CHAPTER III

RESEARCH METHODOLOGY

A. Subject of Research

This study used an empirical study used to determine the effect of *Zakat* funds, inflation, export and import on Gross Domestic Product (GDP) in Indonesia in 2010-2018 periods. The variables used in this study are *Zakat* funds, inflation, export and import as independent variables, while the dependent variable used Gross Domestic Product (GDP).

B. Type of Data

The analysis used quantitative analysis with secondary data, which is a time series of data with a span of nine years, namely in the form of time seriesandError Correction Model (ECM)data collected from several stages of time. The data selected are data from 2010 to 2018/month and the data taken from Central Statistics Agency (BPS) and the National *Amilzakat* Agency (BAZNAS).

C. Sampling Technique

The analytical method used in this research is Error Corection Model (ECM). Data processing techniques performed using the Eviews7 computer program. Hypothesis testing is done, unit root test cointegration test and ECM models that will be used free from violations of classical assumptions (normality, heteroscedasticity, multicollinearityand autocorrelation test) so that the test results can be interpreted appropriately.

D. Operational Definition of Variables

Operational definition is given to variable by giving meaning or specifying the activities needed to measure these variables. The operational definitions used in this study are:

1. *Zakat* Fund

   Zakat is property that must be issued by a Muslim or business entity to be given to those who have the right to receive it in accordance with Islamic Sharia. The data on *Zakat* funds in this study was measured by the large number of *Zakat* funds in BAZNAS in 2010-2018 which were reported in rupiah billion and monthly data.

2. Inflation

   Inflation means an increase in the general price level of commodity goods and services for a certain period of time. Inflation data is taken from the Central Statistics Agency (BPS) and inflation in this study is expressed in units of percent and uses monthly data.

3. Export

   Export is the process of transporting goods or commodities from one country to another. This process is often used by companies with small to medium business scale as the main strategy to compete at the international level. Export data is taken from the Central Statistics Agency (BPS) and this study expressed in units of rupiah billion and using monthly data.

4. Import

Import is the process of transportation of goods or commodities from one country to another legally, generally in the process of trading. The general import process is the act of entering goods or commodities from other countries into the country. Import data is taken from the Central Statistics Agency (BPS) and this study it is expressed in units of billion rupiah and uses monthly data.

E. Data Analysis Instrument

In this study, the author used several statistical programs for processing secondary data that has been collected from several sources, such as Microsoft Excel 2010 programs andEviews7. Microsoft Excel 2010 is used for processing data concerning making tables and analysis as well as log transformation. Meanwhile, regression processing uses the writer Eviews7 computer program.

F. Analysis and Hypothesis Test

This research can be described as quantitative research. In social sciences, quantitative research refers to empirical investigations quantitative and systematic phenomena of object relations research. Quantitative research aims to develop and use mathematical models, theories, and hypotheses related to the phenomenon. The measurement process is a quantitative research canter because provides a fundamental connection between empirical observation and expression mathematical from the quantitative relationship, because the purpose of the research is determining the relationship between one dependent

variable and the independent variable in a population, this research can be described as research quantitative.(Basuki and Yuliadi, 2014)

1. Hypothesis Test

   Testing the hypothesis proposed statistically by looking at the test significant (real effect) of the independent variable (x) on the dependent variable (Y) is good Simultaneously through F statistical tests and in fact through statistical tests t.

   a. F-Statistics Test

      The F test is a significant test simultaneously meant to see the overall ability of all independent variables to explain diversity of variables is not free. The F test is used to test the effect of all independent variables together on the dependent variable. Value of Calculate can be searched by the formula as follows:

$$Fcount = \frac{R2/_{(k-1)}}{(1-R2)/_{(n-k)}}$$

      Where:

      R^2 : Coefficient determination

      K : The number of independent variables

      N : The number sample

      When $F_{count} < F_{table}$ its mean H_o accepted and H_a rejected

      When $F_{count} > F_{table}$ its mean H_o rejected and H_a accepted

b. T-Statistics Test

This test is used to determine the effect of each variable independent of the dependent variable partially. Calculate t-statistic values can be searched using the following formula:

$$T_{count} = \frac{koefisienregre}{standartdevi}$$

At the level of significance () = 5% / 2 = 0.025% degrees of freedom or degree of freedom (df) = n-k-l, where n is the number of samples and k is the number of independent variables, the value of the table will be obtained. As for criteria used to perform the t test are as follows:

H_0 rejected $t_{count} < -t_{table}$ or $t_{count} > t_{table}$.

