effect on the Sharia mutual fund NAV.

Different results found by Lestari (2018), Bank Indonesia Sharia Certificate, Inflation, Rupiah Exchange Rate and the Jakarta Islamic Index did not significantly influence the Net Asset Value (NAV) of sharia mixed mutual funds.

With the existence of the research gap, the authors are interested in examining how the influence of macroeconomic variables, such as Inflation and Exchange Rates and the Indonesian Sharia Stock Price Index to the Net Asset Value of Sharia Mutual Funds.

The objectives of this study are:

1. Partially examine the effect of Inflation, Exchange Rates and Indonesian Sharia Stock Price Index on the Net Asset Value of Sharia Mutual Funds, and
2. Simultaneously examine the effect of Inflation, Exchange Rates and Indonesian Sharia Stock Price Index on the Net Asset Value of Sharia Mutual Funds.

## **2. Theoretical review**

### **2.1 Mutual Fund**

Hermuningsih (2012) states that a mutual fund is a container and fund/capital management pattern for a group of investors to invest in investment instruments available in the market by buying mutual fund participation units. These funds are then managed by Investment Managers

(MI) into investment portfolios, whether in the form of shares, bonds, money markets or other securities/securities.

According to the Capital Market Law number 8 of 1995 article 1, paragraph (27): "Mutual funds are a container used to collect funds from the investor community for further investment in a portfolio of securities by the Investment Manager." From the two definitions above, there are three important elements in the understanding of mutual funds, namely:

1. The existence of a collection of public funds, both individuals and institutions;
2. Joint investment in the form of a diversified portfolio of securities, and
3. Investment Managers are trusted as fund managers owned by the investor community.

In mutual funds, investment management manages funds that are placed in securities and realizes profit or loss and receives dividends or interest recorded in the mutual fund's Net Asset Value (Hermuningsih, 2012). Mutual funds are the most important part in the development of the financial industry. Mutual funds are a place to manage funds from the community that are managed by Investment Managers in various investment portfolios (Hadi, 2015).

## **2.2 Indonesian Sharia Stock Index**

The Indonesian Sharia Stock Index (ISSI) launched on May 12, 2011 is a composite index of sharia stocks listed on the IDX. ISSI is an indicator of the performance of the Indonesian sharia stock market. ISSI constituents are all sharia shares listed on the IDX and entered into the Sharia Securities List (DES) issued by OJK. That is, the IDX does not select sharia shares that enter ISSI.

## **2.3 Exchange Rate**

An exchange rate is defined as an agreement relating to the exchange rate of a currency against current or future payments. Put simply, the exchange rate can be defined as the value of a country's currency compared to other countries' currencies. For example, if in April 2019 the exchange rate of the rupiah against the US Dollar was Rp. 14,000 / USD, this would indicate that Rp. 14,000 was equivalent to 1 USD. This exchange rate moves dynamically according to supply and demand.

## **2.4 Inflation**

Amacher and Ulbrich (1989) explain that the occurrence of inflation is a result of an increase in the price level above the generally accepted average that can be measured by the price index of consumer goods from one period to another.

## **3. Previous Research**

There are several previous studies regarding the issues raised by the authors in this study. In Table 3.1 the authors describe some conclusions from similar studies about the effect of the Rupiah Exchange Rate on the US Dollar, the Indonesian Sharia Stock Index (ISSI), and Inflation on the Net Asset Value of Sharia Mutual Funds.

Table 3.1 Previous Research

Name/Year	Title	Research Variable	Result
Djumyati Partawidjaja (2005)	Performance Measurement Equity Funds Based on Market Timing and Stock Selection and Macroeconomic Factors that Influence It	a. Mutual Fund Returns b. Rupiah Exchange Rate c. SBI d. Inflation	a. The rupiah exchange rate on the US dollar has a very small negative effect on mutual fund excess returns. b. Inflation has a positive influence on mutual fund excess returns.
Regnata Revi Fayola Sitompul (2010)	System Evaluation of the Analysis of the Effects of Macroeconomic Size and Variables on Return of Equity Funds by Using a Multifactor Model (Empirical Study of the Period 1999 -2009)	a. Mutual Fund Returns b. Stock c. Market return (CSPI) d. The exchange rate of the US dollar against the rupiah e. Interest rate Indonesia f. Amount of bank credit g. Inflation h. Money Supply	a. The US dollar exchange rate does not significantly influence the return of equity funds b. Market return (CSPI) has a significant effect on stock mutual fund returns c. Inflation has no significant effect on stock mutual fund returns
Abdul Muthalib (2005)	Analysis of the Effect of Macroeconomic Variables on the Level of Performance of Stock Mutual Funds for the Period 1998-2004	a. Performance of equity funds b. Growth in net national income c. Growth in the money supply d. Inflation rate e. SBI interest rate f. Changes in the exchange rate of Rp to US \$	There is no simultaneous effect of macroeconomic variables on the level of mutual fund performance
Shahid Mohammad Khan Ghauri, Abdul Rashid, Omar Masood (2015)	Relationship between Macroeconomic Variables and Net Asset Value (NAV) of Islamic Equity Funds: Evidence from Pakistan	a. NAV of Islamic Funds b. Consumer Price Index c. 3 Months Treasury Bills Rate d. Money Supply e. Foreign Exchange rate	a. Foreign Exchange Rate is negatively related with NAV-Funds b. CPI, TBR, and Money Supply are positively correlated c. All macroeconomic variables cointegrated with NAV of Islamic Funds, which suggested direct long-run association.
Chette Srinivas Yadav A. Sudhakar, Sumit Kumar (2016)	The Impact of Macroeconomic Factor on The Performance: A Study of Selected Equity Oriented Mutual Funds in India	a. Average Monthly Returns b. CPI Inflation c. Gold d. Brent Oil e. Interest Rate f. Foreign Exchange Rate	a. CPI, Oil Prices, Exchange rates and foreign exchange reserve had significant relationship with the returns of the mutual fund schemes. b. CPI and Exchange rate affected the performance of the funds negatively, Oil Price and the foreign exchange reserve

