CHAPTER III

Data and Research Methodology

A. Research Subjects and Objects

The research subject is the influence of several macro-economic variables on corporate sukuk emissions in Indonesia.

B. Data Types

This study uses a quantitative approach. The type of data to be used in this study is secondary data in the form of monthly reports from the period 2016-2018.

According to Infantry (2015) Secondary data is data in the form of evidence, or historical reports that have been arranged in archives (documentary data) published.

C. Data Collection Techniques

Data is obtained from third parties. In this study, data was obtained through the website of Bank Indonesia, the Financial Services Authority (OJK) and the Central Statistics Agency (BPS).

D. Operational Definition of Research Variables

According to Indriantoro and Supomo (2014: 69) The variable operational definition is the determination of construction so that it can be a variable that can be measured. Operational definitions describe the specific methods used by researchers in operating constructs, making it possible for other researchers to replicate measurements in the same way or develop better methods of measuring constructs. The variables used are as follows:

1. Dependen Variables (Y)

   The Dependent Variables used in this study are: Sukuk emissions are total securities or Islamic bonds issued by a company. In this study, sukuk emission data will use the percentage form range per month from the beginning of 2016 to the end of 2018.

2. Independen Variables (X)

   Independent Variables used in this study are:

   a. Inflation (X1) is a condition where prices increase continuously. In this study inflation data will use a percentage form with a range per month from the beginning of 2016 to the end of 2018

   b. Exchange rate (X2) describes the price of a currency against another country's currency, also the price of an asset or asset price. Exchange rate is one of the important things in an open economy, because it has a very large influence on the current account balance and other macroeconomic variables. In this study the exchange rate data will use a percentage form with a range per month from the beginning of 2016 to the end of 2018

   c. Amount of Money Supply (X3) is money that is in the hands of the community. But this definition continues to grow, along with the economic development of a country. In this study the money supply data will use a percentage form with a range per month from the beginning of 2016 to the end of 2018

E. Test Hypothesis and Data Analysis

1. Multiple Linear Regression

Multiple linear regression analysis is a linear relationship between two or more independent variables (X1, X2, ... Xn) with the dependent variable (Y). This analysis is used to determine the direction of the relationship between the independent variable and the dependent variable whether inflation, exchange rate, money supply and sukuk yield on corporate sukuk emissions. The multiple regression equations are as follows:

$$Y = \beta + \beta 1X1 + \beta 2X2 + \beta 3X3 + E$$

$I = 1,\ldots,\ldots,n$

Description:

Y = Sukuk Emissions

β =Konstanta

X_1 =Inflation

X_2 =Exchange Rate

X_3 =Money Supply (M2)

Where Y is the dependent variable, X1, X2, X3 are independent variables and E is the term random residuals (interference), β1, β2, β3, are regression coefficients, and n is the sample sizein term matrix (Neteretal, 1983)

According to Gujarati (2003), the assumptions in multiple linear regression models are the following error variants are constant (heteroscedasticity), there is no multicollinearity in the independent variable, the average error value is zero, the regression model is linear in parameters, and errors are normally distributed.

2. Regression Analysis

Linear Regression Analysis is a statistical technique for modeling and investigating the effect of one variable (independent variable) on the variable response (dependent variable) (Basuki, 2016).

a. Determination Coefficient(R-Square)

The R square test is a test that shows how much the independent variable will explain the dependent variable. R square in the regression equation is susceptible to the addition of independent variables, where more independent variables are involved, then the R square value will be greater, therefore the use of R2 is adjusted for multiple linear regression analysis (Basuki, 2016).

If the value of the coefficient of determination = 0 (adjusted R2 =

0), it means that the variation of variable Y cannot be explained by variable X, whereas if R2 = 1, it means the variation of Y variable as a whole can be explained by variable X. In other words if adjusted R2 approaches 1, then the independent variable will be able to explain the change variant of the dependent variable, and if Adjusted R2 approaches 0, then the independent variable cannot explain the dependent variable.

