CHAPTER III
RESEARCH METHOD

A. Research Object

The sample of this research are mining companies listed in IDX with period of time 2015 and 2016. These data period is selected in order to see the renewal that occurs in the realm of corporate disclosures to the public especially for mining companies which have more impact on the surrounding environment as a result of company’s activities by using the most updated data.

B. Type of Data

Data refer to part of the numbers and characteristics possessed by the population. The type of data used in this study is secondary data. Secondary data are data that can be obtained indirectly from the sources. Thus, the data used in this research were taken from all mining company’s annual reports listed in IDX in 2015 and 2016.
C. Sampling Method

Sample selection is done by using purposive sampling method with the aim to get representative sample in accordance with criterion specified. The sample criteria that will be used are:

1. The mining companies listed on the IDX in 2015 and 2016.
2. The mining companies which provide a complete annual report and financial report during the year 2015 and 2016.
3. The mining companies which have complete data related to the variables used in the study.

D. The Data Collection Technique

The documentation technique is used for data collection in this research. The data were obtained indirectly from the sources and from documents that were related to the issues discussed in this study. Thus, the data used in this research were the annual report documents taken from the official website of Indonesia Stock Exchange namely www.idx.co.id and also from Yahoo finance website namely finance.yahoo.com.

E. Operational Definition and Variable Measurement

1. Environmental Disclosures

Corporate Environmental Disclosures (CED) variable used in this research on model 1 is used as the dependent variable, meanwhile CED variable
on model 2 is used as the independent variable. The Global Reporting Initiative's (GRI) G4 is used to measure the environmental disclosure indicators in this study. GRI is a framework for reporting the economic, environmental, and social performance of an organization. This framework can be used by different types of organization, in terms of size, sector, and location (Global Reporting Initiative's, 2015).

In this research, environmental disclosure index is calculated by using the formula:

\[
CED = \frac{\text{Number of items the company discloses}}{\text{Number of environmental disclosures items GRI}}
\]

2. **Firm Value**

Firm value variable in this research is used as dependent variable. One of the alternatives used in assessing firm value is by using Tobin's Q as suggested by James Tobin (1967). The Q ratio is a more rigorous measure of how effectively management takes advantage of economic resources in its power. Several researches conducted by Copelan (2002), Lindenberg and Ross (1981), Darmawati (2004) and Herawaty (2008), show how the Q ratios can be applied to each company.

In this study, the stock price approach is used to determine the firm value. High Tobin's Q ratio indicates that a company has good growth prospects and has larger intangible assets. This happens because the greater market value
of the company's assets, the greater willingness of investors to invested more in the company. The formula for calculating Tobin's Q is similar to the formula used by other researchers to measure the value of the firm that is the research used by Kusumadilaga (2010); Sulkowski (2010); and Devi et al. (2017).

Therefore, Tobin’s Q is explained as follows:

\[
\text{Tobin’s Q} = \frac{\text{MVE} + \text{DEBT}}{\text{TA}}
\]

- \( \text{MVE} \) = Year-end closing price of the stock x total outstanding shares
- \( \text{DEBT} \) = Current liability - current assets + long-term liabilities
- \( \text{TA} \) = Total assets

3. **Board of Commissioner Size**

Board of commissioner size variable in this research is used as independent variable. The size of the board of commissioners referred to in this study is the total number of members of the board of commissioners within a company. According to Waryanto (2010), the size of the board of commissioners is measured by calculating the number of members of the board of commissioners within a company mentioned in the annual report.

4. **Gender Diversity**

Gender diversity variable in this research is used as independent variable. Gender diversity is equitable or fair representation between genders. Gender diversity in an organization is the equal treatment and acceptance of both males and females. According to Prasista (2016), the existence of female
directors can be measured by using dummy variable. Thus, the variable will be given the value "1" if there is a female director, and the value "0" if there is no female director.

5. **Proportion of Independent Commissioners on Boards**

   Proportion of independent commissioner variable in this research is used as the independent variable. An independent commissioner is a member of the board of commissioners who does not come from an affiliated party. According to Waryanto (2010), the independence of the board of commissioners is measured by the ratio or (%) between the total number of independent commissioners that were divided to the total number of members of the board of commissioners.

6. **Number of board of commissioners meetings**

   Number of board of commissioner meetings variable in this research is used as the independent variable. The number of board of commissioners meetings is the total number of internal meetings conducted by the board of commissioners within one year. According to Waryanto (2010), the number of board of commissioners meetings is measured by looking at the number of meetings conducted by the board of commissioners on the annual report of the company listed in the corporate governance report.
7. **Audit Committee Size**

Size of the audit committee variable in this research is used as the independent variable. The size of the audit committee is the number of members of the audit committee within a company. According to Waryanto (2010), the size of the audit committee is measured by calculating the number of members of the audit committee in the company's annual report as stated in the corporate governance report.