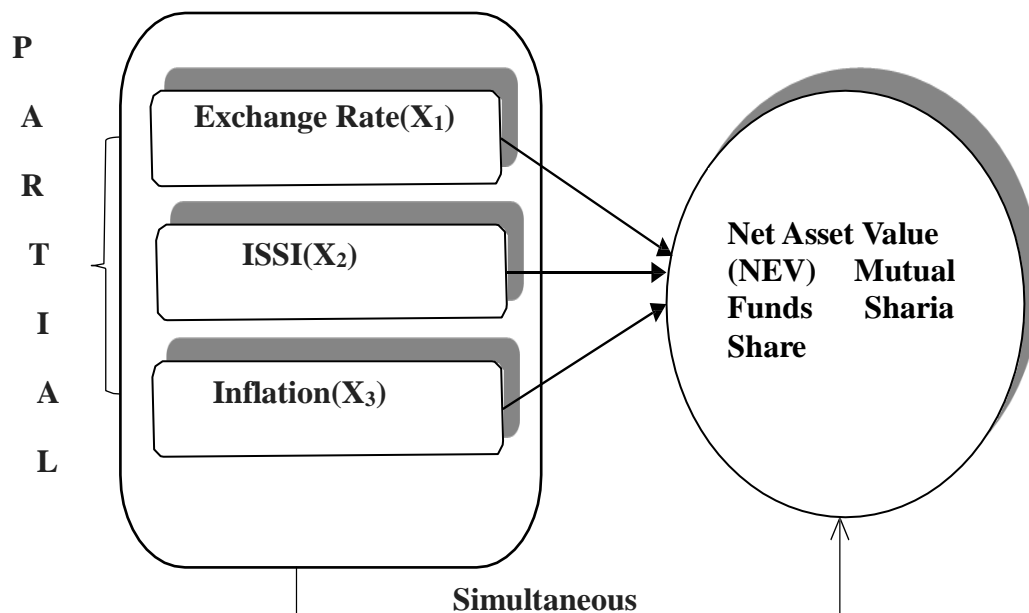
			affected positively c. All the independent variables together had significant on the returns.
Sonali Agarwal, Jwaad Akhtar Khan (2019)	Investigation of Dynamics of Macroeconomy and Commodity Mutual Funds: Empirical Evidence from India	a. Mutual Fund Net Asset Value b. Crude Oil Price c. Gold Price d. Silver Price e. Money Supply f. Foreign Exchange Reserves g. Interest Rate h. Sensex i. Nifty	a. Gold Price, Money Supply, and Sensex have an insignificant effect on gold funds b. Only Money Supply and USD exchange rate were found to have a profound impact both in long term and short term
Imran Ahmed, Danish Ahmed Siddiqui (2018)	Factors Affecting Islamic and Conventional Mutual Funds' Returns. A Comparative Analysis of Different Classes of Funds in Pakistan	a. Return of mutual fund b. Discount rate c. Exchange Rate d. Inflation e. Real GDP f. Export + Import g. KSE 100 index return	a. Discount rate, inflation, and real GDP have negative effect on Islamic Equity Fund b. Export + Import, Exchange Rate, KSE-100 Index return have a significantly positive effect on Islamic equity mutual funds return
Anwar Hasan Abdullah Othman, Hasanuddeen Abdul Aziz, Salina Kassim (2017)	Identification of Macroeconomic Determinants for Diversification and Investment Strategy for Islamic Unit Trust Funds in Malaysia	a. Net Asset Value (NAV) of the Islamic unit Trust Funds b. Consumer Price Index (CPI) c. Industrial Production Index (IPI) d. Three-month Treasury Bill Rate (TBR) e. Money Supply (M3) f. Foreign Exchange Rate (FXR) g. Crude Oil Price (OP) h. Financial Crisis (FC) i. National Political Elections (NPE) j. Corruption Index	a. TBR, M3, FXR, CI have significant negative influence on the NAV of Islamic Equity Funds b. IPI, OP have significant positive influence on the NAV of Islamic Equity Funds c. NPE does not have a significant statistical relationship with NAV of Islamic Equity Funds
Mohamed Khaled Al-Jafari, Hussein Salameh, Khalid Al Asil (2013)	An Empirical Investigation of The Price Relationship between Open-end Mutual Funds and Amman Stock Exchange Index	a. Jordanian Open-end Mutual Fund b. Amman Stock Exchange Index (ASEI)	A positive significant impact of Amman Stock Index on All Jordanian Open-end Mutual Fund on the long-run and short-run.

**4. Conceptual Framework**

From both theoretical explanations and the results of previous studies, the variables in this study are: Rupiah Exchange Rate to the US Dollar, Indonesian Sharia Stock Index (ISSI), and Inflation as an independent variable (free) and Net Asset Value (NAV) Sharia Stock Mutual Fund for 2013-2017 as the dependent variable. This study analyzes the effect of each independent variable on the dependent variable partially, as well as the effect of all the independent variables on the dependent variable simultaneously.

So the theoretical framework in this research is as follows:

**Figure 4.1 Conceptual Framework**



**5. Research Methods**

**5.1 Operational Variables**

Operational variables are definitions of variables that are studied more operationally. The following 4 variables are used in this study.

**Table 5.1 Operational Variable**

Variable	Definition	Size	Scale
Net Asset Value (NAV) Mutual funds Sharia Shares	Accumulated value of gains or losses from mutual funds (Hermuningsih, 2012)	NAV Value quarterly	Nominal
Rupiah exchange rate Against the US Dollar	The value of the rupiah compared to the US dollar	Middle Rate BI per quarter	Nominal
ISSI	ISSI is an indicator of market performance Indonesian sharia shares. ISSI constituents are all sharia shares listed on the IDX	ISSI Value quarterly	Nominal
Inflation	An increase in the price level above that average can be measured by the index of prices of consumer goods and services from period to period	Inflation rate quarterly	Nominal

### 5.2 Population and Sampling Techniques

The population in this study is dsharia equity funds owned by several investment Manager companies that have been registered with OJK as many as 64 sharia equity funds as of December 31, 2017.

The method of taking data with the aim of the sample is the type of sample selection is not random or uses certain considerations and criteria. The sample used consists of sharia equity funds which have been active since before 2013 and are still in operation until the end of 2017, and has a value of under management funds of Rp 100 billion consisting of 8 units of sharia equity fund products.