According to Basuki (2017), the R2 Determination Coefficient Formula is as follows:

$$R^2 = \frac{ESS}{TSS} = 1 - \frac{RSS}{TSS} \qquad \text{.................................. (3,1)}$$

$$= 1 - \frac{(\Sigma\, è_1^2)}{(\Sigma y_1^2)} \qquad \text{..................................(3.2)}$$

$$= 1 - \frac{(\Sigma\, è_i^2)}{\Sigma\,(Yi - Y'i)^2} \qquad \text{......................................(3.3)}$$

b. **F-test**

This test is used to determine the effect of independent variables on the dependent variable simultaneously, which is shown through the Anova table. Independent variables are said to simultaneously influence the dependent variable if the significance value is $<\alpha$ (0.05).

c. **T-test**

This test is conducted to find out how influential the independent variables partially (individuals) can explain the variation of the dependent variable. The results of this test are seen based on Unstandardized Coefficients and significance values. The independent variable is said to have an effect on the dependent variable if the significance value is <0.05.

3. Classical Assuption

The classic assumption test aims to determine whether the regression model used actually shows a significant relationship. The classic assumption test used in this study consisted of multicollinearity test, normality test, autocorrelation test, and heteroscedasticity test.

a. Heteroscedasticity Test

Heteroscedasticity test is used to determine the presence or absence of classical assumptions of heteroscedasticity, namely the existence of variance inequalities from residuals for all observations in the regression model. Detection of heteroscedasticity can be done by the White Heteroscedasticity test. If the probability value of Obs * R-Squared is greater than 0.05, it can be concluded that there is no heteroscedasticity.

b. Normality Test

Normality test aims to test whether, in the regression model of the dependent variable, the independent variable or both are normally distributed or not. A good model is one that has normal data distribution. The residual value is said to be normally distributed when most residual values are close to the average.

Normality can be tested with several tests, one of them is Jarque-Bera (JB Test). This test is done by looking at the magnitude of the probability of Jarque-Bera. Winarno (2015) Normal distributed regression models have a Jarque-Bera probability value> 5%, on the other hand, if the Jarque-Bera probability value is <5% then the data can be ascertained not to have a normal distribution.

c. Autocorrelation Test

Autocorrelation Test is used to determine whether or not there is a classic assumption deviation, autocorrelation is a correlation between residues in observations with other observations in the regression model, autocorrelation is a condition where there is a correlation between residuals this year with the mistakes of the previous year. to find out whether there is an autocorrelation disease in a model, it can be seen from the statistical score with the Breusch-Godfrey Test.

To see whether an autocorrelation disease can be used with the Lagrange Multiplier Test (LM test) or the so-called Breusch-Godfrey test by comparing the probability of the R-Squared value with $\alpha = 5\%$ (0.05), if the probability value of Obs * R-Squared more than 0.05 it can be concluded that there is no autocorrelation. Hypothesis:

If the probability of Obs R> 0.05 is not significant.

If the probability of Obs R2 <0.05 is significant

if the probability value of Obs * R-Squared is more than 0.05, it can be concluded that there is no autocorrelation.

d. Multicollinearity Test

Multicollinearity is a condition in which one or more independent variables are expressed as linear conditions with other variables. This means that if among the independent variables used there is no correlation with each other it can be said that multicollinearity does not occur.

Multicollinearity test is a test conducted to ascertain whether in a regression model there is intercorrelation or colinearity between independent variables. Multicollinearity is used to detect the relationship between several or all independent variables.

Regarding the issue of Multicollinearity, Sumodiningrat (1994: 281-182) suggests that there are three things that need to be discussed first:

1. Multicollinearity is basically a sample phenomenon. In the population regression function model (PRF) it is assumed that all independent variables included in the model have individual effects on the dependent variable Y, but may occur in certain samples.

2. Multicollinearity is a matter of degree and not a matter of type. This means that the problem of Multicollinearity is not a problem whether the correlation is between negative or positive independent variables, but the problem of correlation between independent variables.
3. Multicollinearity problems only relate to the linear relationship between the independent variables that the Multicollinearity problem will not occur in a regression model whose form of function is non-linear, but the Multicollinearity problem will appear in a regression model which forms linearly between these independent variables.

The detection of multicollinearity can be done by looking at the value of the paired correlation coefficient between the two regressions. The coefficient with a value of less than 0.8 indicates that it does not show multicollinearity. The results of this test can be seen from the Variance Inflation Factor (VIF) with the VIF equation = 1 / tolerance. If VIF is less than 10, there is no multicollinearity (Basuki, 2016).