H_0 accepted when $-t_{tablel} < t_{count} < t_{table}$.

c. Adjusted R^2

The determination coefficient value is used to measure how big variations of the dependent variable can be explained by independent variables. When value the coefficient of determination is equal to 0, meaning that variations of variable Y cannot explain by variable X at all. Meanwhile if $R^2 = 1$, it means variation from Y variable as a whole can be explained by variable X. in other words if Adjusted R^2 approaches 1 then the independent variable is able to explain change in the dependent variable, but if Adjusted R^2 approaches 0, then the variable independent cannot explain the dependent variable. And if Adjusted $R^2 = 1$, then all observation points are right on the regression line. With so good or bad

the regression equation is determined by the Adjusted R^2 which has a value of zero and one.

G. Data Processing

1. Unit Root Test

   Unit root test is the concept used to test stationer for time-consuming data. If a time series data is not stationary, it can be said that the data is facing a unit root test problem.

   The existence of the unit root problem can be seen by comparing the t-statistics results of the regression with the value of the Augmented Dickey Fuller test.

2. Cointegration Test

   The cointegration test is most commonly used the Engle-Granger (EG) test, the augmented Engle-Granger test (AEG) and the Durbin Watson cointegrating regression test (CRDW). To get the calculated EG, AEG and CRDW values, the data used must be integrated to the same degree.

3. Error Correction Model (ECM)

   If it passes the cointegration test, it will then be tested using a dynamic linear model to find out the possibility of structural changes, because the long-term and short term equilibrium relationship between the dependent variable and the independent variable from the results of the cointegration test will not apply at any time. Long-term and short-

term Regression used in this study. The equation model is shown on below:

$$DLogGDPt = \beta o + \beta 1 DLogZAKATt + \beta 2 DINFLATION + \beta 3 DLogEXPORT + \beta 4 DLogIMPORT + ECT(-1)$$

H. Classic Assumptions Test

The classic assumption test is to test whether there is a violation against classical assumption, so that the BLUE estimator is obtained. In multiple linear regressions classic assumption tests will also be carried out, namely:

1. Normality Test

   Normality is a condition that occurs in the equation model regression, where the dependent variable, the independent variables, or both has a normal distribution. A regression equation model is inside there is a normal or near normal data distribution. There are two ways to detect normality, namely as follows:

   a. Graphic Analysis

      One easy way to see residual normality is to see the histogram graph that compares the observation data with distribution that approaches normal distribution. Furthermore, to see residuals normality can also through normal probability plots compare the cumulative distribution of normal distributions. Normal distribution will form a straight line diagonal. Basic decision for taking normality residuals as follows:

If the spread of data is around the diagonal line and follows diagonal line direction, or histogram graph shows a pattern normal distribution, the regression model meets the assumptions of normality.

If the spread of data is far from diagonal and/or does not follow directions diagonal lines, or histogram charts do not show distribution patterns normal, the regression model does not meet the assumption of normality.

2. Heteroscedasticity Test

Heteroscedasticity is the existence of variance inequalities from residuals for all observations in the regression model. Heteroscedasticity test is useful to find out the deviation from the classical assumption requirements in the regression model, where in the regression model the conditions for the absence of heteroscedasticity must be met. Homoscedasticity occurs when the probability distribution remains the same in all observations x, and the variance of each residual is the same for all values of the explanatory variable.

Hypothesis:

When probability Obs Chi-Square(20)> 0.05 it means does not significant

When probability Obs Chi-Square(20)< 0.05 it means significant

If the probability of Obs Chi-Square(20) is greater than 0.05 then the model there is no heteroscedasticity. If the probability of

ObsChi-Square(20) is smaller than 0.05 then the model is confirmed to have heteroscedasticity.

3. Multicollinearity Test

This multicollinearity test is to see whether independent variables are mutually exclusive correlate with each other. Multicollinearity is caused by existence close relationship of explanatory variables. And it is also possible to happen two or more independent variables have a relationship that is very straight, or independent variables that collinear not provide information.

If multicollinearity testing is done using correlation matrix, if the result is more than 0.8 it indicates that serious multicollinearity occurs. And if there is serious multicollinearity it will be bad, because it will result in large standard error estimator(Gujarati, 2011).

4. Autocorrelation Test

Autocorrelation is a condition that occurs in the model regression equation, wherein there is a correlation between bullies in period t with errors bullies in period t-1. Generally many autocorrelation cases occur in time series. A good regression equation model is a model regression equation in which no symptoms are found autocorrelation.