**Table 5.2.1 List of Research Sample**

No	Name of Sharia Mutual Fund
1	RD Trim Syariah Saham
2	Reksa Dana PNM Ekuitas Syariah
3	Mandiri Investa Atraktif-Syariah
4	Cipta Syariah Equity
5	PANIN Dana Syariah Saham
6	MNC Dana Syariah Ekuitas
7	SAM Sharia Equity Fund
8	Lautandhana Saham Syariah

### 5.3 Processing and Analysis of Data

#### 5.3.1 Classic assumption test

The classic assumption test is a statistical requirement that must be met by ordinary least square (OLS) multiple linear regression analysis. In addition, to get a good multiple linear regression model must meet the BLUE (Best Linear Unbiased Estimator) criteria. Blue can be achieved if it meets classical assumptions. Good hypothesis testing results are tests that do not violate the



classic assumptions that underlie the model. The classic assumptions in this study include the normality test, the heteroscedasticity test, the multicollinearity test, and autocorrelation test.

#### **5.3.1.1 Normality Test**

This test is conducted to determine whether the regression model used in the study has residual variable that are normally distributed with the following hypotheses:

H<sub>0</sub>: Residual variables in the Regression Model used are normally distributed

H<sub>1</sub>: Residual variable in the Regression Model used are not normally distributed.

With the proviso, if the Jarque-Berra Probability value > 5 percent, then fails to reject H<sub>0</sub>. If the Jarque – Bera Probability value < 5 percent, then refuse H<sub>0</sub>, accept H<sub>1</sub>(Winarno,2017).

#### **5.3.1.2 Multicollinearity Test**

This multicollinearity test is used to test whether the regression model is found to have a correlation among independent variables or in the other words to see whether there is a linear relationship among the independent variables in multiple regression.

One way to detect multicollinearity is to look at the Variant Inflation Factor (VIF) value using the following decision criteria. If VIF <10, it can concluded that there are no multicollinearity symptoms between independent variables in the regression model. Meanwhile, if VIF > 10, it can be concluded that there are multicollinearity symptoms between independent variable in the regression model (Gujarati,2013).

#### **5.3.1.3 Heteroscedasticity Test**

Ekananda (2015) states heteroscedasticity is a symptom where the residue of regression equation change over a certain range of data. Heteroscedasticity usually appears in cross-section range of data and rarely occurs in time series data.

Hetercedasticity test aims to determine whether in in the regression model there is an inequality of variance from the residuals of one observation to another. In a good regression model there must be the same variance (homoscedasticity).

Winarno (2017) states that there are several heteroscedasticity test methods such as Basicitytrush Pagan Godfrey, Harvey, Glejser, ARCH, and white. These tests use different dependent variables, although they are similar, namely residual value. If Prob. Chi-Square > 0.05 means heteroscedasticity does not occur, otherwise if Prob. Chi-Square < 0.05 means heteroscedasticity occurs.

#### **5.3.1.4 Autocorrelation Test**

According to Ekananda (2015), one of the basic assumptions in the regression method is that there is no correlation between disorders. The existence of this autocorrelation problem will produce consistent and unbiased coefferient estimation results but with large variance, or in other words the results of the estimation are inefficient. Autocorrelation test is used to detect



whether there is a correlation between residues in the current period (t) and residues in the previous on periode (t-1).

The method to determine whether there is a correlation between confounding errors can be done with the Breusch-Godfrey test or often called the LM test. This method is based on the probability value  $Obs^* R\text{-squared}$ , where if the value of Prob. Chi-Square  $> \alpha = 5\%$ , means there is no autocorrelation. If the value of Prob. Chi-Square  $< \alpha = 5\%$ , then there is an autocorrelation problem (Winarno, 2017).

#### **5.4 Panel Data Regression Test**

In this research, panel data regression is used to analyze the correlation between independent variables on the value of the dependent variable in the aggregate. Panel data is data that has a number of cross sections and a number of time series. Data collected in a time vulnerable to many individuals. There are two types of panel data, namely panel balance data and unbalance panel data. Panel balance data is a situation where the cross-sectional unit has the same number of time series observations. The panel data is unbalance if the cross-sectional unit does not have the same amount as the number of time series observations.

Regression estimation method using panel data can be done with three approaches as follows:

##### **5.4.1 Common Effect Model**

This model treats all individuals as if they would be the same. Simply put, this model will combine time and individual observations without regard to differences in characteristics between individuals. Then do OLS (Ordinary Least Square) regression like regression in general. This model the simplest panel data regression model because it uses the assumption that intercepts and slopes always remain either between time or between or between individuals or in the other words this model ignores the influence of individuals and time on the model they form. The system is to combine time series data and cross-section data into panel data(pool data) and then regress with the ordinary least square(OLS) method. The regression equation can be written as follows:

$$NAB_{it} = \alpha + \beta_1 KURSt + \beta_2 ISSIt + \beta_3 INFLASIt + u_{it} \quad (1)$$

Where,  $NAB_{it}$  = Dependent Variable (Net Asset Value) to i period to t

$\alpha$  = Combined intercept

$\beta_1, 2, 3$  = Regression coefficient or slope

$KURSt$  = Independent Variable (Rupiah Exchange Rate against US Dollar) to I period t

$ISSIt$  = Independent Variable (Indonesia Sharia Stock Index) to i period t

$INFLASIt$  = Independent Variable (Inflation) to i period to t

$u_{it}$  = Individual error to i period to t

##### **5.4.2 Fixed Effect Model**

This model can accommodate differences in characteristics between individuals which is a problem in the pooled Regression Model. In this approach, the panel data model has intercepts

that may change for each individual and time, where each cross-section unit is fixed in time series. There are several possible regression equations that depend on the assumptions used:

1. Intercept and slope of the coefficient or constant over time and error term capturing differences over time and individually;
2. Slope of constant coefficients but individual intercepts vary based on the individual and on time;
3. All coefficients vary with individuals; and
4. Intercept and slope of the coefficients differ in time and individual.

