

CHAPTER III

RESEARCH METODOLOGY

3.1. Type of Research

Based on the type of the research, these research is the explanatory research. According to Bungin (2006:38) explanatory research is the research which explains about the correlation, difference and influence between one variable and another. The characteristic of explanatory research is replication and development, which means that the author repeats from the similar predecessor researcher but difference for the sample, variable, and period. In this research, the author tries to explain the correlation between the Current Ratio, Debt to Equity Ratio, Return on Assets, Return on Equity, and Net Profit Margin and stock price in LQ45. This research is also included in quantitative research. It is because the research needs the nominal data that has to be analyzed by the author and used for the statistical analyze for this research.

3.2. Sample and Population Used

3.2.1 Population

According to Sugiyono (2009:90) he stated that population explain as generalization field which consists on object or subject that has certain characteristic and quality that's judged by the researcher to analyze and conclude. In this research, the population of the research is all of the company which entering the LQ45 for the stock in 2009-2011. The author chooses LQ45 because the characteristic of LQ45 can represented whole of the companies in IDX.

Besides that, LQ 45 has a unique characteristic that differ between all of the sector, LQ45 involve blue chip company inside it. The population is 68 in LQ45 in 2009-2011.

3.2.2. Sample

Sample is a part of the population that is chosen by researcher to be analyzed. In this research, sample is chosen by the purposive sampling method. It is a method to choose the sample based on subjective considerations of the research and matched by the objective of the research. The criteria of the sample that is used in this research are:

1. The company which enters in LQ45 and survive from 2009 until the end of 2011.

Based on previous research, the year of sample is not making the year of 2011. In this research, the author tries to make the year of 2011 to know the reliability and validity of previous research with contribution of 2011.

2. The company which has complete data of the Current Ratio, Debt to Equity Ratio, Return on Assets, Return on Equity, and Net Profit Margin in period of December 2009- September 2011.

Based on the method, the author makes purposive method to get full information and trusting analysis of data that can contribute on the result reliability and validity.

Processing for the research sample:

Table 3.1
Sampling Method

No.	Criteria	Companies Amount
1.	Amount of population of companies at LQ45 in 2009-2011.	45
2.	Amount of companies go in and out at LQ45 in 2009-2011.	(16)
3.	Amount of companies stay at LQ45 in 2009-2011.	29
4.	Amount of companies cannot fulfill for the data of the Current Ratio, Debt to Equity Ratio, Return on Assets, Return on Equity, and Net Profit Margin in 2009-2011.	(10)
5.	Amount of companies that fulfill the data of the Current Ratio, Debt to Equity Ratio, Return on Assets, Return on Equity, and Net Profit Margin.	19
6.	Amount of sample in this research	19

This research makes 19 samples of LQ45 companies in 2009-2011 periods which are selected by the criteria above. It means that, this research has to make 57(19x3) data of company because in one period, this research uses 19 data from all of the companies to be analyzed.

Table 3.2**List of 20 companies which become sample in this research**

No.	IDX Code	Company's Name
1.	AALI	PT. Astra Agro Lestari Tbk
2.	ASII	PT. Astra Internasional Tbk
3.	UNVR	PT. Unilever Indonesia Tbk
4.	UNTR	PT. United Tractors Tbk
5.	KLBF	PT. Kalbe Farma Tbk
6.	SMGR	PT. Semen Gresik (Persero) Tbk
7.	ANTM	PT. Aneka Tambang Tbk
8.	INCO	PT. Internasional Nickel Indonesia Tbk
9.	INDF	PT. Indofood Sukses Makmur Tbk
10.	INDY	PT. Indika Energy Tbk
11.	INTP	PT. Indocement Tungal Putra Tbk
12.	TLKM	PT. Telekomunikasi Indonesia Tbk
13.	ITMG	PT. Indotambang Raya Indah Tbk
14.	JSMG	PT. Jasa marga Tbk
15.	TINS	PT. Timah Tbk
16.	LSIP	PT. PP London Sumatra Indonesia Tbk
17.	PGAS	PT. Perusahaan Gas Negara Tbk
18.	PTBA	PT. Tambang Batubara Bukit Asam Tbk
19.	UNSP	PT. Bakrie Sumatra Plantations Tbk

Source: ICMD

3.3 Types of Data

The data that is used in this research is secondary data. The secondary data is the data that is collected, processed, and served by other party. the form of the secondary data is the annual that has been issued by the company that contained of balance sheet, income statement, cash flow statement, owner's equity statement, and the financial statement.