8. **Managerial Ownership**

Managerial ownership variable in this research is used as the independent variable. Managerial share ownership is the level of share ownership by management that actively participates in decision making. According to Waryanto (2010), managerial ownership is measured by calculating the percentage (%) number of shares owned by management i.e. managers, affiliated commissioners (excluding independent commissioners), and directors divided by total number of shares outstanding.

9. **Foreign Ownership**

Foreign ownership variable in this research is used as the independent variable. Foreign share ownership is the number of shares owned by foreign parties (overseas) either by individuals or institutions against shares of companies in Indonesia. According to Waryanto (2010), the amount of foreign
ownership is measured from the percentage (%) of total shares of foreign ownership divided by the total outstanding shares.

10. Control Variables

This study used three control variables, i.e. firm size, profitability, and leverage which had been widely used by past researchers. Control variables are used to eliminate an unwanted influence. Thus, the relation of independent variables towards the dependent variable are not influenced by other factors that were not examined. By controlling these three variables, it will enhance the relationship between corporate governance characteristics towards corporate environmental disclosure practices and environmental disclosure towards firm value.

1. Firm Size

Firm size variable in this research is used as the control variable. It refers to DeFond and Jiambalvo (1994) who state that the bigger size of the company can encourage management to do earnings management in order to fulfill the desire of the investor by yielding good financial performance. Company size is measured by total assets owned by the company obtained from the company's annual report. Firm size was measured from total assets which were transformed in the form of logarithm in order to equate with other variables, because the total value of the company's assets is relatively
larger compared to other variables in this study. Company size is formulated as follows (Waryanto, 2010):

\[
\text{SIZE} = \ln \text{total asset}
\]

2. **Profitability**

Profitability variable in this research is used as the control variable. Profitability is the ability of a company to make a profit (Agustina, 2012). Profitable companies are considered to be in good condition and have better incentives than other companies. Therefore, companies that earn high profits tend to be more willing in disclosing detailed information to show the various activities of the company (Juhmani, 2013). According to Sulistiyowati, et al. (2010), the profitability is measured by the formula:

\[
\text{ROA} = \frac{\text{Net profit}}{\text{Total assets}}
\]

3. **Leverage**

Leverage variable in this research is used as the control variable. Leverage referred to the company's dependence on debt in finance its operations. This illustrates the degree of excess authority held by debt-holders compared to the shareholders' authority. Referring to Sulistyowati et al. (2010), leverage is measured by the following formula:

\[
\text{LEV} = \frac{\text{Total Debt}}{\text{Total Equity}}
\]
F. Data Analysis Technique

Data analysis technique is a technique or procedure to test the research hypothesis. Tests conducted in this method are descriptive statistical test, classical assumption test, and hypothesis testing.

1. Descriptive Statistics Test

Descriptive statistics are statistics used to analyze data by describing data that have been accumulated without any intention to make conclusions that apply to the public or generalization. In descriptive statistics, the data were presented through tables, graphs, pie charts, pictograms, mode calculations, medians, mean (measurement of central tendency), decile calculations, percentiles, calculation of data dissemination through average calculations and standard deviation (Sugiyono, 2009). In this research, the data presentation is provided by using tables. From the tables, mean is needed for data analysis.

2. Classical Assumption Test

The classical assumption test should be done in this study to test whether or not the data meet the classical assumptions. This is done to avoid a biased estimation, since not all the data can be applied for regression test. Tests conducted in this study are normality test, multicolinearity test, heteroscedasticity test, and autocorrelation test.
a. Normality Test

Normality test aims to test whether in the regression model, the dependent and independent variables both have a normal distribution or not. Test the normality of data in this study using Kolmogorov-Smirnov test. Testing criterion using two-tailed test, by comparing the probability obtained with the significance level (α) 0.05. If Sig. value > 0.05, the data is normally distributed.

b. Multicollinearity Test

Multicollinearity test aims to test whether in the regression model indicates the correlation between independent variables (Ghozali, 2009). A good regression model should not be correlated between independent variables. To detect the presence or absence of multicollinearity, it can be seen from the tolerance value and the opposite of variance inflation factor (VIF). Both of the measurements show which the independent variables are described by other independent variables. Tolerance measures the variability of the selected independent variable that is not explained by other independent variables. Therefore, a low tolerance value is equal to a high VIF value (because $VIF = 1 / \text{Tolerance}$). Common cut-off values used to indicate the presence of multicollinearity are tolerance values ≤ 0.10 or equal to VIF value ≥ 10.
c. Heteroscedasticity Test

Heteroscedasticity test was conducted to test whether the regression model occurred inequality residual variance from one observation to another observation. If the variance of the residual one observation to another observation remains, it is called homocedasticity. A good regression model is homocedasticity, where there is no heteroscedasticity (Ghozali, 2009).