If the variables are adjusted for this research, the regression equation is written as follows:

$$NAB_{it} = \alpha + \gamma_i + \beta_1 KURSt + \beta_2 ISSIt + \beta_3 INFLASIt + \epsilon_{it} \quad (2)$$

Where,  $NAB_{it}$  = Dependent Variable (Net Asset Value) to  $i$  period to  $t$

$\alpha$  = Combined intercept

$\gamma_i$  = Individual intercept

$\beta_{1,2,3}$  = Regression coefficients or slope

$KURSt$  = Independent Variable (Rupiah Exchange Rate against US Dollar) to  $i$  period to  $t$

$ISSIt_{tv}$  = Independent Variable (Indonesia Sharia Stock Index) to  $i$  period to  $t$

$INFLASIt$  = Independent Variable (Inflation) to  $i$  period to  $t$

$\epsilon_{it}$  = Individual error to  $i$  period to  $t$

#### 5.4.3 Random Effect Model

This model is different from the fixed effect model although both are able to overcome the problem of heterogeneity between individuals. In this approach differences between time and between individuals are accommodated through errors. Errors in this approach are divided into errors for individual components, time, and combined errors. This research uses the Generalized Least Square (GLS) method. The advantage of the random effect model compared to the fixed effect model is the degree of freedom. There is no need to estimate intercept and cross-sectional estimates.

If the variables are adjusted for this research, the regression equation is written as follows:

$$NAB_{it} = \alpha + \beta_1 KURSt + \beta_2 ISSIt + \beta_3 INFLASIt + (\epsilon_{it} + \gamma_i) \quad (3)$$

Where:  $NAB_{it}$  = Dependent Variable (Net Asset Value) to  $i$  period to  $t$

$\alpha$  = Combined intercept

$\beta_{1,2,3}$  = Regression coefficient or slope

$KURSt$  = Independent Variable (Rupiah Exchange Rate against US Dollar) to  $i$  period to  $t$

$ISSIt$  = Independent Variable (Indonesia Sharia Stock Index) to  $i$  period to  $t$

$INFLASIt$  = Independent Variable (Inflation) to  $i$  period to  $t$

$E_{it}$  = Individual error to  $i$  period to  $t$

### **5.5 Selection of Panel Data Regression Model**

Of the three models that have been presented before, then the next step will determine the most appropriate model for estimating panel data regression, namely by the chow test, the hausman test, and the LM test. (Baltagi, 2008).

#### **5.5.1 Chow Test**

This Chow Test is used to select the Common Effect or Fixed Effect that is most appropriate for use in estimating panel data. The hypothesis formed in the Chow Test is as follows:

H0: Common Effect Model

H1: Fixed Effect Model

H0 is rejected if the p-value is smaller than  $\alpha$ . Conversely, H0 is accepted if the p-value is greater than the value of  $\alpha$ . The  $\alpha$  value used is 5 percent. The Likelihood Ratio method is used for selecting common effect or fixed effect models.

#### **5.5.2 Hausman Test**

The Hausman test is a statistical test to choose whether the fixed effect model or the random effect model is the most appropriate for estimating panel data. The hypothesis formed in the Hausman Test is as follows:

H0: Random Effect Model

H1: Fixed Effect Model

H0 is rejected if the p-value is smaller than  $\alpha$ . Conversely, H0 is accepted if the p-value is greater than the value of  $\alpha$ . The  $\alpha$  value used is 5 percent.

#### **5.5.3 Lagrange Multiplier Test**

The Lagrange Multiplier test is a statistical test to find out whether the random effect model is better than the common effect model. The hypothesis formed in the Lagrange Multiplier Test is as follows:

H0: Common Effect Model

H1: Random Effect Model

H0 is rejected if Prob. Breusch-Pagan is smaller than the value of  $\alpha$ . Conversely, H0 is accepted if Prob. Breusch-Pagan is greater than the value of  $\alpha$ . The  $\alpha$  value used is 5 percent.

## **6. Analysis and Discussion**

### **6.1 BLUE**

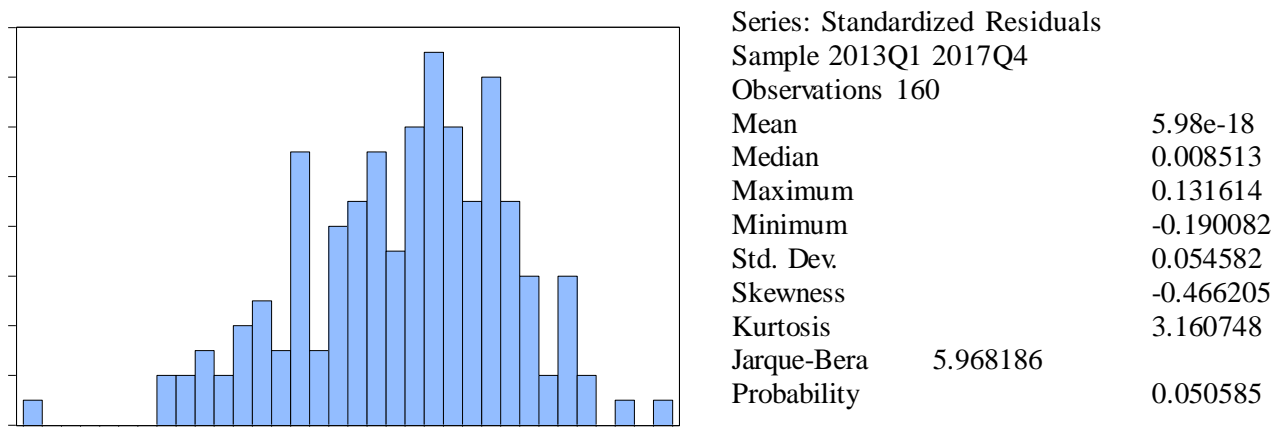
To meet the criteria of the best unbiased unbiased Liner estimation or Best Estimated (BLUE), various classical assumptions such as Normality, Multicollinearity, Heteroscedasticity and Autocorrelation Tests must be tested thoroughly and per individual mutual fund company.

In the regression analysis of stock mutual funds with panel data, transformation of the data using natural logarithms is also intended for several purposes, such as changing variable units to percentages, and healing data that is not normally distributed.