3.4 Source of Data

The data that is used in this research is derived from the IDX's website (www.idx.co.id). Beside the data that will be served in this research also provides by the data that the Author's get from the Pojok Bursa Efek Indonesia Faculty of

Economics University of Brawijaya in the form of Indonesian Capital Market Directory (ICMD).

3.5 Data Collecting Method

The data collecting method that is used in this research is documentation method. Documentation method is a data collecting technique by recording, and copying the secondary data, in which all of the data that has been collected comes from many resources, and then will be chosen related to the Author's need.

3.6 Identification and Definition of Operational Variable

The variable that is used in this research covers five main variables. These variables are distinguished into two variables, they are the dependent variable and independent.

a. Dependent Variable

Dependent variable is a variable whose the number is influenced by the free variable. The dependent variable in this research is the stock's price of the go public company issued their financial statement from year 2009-2011 that will be represent as the "Y" simbol. The stock's price is the final price after the existence of trading transaction in stock market. The stock's price is gotten from the average of price after closing time in the end of month for each year. The stock's price is the depiction of the company's performance.

The period of this research is based on the historical data. It means that the data used really happens and also gives visualization of the financial performance during the analysis activity.

b. Independent Variable

Independent variable is a variable having an effect or assumed that could give an influence to the other variable. This variable is independent, which means that it's influenced by other variables.

The independent variable that is used in this research is several financial ratios that served below :

1. Current Ratio (CR)

The current ratio will be rerepresented with "X1", and the indicator is the current asset and the short term liabilities.

$$\text{Current Ratio} = \frac{\text{Current Assets}}{\text{Current Liabilities}}$$

2. Debt to Equity Ratio (DER)

The debt to equity ratio will be represented with "X2", and the indicator is the total liabilities and stockholder's equity.

$$\text{DER} = \frac{\text{Total Liabilities}}{\text{Shareholders Equity}}$$

3. Return on Asset (ROA)

The return on asset will be represented with "X3", and the indicator is the net income and total asset.

$$\text{ROA} = \frac{\text{Net Income}}{\text{Total Assets}}$$

4. Return on Equity (ROE)

The return on equity will be represented with "X4", and the indicator is the net income and stockholder's equity.

$$ROE = \frac{\text{Net Income}}{\text{Stockholders Equity}}$$

5. Net Profit Margin (NPM)

The net profit margin will be represented with a "X5", and the indicator is the net income and net sales.

$$NPM = \frac{\text{Net Income}}{\text{Net Selling}}$$

3.7 Data Analysis Method

According to Singarimbun and Efendi (1995;64), to know the effect of independent variable that is used (CR, DER, ROA, ROE, and NPM) towards the dependent variable (stock's price), the double linear regression model is used. With the mathematic formulation as follow :

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 X_5 + e$$

Information :

Y	= Stock's price
X1	= Current ratio
X2	= Debt to equity ratio
X3	= Return on assets
X4	= Return on equity
X5	= Net profit margin
β_0	= Intercepts
e	= Errors

$\beta_1, \beta_2, \beta_3, \beta_4, \beta_5$ = Regression coefficient for each dependent variable.

This research will be using SPSS for windows programm.

3.8 Classic Assumption Test

According to Gujarati (2003;44), it must fulfill the classic assumption test to assess the regression parameters (β) using the ordinary least square (OLS)

method. The classic assumption test consists of normality test, multicollinearity test, auto-correlation test, heteroksedasity test. These kinds of tests are intended to see is the regression model that will be tested to have the BLUE (Best, Linier, Unbias, Estimated) characteristics. Thus, it must fulfill these classical assumptions:

a. Normality Test

Normality test is an analytic test before the making of statistical formula. The aim of this test is to determine whether a data set is well-modeled by a normal distribution or not.

In this research, the Author is using SPSS to help in knowing whether the terms of normality is already fulfilled or not. From the chart that will be served on SPSS, it will be known whether the terms can be fulfilled or not.

b. Multicollinearity Test

Multicollinearity test is proposed to show the relation among independent variables in regression model. According to Gujarati (2003), multicollinearity is a question of degree of severity and kind. Multicollinearity occurs when two or more predictors in the model are correlated and provide redundant information about the response. We can state that the variables are orthogonal if they're uncorrelated.