The way to detect the presence or absence of heteroscedasticity is by using Glejser Test, which is by regressing residual absolute value of independent variables. It can identify whether or not there is a degree of confidence 5%. If the value of independent variable significance > 0.05 then no heteroscedasticity occurs. Conversely, if the significance value of independent variables < 0.05, heteroscedasticity occurs.

d. Autocorrelation Test

Autocorrelation test aims to examine whether in the regression model there is a correlation between the confounding errors in period t with the intruder error in period t-1 (previously). If there is a correlation, it is called an autocorrelation problem. Autocorrelation arises because the sequential observations over time are related to each other. This problem arises because residuals (errors of bullies) are not free from one observation to another (Ghozali, 2009).
Autocorrelation test was performed by using Durbin-Watson method. If the Durbin-Watson value is between the upper limit (du) then no autocorrelation is expected. The basis of decision making autocorrelation test is as follows:

1. If the DW value lies between the upper bound (du) and (4-du), the autocorrelation coefficient is zero, meaning there is no autocorrelation.
2. If the DW value is lower than the lower bound (dl), the autocorrelation coefficient is greater than zero, meaning there is auto positive correlation.
3. If the DW value is greater than (4-dl), the autocorrelation coefficient is less than zero, meaning there is negative autocorrelation.
4. If the DW value is between the upper bound (du) and the lower limit (dl) or DW is between (4-du) and (4-dl), the result cannot be concluded (Ghozali, 2009).
3. **Hypothesis Testing**

Data analysis used to test hypothesis in this research is multiple regression analysis with equation model (Ujiyanto, 2007).

1. **The first model**

\[
ED = \alpha - \beta_1 BCS + \beta_2 GD + \beta_3 IC + \beta_4 BCM + \beta_5 ACS + \beta_6 MO + \beta_7 FO + \beta_8 SIZE + \beta_9 PFT + \beta_10 LEV + e
\]

Information:
- ED = Environmental Disclosures
- BCS = Board of Commissioners Size
- GD = Gender Diversity
- IC = Proportion of Independent Commissioners on Boards
- BCM = Number of board of commissioners meetings
- ACS = Audit Committee Size
- MO = Managerial Ownership
- FO = Foreign Ownership
- SIZE = Size
- PFT = Profitability
- LEV = Leverage
- e = Error term

2. **The second model**

\[
Q = \alpha + \beta_1 EnD + \beta_2 SIZE + \beta_3 PFT + \beta_4 LEV + e
\]

Information:
- Q = Tobin’s Q Ratio
- EnD = Environmental Disclosures
- SIZE = Size
- PFT = Profitability
- LEV = Leverage
- e = Error term
In this study, researcher used statistical parametric testing. Regression test is one type of statistical parametric test. To test the hypothesis proposed by the researcher, coefficient of determination test, simultaneous influence (F test), and partial influence test (t-test) were applied.

a. **Coefficient of Determination Test (Adjusted R²)**

The value of adjusted R² is used to measure the capability level of the model in explaining the variation of independent variables. The coefficient of determination is between zero and one. The small value of adjusted R² means that the ability of independent variables to explain the variation of the dependent variable is very limited. If adjusted R² value is closer to one (1), it means that the independent variables provide all of the information needed to predict the variation of the dependent variable.

b. **Simultaneous Effect Test (F test)**

This test aims to show whether or not the independent variables included in each the model have a simultaneous influence on the dependent variable. Testing is done by using significance level 0.05 (α = 5%). Acceptance or rejection of the hypothesis is done by the following criteria:

1. If the significance value <0.05 and has the same direction with the hypothesis, then Ha is accepted. It means that there is a significant regression coefficient. Thus, it can be concluded that there is a significant influence between all independent variables toward the dependent variable.
2. If the significance value > 0.05, then Ha is rejected. It means that the coefficient of regression is not significant. Thus, it can be concluded that all of the independent variables have no effect or influence toward the dependent variable.

c. **Partial Test (t-Test)**

   This test aims to show how far the influence of an independent variable in explaining the dependent variable partially is. Testing is done by using significance level 0.05 (\(\alpha = 5\%\)). Acceptance or rejection of the hypothesis is done by the following criteria:

1. If the significance value <0.05 and has same direction with the hypothesis then Ha is accepted. It means that there is a significant influence between one independent variable towards the dependent variable.

2. If the significance value > 0.05, then Ha is rejected. It means that there is no significant influence between one independent variable towards the dependent variable.