### 6.1.1 Normality Test

Normality test aims to determine whether the data used has been normally distributed or not. Normality test in this study uses the Probability value method. If the Jarque-Bera p-value > 0.05, it can be concluded that the residuals are normally distributed and vice versa, if the Jarque-Bera p-values < 0.05, it can be concluded that the residuals are not normally distributed (Winarno, 2017).

Figure 6.1.1 Panel Data Normality Test Results



Based on the test results after data transformation, the Jarque-Bera p-value of 0.050585 > 0.05 is obtained, so it appears that the residuals are normally distributed. Normality test results for each Mutual Fund can be seen in Figure 6.1.1.

### 6.1.2 Multicollinearity Test

Multicollinearity test is used to determine whether there is a deviation of the classical assumption of multicollinearity, namely the existence of a linear relationship between independent variables in the regression model. In other words, the multicollinearity test aims to detect whether the independent variables in the regression model are correlated. In a good regression model, there is no correlation between independent variables.

Testing for the presence or absence of multicollinearity is done by looking at the value of Variance Inflation Factor (VIF) using decision criteria if VIF (Centered) < 10, it can be concluded that there are no symptoms of multicollinearity between independent variables in the regression model. Meanwhile, if VIF > 10, it can be concluded that there are multicollinearity symptoms between independent variables in the regression model. (Gujarati, 2013)

**Tabel 6.1.2 Multicollinearity Test Results**

Variance Inflation Factors

Date: 01/09/20 Time: 09:24

Sample: 160

Included observations: 160

Variable	Coefficient Variance	Uncentered VIF	entered VIF
ISSI	2.45E-06	188.1697	1.481846
INFLASI	1.754622	16.17297	1.716123
C	4024468	11243.95	

**6.1.3 Heteroscedasticity Test**

Heteroscedasticity test aims to determine whether in the regression model there is an inequality of variance from the residuals of one observation to another. In a good regression model there must be the same variance (homoscedasticity).

Winarno (2017) states that there are several heteroscedasticity test methods such as Brusch Pagan Godfrey, Harvey, Glejser, ARCH, and White. These tests use different dependent variables, although they are similar, namely residual values. In this study, the method used to see heterokedasticity is the Brusch Pagan Godfrey, Harvey, and Glejser test to determine whether there is heteroscedasticity. Heteroscedasticity test aims to test the regression model whether there is an inequality of variance from residuals on one observation to another. If the variables and residuals of one observation to another are different, then it is called heteroscedasticity and if it is the same as homoscedasticity. If Prob. Chi-Square > 0.05 means heteroscedasticity does not occur, otherwise if Prob. Chi-Square < 0.05 means heteroscedasticity (Winarno, 2017).

**Table 6.1.3 Heteroscedasticity Tes**

Heteroskedasticity Test: Breusch-Pagan-Godfrey

F-statistic	0.287352	Prob. F(3,156)	0.8345
Obs*R-squared	0.879302	Prob. Chi-Square(3)	0.8304
Scaled explained SS	0.603491	Prob. Chi-Square(3)	0.8956

**6.1.4 Autocorrelation Test**

Autocorrelation test is used to detect whether there is a correlation between residues in the current period (t) and residues in the previous one period (t-1). Autocorrelation shows the correlation among members of a series of observations sorted by time or space. The method to determine whether there is a correlation between confounding errors can be done with the Bruesch-Godfrey test or often called the LM test. In the aggregate regression analysis using panel data, the autocorrelation test is not used. Autocorrelation only occurs in time series data,

autocorrelation testing on data that is not time series will be in vain or meaningless, so that in this study the autocorrelation test was performed in the regression analysis of each mutual fund. This method is based on the probability value  $Obs * R\text{-squared}$ , where if the value of Prob. Chi-Square  $> \alpha = 5\%$ , means there is no autocorrelation, whereas if the value of Prob. Chi-Square  $< \alpha = 5\%$ , then there is an autocorrelation problem (Winarno, 2017).

**Table 6.1.4 Autocorrelation Test**  
Breusch – Godfrey Serial Correlation LM Test

F-statistic	0.536370 Prob. F(2,13)	0.5973
Obs*Rsquared	1.448336 Prob. Chi-Square(2)	0.4847

From Table 6.1.4 you can see Prob Obs \* Chi-Square of 0.48, showing that the overall model is free from Autocorrelation because  $0.48 > 0.05$ .

**6.2 Selecting the Regression Panel Model**

There are several tests that can be done to choose the most appropriate model for managing panel data, including:

**6.2.1 Chow Test**

**Table 6.2.1 Chow Test/Likelihood Ratio**

Redundant Fixed Effects Tests Equation: Untitled			
Test cross-section fixed effects			
Effects Test	Statistic	dd.f.	Prob.
Cross-section F	378.836823	(7,149)	0.0000
Cross-section Chi-square	469.397550	7	0.0000

From the Chow / Likelihood Ratio test results for the selection of the common effect or fixed effect model, the Prob value is obtained. Cross-section F  $0.0000 < 0.05$ , the best model is the Fixed Effect Model

6.2.2 Hausman Test

**Table 6.2.2 Hausman Test**  
 Correlated Random Effects - Hausman Test  
 Equation: Untitled  
 Test cross-section random effects

Chi-Sq. Statistic	Chi-Sq.	d.f.	Prob.
Cross-section random	0.000000	3	1.000

Hausman test shows that the results of the cross-section test variance are invalid so that there is a correlation between the error component and the independent variable so that there is not enough evidence to accept H0(Random Effect Model). According to Gujarati (2004), if an individual makes a mistake on the  $\epsilon_i$  component and has one or more correlated regressors, the random effect model estimator is biased, whereas that obtained from the fixed effect model is unbiased. Therefore, the model follows the Fixed Effect Model method.

**Table 6.2.3 Lagrange Multiplier Test**  
 Lagrange multiplier (LM) test for panel data  
 Date: 01/09/20 Time: 09:01  
 Sample: 2013Q1 2017Q4  
 Total panel observations: 160  
 Probability in ()

Null (no rand. effect) Alternative	Cross-section One-sided	Period One-sided	Both
Breusch-Pagan	1354.533 (0.0000)	8.166674 (0.0043)	1362.699 (0.0000)
Honda	36.80398 (0.0000)	-2.857739 (0.9979)	24.00362 (0.0000)
King-Wu	36.80398 (0.0000)	-2.857739 (0.9979)	29.97909 (0.0000)
GHM	--	--	1354.533 (0.0000)
	--	--	

From the LM test results for the selection of common effects or random effects models, the Prob value is obtained. Breusch-Pagan 0.0000 < 0.05 then the best model is the Random effect. Of the three tests above, two of them, the Fixed Effect Model, were selected as the best models. Thus the selection of the best Regression Panel Data model is the Fixed Effect Model.