The high number in multicollinearity will cause the increasing standard errors of estimates of the β 's . It means that it will be decreasing reliability of the result. When the number of variance

inflation factors (VIF) is more than ten, it can be assumed that there is an multicollinearity. The VIF itself can be known as the result of SPSS program that is used in this research.

c. Autocorrelation Test

Autocorrelation test is proposed to test the assumption that the research data must be free, it can't be influenced or influencing the previous or the future data. Autocorrelation is a correlation coefficient. However, instead of correlation between two different variables, the correlation is between two values of the same variable at times.

Stated by Gujarati (1991,201) in Yudhistira (2011), the autocorrelation test is proposed to identify the existence of correlation between observation data that will be sorted by time series and cross section. In time series data, the possibility of appearance of these symptoms is quite big, in other hand for the cross section data, the possibility is lower.

When the autocorrelation symptoms appear, the statistical t test and statistical F test are no longer effective. Thus, when the test is continued, the result will be doubtful. We can use Durbin-Watson (DW) statistical test to identify the autocorrelation.

In this research, the result from DW will be compared by the critical value dL and dU that we get from the DW's table,

$d < dL$: Autocorrelation exist

$d > 4 - dL$: Autocorrelation exist

$d_U < d < 4 - d_U$: Autocorrelation do not exist

$d_L < d < d_U$: The testing is doubtful

$4 - d_U < d < 4 - d_L$: The testing is doubtful

Moreover, Santoso (2000) explained that the decision making could use another type of the Durbin-Watson(DW) test:

$DW < -2$: Positive autocorrelation

$-2 < DW < 2$: No autocorrelation

$DW < 2$: Negative autocorrelation

d. Heteroscedasticity Test

Heteroscedasticity is an adjective describing a data sample or data-generating process in which the errors are drawn from different distributions for different values of the independent variables. The possible existence of heteroscedasticity is a major concern in the application of regression analysis, including the analysis of variance, because the presence of heteroscedasticity can invalidate statistical tests of significance that assume that the modeling errors are uncorrelated and normally distributed and that their variances do not vary with the effects being modeled. Thus, a good regression model is when it's homocedasticity.

There are two ways in detecting heteroscedasticity. First, if there is an neat pattern (waving, widening, or narrowing), it indicates the heteroscedasticity. Second, if there is no neat pattern, and there is no

point which spreads in above or below 0 in Y's axis, it indicates the heteroscedasticity.

3.8 Statistical Hypothesis Method

The author hypothesis will be tested with several methods to get some conclusions. These method will be explained by some explanation below:

1. First Hypothesis Tested:

This test will be tested with F statistical method and Goodness of Fit (R^2) to the independent variable. The objectives of the two methods are to observe whether the independent variables influence significantly towards stock price and the contribution of the independent variables toward stock price.

a. F tested

This test is useful to make sure that the independent variable assembly influence or not towards dependent variable.

In this test, the author judge for errors rate of 5% (level of confidence 95%).

The result of the test will be compared with the errors rate with the assumption:

- H_1 will be accepted if the independent variable of F less than the number of F errors. The formula is:
 - $F_{\text{significance}} > 0,05$
- H_0 will be accepted if the independent variable of F is less than the number of F errors. The formula is:
 - $F_{\text{significance}} < 0,05$

b. Goodness of Fit (R^2)

This test show the contribution of the independent variables toward stock price. The independent variables can contribute to the dependent variable if the R^2 is more than zero and less than one. The formula is:

- H_1 accepted if $0 < R^2 < 1$

2. Second Hypothesis Tested

In this test, the author wants to research about the relationship between the independent variable and dependent variable partially. The objective of these research is to make the conclusion about the influence of each independent variable toward stock price, by having two steps to conclude each independent variable influence to the dependent variable.

a. Determine Hypothesis.

If $\beta_1 = \beta_2 = \beta_3 = \beta_4 = \beta_5 = 0$ it means that the Current Ratio, Debt to Equity Ratio, Return on Assets, Return on Equity, and Net Profit Margin are not significantly influenced by stock price. It means H_0 accepted. But if $\beta_1 \neq \beta_2 \neq \beta_3 \neq \beta_4 \neq \beta_5 \neq 0$ it means that the Current Ratio, Debt to Equity Ratio, Return on Assets, Return on Equity, and Net Profit Margin is significantly influenced by stock price and H_1 accepted.

b. T tested.

These test is testing of each independent variable to dependent variable and explain about the influence of each independent variable towards stock price.

The author judge for the errors rate of 5% (level confidence 95%). It will be compared with the significant t that is earned by SPSS program. These test will be explained with two hypothesis.

- H_0 will be accepted if $\text{sig } t < 0,05$.
- H_1 will be accepted if $\text{sig } t > 0,05$.

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