6.3 t Test

The purpose of the t-test statistic is to find out whether each independent variable partially influences the dependent variable significantly. The basis of the t test decision is based on the



significance value obtained. If p-value <0.05 then the independent variable will affect the dependent variable (hypothesis accepted). If p-value > 0.05 then the independent variable has no effect on the dependent variable (hypothesis rejected).

**Table 6.3 t Test (Fixed Effect)**

Dependent Variable: LOG (NAB) Method: Panel Least Squares

Date: 01/09/20 Time: 09:22

Sample: 2013Q1 2017Q4

Periods included: 20

Cross-sections included: 8

Total panel (balanced) observations: 160

Variable	Coefficient	Std. Error	t Statistic	Prob.
LOG(KURS)	-0.217279	0.047872	-4.538785	0.0000
ISSI	0.004412	0.000369	11.95201	0.0000
INFLASI	0.608561	0.312098	1.949904	0.0531
C	8.459144	0.472665	17.89669	0.0000

Effects Specification

Cross-section fixed (dummy variables)

R-squared	0.950442	Mean dependent var	7.168993
Adjusted R-squared	0.947116	S.D. dependent var	0.245184
S.E. of regression	0.056384	Akaike info criterion	-2.846998
Sum squared resid	0.473690	Schwarz criterion	-2.635580
Log likelihood	238.7599	Hannan-Quinn criter.	-2.761149
F-statistic	285.7577	Durbin-Watson stat	2.435626
Prob(F-statistic)	0.00000		

The results of t-test statistical calculations in this study are as follows:

- 1) Log variable coefficient value. The Rupiah Exchange Rate against the US Dollar (KURS) is - 0.217279. Significant value of KURS variable is 0,0000 < 0.05, the variable Rupiah Exchange Rate against the US Dollar (KURS) has a significant negative effect on Net Asset Value

(NAV). This means that 1 percent of the exchange rate rises has a decrease in Net Asset Value of 0.22 percent.

- 2) The coefficient value of the variable Indonesian Islamic Stock Index (ISSI) is 0.004412. The significance value of the ISSI variable is 0.0000 < 0.05, so the ISSI variable has a significant positive effect on the Net Asset Value (NAV). One unit of the Indonesian Sharia Stock Index has an impact on the increase in NAV of 0.004 billion rupiah.
- 3) The coefficient value of the Inflation variable is 0.608561. The significance value of the Inflation variable is 0.0531 relative to 0.05, so the Inflation variable has a significant positive effect on Net Asset Value (NAV). One percent increase in inflation resulted in an increase in NAV of 0.608 billion rupiah.

This F-test is used to determine the effect of the independent variable in this case is the Rupiah Exchange Rate against the US Dollar (KURS), the Indonesian Sharia Stock Index (ISSI) and inflation together with its dependent variable, the Net Asset Value (NAV). The results can be seen in Table 6.4.

**Table 6.4 F test**

F-statistic	285.7577
Prob (F-statistic)	0.0000000

From the results of these calculations, it can be seen that the significance value of Prob (F-statistic) is 0.000000 < 0.05, meaning that the independent variable consists of the Exchange Rate of Rupiah against the US Dollar (KURS), Indonesian Sharia Stock Index (ISSI) and Inflation jointly have a significant relationship to the dependent variable, namely Net Asset Value (NAV). Testing the coefficient of determination R<sup>2</sup> is essentially to measure how far the ability of the model in explaining the dependent variable (Nathaniel, 2008). The results of the calculation of the coefficient of determination (R<sup>2</sup>) from this study can be seen in Table 6.3.

From the calculation results obtained by the magnitude of the influence of independent variables on the dependent variable that can be explained by the model in this equation is Adjusted R-squared 0.947116 or as much as 94.7 percent. This shows that the very influence of the Rupiah Exchange Rate on the US Dollar (KURS), the Indonesian Sharia Stock Index (ISSI) and Inflation on the Net Asset Value (NAV) simultaneously or simultaneously amounted to 94.7 percent. The remaining 5.3 percent is explained by variables outside the model.

## **6.5 Discussion**

### **6.5.1 Effect of Rupiah Exchange Rate on US Dollar on Net Asset Value of Sharia Mutual Funds**

The exchange rate of the rupiah against the US dollar has a significant negative effect on the NAV of Sharia Equity Funds. Negative effect means that if the exchange rate of the rupiah against the US dollar experiences an increase (weakening of the rupiah), the NAV of sharia equity funds will decrease in value. Likewise, when there is a strengthening of the rupiah against

the US dollar (the exchange rate decreases), the net asset value of sharia mutual fund shares increases.

The exchange rate is a macroeconomic variable that also influences the validity of stock prices. That is because the unstable exchange rate is considered to have an impact on the company's production factors. The fluctuating value of the rupiah will certainly have a negative impact on the Indonesian economy. One of the negative effects can be explained, if the exchange rate of the rupiah against the US dollar weakens (the value of the exchange rate increases), production costs will increase and corporate debt will increase, so that the revenue sharing will also decrease. This causes investment to no longer be attractive to investors, thus reducing the value of investments and the value of shares which results in a decrease in the Net Asset Value (NAV) of a mutual fund.

This result is consistent with Partawidjaja's research (2005) which states that the rupiah exchange rate on the American dollar has a very small negative effect on mutual fund excess returns. In line with research by Ghauri, Rashid, and Masood (2015) which states that Foreign Exchange rates are negatively related to NAV-Funds. Yadav, Sudhakar, and Kumar (2016) also found that inflation affected negatively. The study is also consistent with the results of Agarwal and Khan's research (2019) which concluded that the USD exchange rate was found to have a profound impact both in the long term and short term to the Mutual Fund Net Asset Value. In line with research by Othman, Aziz, and Kassim (2017) who found that foreign exchange rates have a significant negative influence on the NAV of Islamic Equity Funds.

However, the results of this study contradict with the results of Sitompul's research (2010) which states that the US dollar exchange rate does not significantly influence the stock mutual fund return.

### **6.5.2 The Effect of the Indonesian Sharia Stock Index on the Net Asset Value of Sharia Equity Funds**

The Indonesian Syariah Stock Index has a significant positive effect on the net asset value of sharia equity funds. A positive effect means that if the value of the Indonesian Syariah Stock Index experiences an increase, the net asset value of the Sharia equity fund will also increase. Likewise, when the value of the Indonesian Syariah Stock Index decreases, the net asset value of sharia mutual fund shares also decreases.

In general, the Indonesian Syariah Stock Index is related to the performance of sharia-based companies. The increase in ISSI reflects the improved performance of sharia-based companies so that it has the potential to earn more revenue. Increased company revenue will cause an increase in stock prices. The increase in stock prices will of course also affect the increase in net asset value of equity-based mutual fund products, one of which is Islamic mutual fund.

These results are consistent with Sitompul's research (2010) where Stock Index Returns (CSPI) have a significant effect on stock mutual fund returns. Ahmed and Siddiqui (2018) through their research also stated that the KS 100 index return has a significantly positive effect on Islamic equity mutual funds return. The research is also in line with the results of Al-jafari, Salameh, and Al-Asil (2013) A positive significant impact of the Amman Stock Index on All Jordan Open-end Mutual Funds on the long run and short run.

### **6.5.3 Influence of Inflation on the Net Asset Value of Sharia Mutual Funds**

Inflation has a significant positive effect on the net asset value of sharia equity funds. A positive effect means that if the inflation value increases, the net asset value of the Islamic mutual fund will also increase. Likewise, when the value of inflation decreases, the net asset value of Islamic mutual fund shares also decreases.

Inflation has positive impacts and negative effects depend on the severity of the inflation rate itself. Some economists believe that very slow inflation is seen as a stimulator for economic growth (Sukirno, 2006). Even mild inflation has a positive influence in the sense that it can drive the economy better, namely increasing national income and making people eager to work, save and invest. The price increase in inflation which is classified as low is not immediately followed by an increase in workers' wages, so that profits will increase. Increased profits will encourage investment in the future and this will create an acceleration in economic growth.

Tandelilin (2001) states that inflation can be responded to for a moment by investors. Investors' positive response to the increase in the inflation rate is thought to have caused an increase in the performance of equity funds. By investing it can reduce inflationary pressures, because inflation causes the need for investments to reduce the risk of asset decline, by increasing investment both on existing funds or assets with the aim that the investment value can still be maintained or can be increased.

These results are consistent with the research of Sitompul (2010) which states that inflation has no significant effect on mutual fund returns. However, contrary to research. Yadav, Sudhakar, and Kumar (2016) through their research also stated that Inflation affected the performance of the funds negatively. The research results also contradict the research of Ahmed and Siddiqui (2018) which states that inflation has a negative effect on Islamic Equity Fund.

## **7. Conclusions and Recommendations**

### **7.1 Conclusion**

1. The results of the classical assumption test show that the panel data model meets the criteria of being the best unbiased linear model (BLUE). Overall and individual companies, the normal distributed model (Normality). Do not have a correlation between independent variables (Multicollinearity). The residues are not correlated (Auto Correlated) and there are similarities in the variance of the residuals for all observations in the regression model (Homoscedasticity).
2. The third result of the model selection test, the best Chow Test, Hausman Test and Lagrange Multiplier is the Fixed Effect Model.
3. The partial test results of the panel data model show that the three dollar exchange rate variables, inflation and IISI have a significant effect on Net Asset Value (NAV). The dollar exchange rate has a negative effect, while inflation and ISSi have a positive effect. Testing the time series model per individual company, only the ISSI variable has a positive and significant influence.
4. All variables simultaneously have a significant effect on the Net Asset Value and the effect of the Rupiah Exchange Rate on the US Dollar (KURS), the Indonesian Sharia Stock Index (ISSI) and very large inflation on the Net Asset Value (NAV).

## 7.2 Recommendations

### 1. For Investment Managers

Investment managers are advised to continue to pay attention to macroeconomic factors such as the Indonesian Sharia Stock Index (ISSI), the exchange rate of the rupiah against the dollar, and inflation, so that the management of sharia equity funds can have a maximum profit contribution.

### 2. For Further Researchers

To produce more comprehensive research, researchers can then add and develop other independent variables, add time periods of research data, and add samples to the study.

## BIBLIOGRAPHY

- Agarwal, S., & Khan, J. A. (2019). *Investigation of Dynamics of Macroeconomy and Commodity Mutual Funds: Empirical Evidence from India*, 9(4), 872, 894, <https://doi.org/10.4236/tel.2019.94057>
- Ahmed, I., & Siddiqui, D. A. (2018). *Factors Affecting Islamic and Conventional Mutual Funds' Returns. A Comparative Analysis of Different Classes of Funds in Pakistan*. Diperoleh dari SSRN Digital Library.
- Al-Jafari, M. K., Salameh, H., & Al-Asil, K. (2013). *An Empirical Investigation of The Price Relationship between Open-end Mutual Funds and Amman Stock Exchange Index*. Diperoleh dari Researchgate Digital library.
- Amacher, R. C., & Ulbrich, H. H. (1989). *Principles of Microeconomics, 4<sup>th</sup>ed*. Ohio: South-Western Publishing CO
- Baltagi, B. H. (2008). *Econometrics (4th ed.)*. Verlag Berlin Heidelberg: Springer Benoit, K. (2011). *Linear Regression Models with Logarithmic Transformation*. London: Methodology Institute, London School of Economics.
- Ekananda, M.(2015). *Ekonometrika Dasar Untuk Penelitian Dibidang Ekonomi, Sosial dan Bisnis*. Jakarta: Mitra Wacana Media
- Ghauri, S. M. K., Rashid, A., & dan Masood, O. (2015). *Relationship between Macroeconomic Variables and Net Asset Value (NAV) of Islamic Equity Funds: Evidence from Pakistan*. Diperoleh dari University of Bahrain library. <https://journal.uob.edu.bh>
- Ghozali, I. (2006). *Aplikasi Analisis Multivariate dengan Program SPSS Cetakan Keempat*. Semarang: Badan Penerbit Universitas Diponegoro.
- Gurajati, D. N.(2004). *Basic Econometrics, Fourth Edition*. Singapore : McGraw- Hill Inc
- Gujarati, D. N., & Porter, D, C. (2013). *Dasar-dasar Ekonometrika*. Jakarta: Salemba Empat
- Hadi, N. (2015). *Pasar Modal*. Yogyakarta: Graha Ilmu
- Hermuningsih, S. (2012). *Pengantar Pasar Modal Indonesia*.Yogyakarta: UPP STIM YKPN
- Jogiyanto, H. (2004). *Metodologi Penelitian Bisnis*. Yogyakarta: BPFE
- Lestari,Addina Ayuning.(2018), *ANALISIS PENGARUH SERTIFIKAT BANK INDONESIA SYARIAH, INFLASI, NILAI TUKAR RUPIAH, JUMLAH UANG BEREDAR DAN JAKARTA ISLAMIC INDEX TERHADAP NILAI AKTIVA BERSIH REKSADANA SYARIAH JENIS CAMPURAN Periode Januari 2015-Agustus 2017*.Fakultas Ekonomi Universitas Islam Indonesia Yogyakarta.

- Muthalib, A. (2005). Analisis Pengaruh Variabel Makro Ekonomi Terhadap Tingkat Kinerja Reksadana Saham Periode 1998-2004. Diperoleh dari Univeritas Indonesia library. <http://www.lib.ui.ac.id/>
- Nandari, Herlina Utami Dwi Ratna Ayu.(2017), PENGARUH INFLASI, KURS DAN BI RATE TERHADAP NILAI AKTIVA BERSIH (NAB) REKSADANA SYARIAH DI INDONESIA (PERIODE 2010-2016). AN-NISBAH, Vol. 04, No. 01, Oktober 2017.
- Nachrowi, N. D., & Usman, H. (2006). Pendekatan Populer dan Praktis EKONOMETRIKA untuk Analisis Ekonomi dan Keuangan. Jakarta: Lembaga Penerbit Fakultas Ekonomi Universitas Indonesia.
- Othman, A. H. A., Aziz, H. A., & Kassim, S. (2017). *Identification of Macroeconomic Determinants for Diversification and Investment Strategy for Islamic Unit Trust Funds in Malaysia*. Diperoleh dari Emerald Insight Digital library.
- Partawidjaja, D. (2005). Pengukuran Kinerja Reksadana Saham Berdasarkan *Market Timing* dan *Stock Selection* serta Faktor Ekonomi Makro yang mempengaruhinya. Diperoleh dari Univeritas Indonesia library. <http://www.lib.ui.ac.id/>
- Putratama, H. (2007). Analisis Faktor-Faktor yang Mempengaruhi Perkembangan Nilai Aktiva Bersih Reksadana Syariah di Indonesia. Institut Pertanian Bogor.
- Rachman, A., & Mawardi, I. (2015). Pengaruh Inflasi, Nilai Tukar Rupiah, Bi Rate Terhadap Net Asset Value Reksa Dana Saham Syariah. Diperoleh dari Univeritas Airlangga library. <http://repository.unair.ac.id/>
- Republik Indonesia. (1995). Undang-Undang Nomor 8 Tahun 1995 tentang Pasar Modal (Lembaran Negara Republik Indonesia Tahun 1995 Nomor 64). Jakarta: Indonesia. Kementerian Sekretariat Negara Republik Indonesia.
- Republik Indonesia. (2015). Peraturan Otoritas Jasa Keuangan Nomor 47/POJK.04/2015 tentang Pedoman Pengumuman Harian Nilai Aktiva Bersih Reksa Dana Terbuka (Lembaran Negara Republik Indonesia Tahun 2015 Nomor 398). Jakarta: Indonesia. Kementerian Sekretariat Negara
- Santoso, S. (2015). SPSS 20 Pengolah Data Statistik di Era Informasi. Jakarta: PT. Elex Media Komputindo
- Sukirno, S. (2006). Makro ekonomi teori pengantar. Jakarta: PT. Raja Grafindo Persada
- Sekaran, U., & Bougie, R. (2016). *Research Methods for Business: a Skill Building Approach*. United Kingdom: John Wiley & Sons
- Sitompul, R. R. F. (2010). Analisis Pengaruh *Size* dan Variabel Makroekonomi terhadap Return Reksadana Saham dengan Menggunakan Multi Faktor Model. Diperoleh dari Univeritas Indonesia library. <http://www.lib.ui.ac.id/>
- Sriyana, J. (2014). Metode Regresi Data Panel. Yogyakarta: Ekonisia
- Sugiyono. (2013). Metodologi Penelitian Kuantitatif, Kualitatif, dan R&D. Bandung: Alfabeta
- Tandelilin, E. (2001). Analisis Investasi dan Manajemen Portofolio. Yogyakarta: BPFE-Yogyakarta
- Widarjono, A. (2013). Ekonometrika Pengantar dan Aplikasinya. Yogyakarta: Ekonisia
- Widjaja, G., & Ramaniya, A. P. (2006). Reksa Dana dan Peran Serta Tanggung Jawab Manajer Investasi dalam Pasar Modal. Jakarta: Prenada Media Group

- Winarno, W. W. (2017). Analisis Ekonometrika dan Statistika dengan Eviews Edisi 5. Yogyakarta: UPP STIM YKPN.
- Wira, D. (2014). Analisis Fundamental Saham. Jakarta: Exceed.
- Yadav, S. C., Sudhakar, A., & Kumar, S. (2016). *The Impact of Macroeconomic Factor on The Performance: A Study of Selected Equity Oriented Mutual Funds in India*. Diperoleh dari ProQuest Digital Library.
- Yanti, Riska.,(2017), ANALISIS PENGARUH JAKARTA ISLAMIC INDEX, INDEKS SAHAM SYARIAH INDONESIA, DAN JUMLAH REKSADANA TERHADAP KINERJA REKSADANA SYARIAH PERIODE 2014-2016