CHAPTER III

RESEARCH METHODOLOGY

A. Object of Research

The objects of this study are the financial banks statements listed in *Sharia* Islamic Banking Statistics Bank of Indonesia. While the subject are in the form of financial statements of BRI *Sharia* Bank, Bukopin *Sharia* Bank, Mega *Sharia* Bank, Muamalat Indonesia Bank and Mandiri *Sharia* Bank. Data is served in the form of quarterly financial statements in the period of 2009 to 2012.

B. Data Type

The type of data in this study is secondary data (where data is obtained indirectly) and a quantitative data (numbers presented in the financial reporting is used to calculate the value of variables involved in this study) were obtained from the financial statements taken from the website of Indonesia Bank (www.bi.go.id).

Types of data used in this study is the time series data and cross section data or data is often referred by the panel. The Data panel is a group of individual data is examined during a certain span of time so that the data panel gives information of each individual in the sample observations. The advantage of using panel data (Gujarati 2003) i.e. :

1. In the data usage panel that includes cross section data in a certain span of time, vulnerable due to heterogeneity. Use of data estimation techniques panel will take into account explicitly the heterogeneity.
2. Using a combination of data, will provide information, smaller kolinearitas level between variable and more efficient.
3. Use of panel data minimising bias can be generated to aggregate the data of individuals into a larger aggregation.
4. In the panel data, variable will still describe other changes as a result of the use of time series data. In addition the use of unbalanced data will not reduce the sharpness of the estimation.

C. Sampling Techniques

The sampling technique used was purposive sampling, which is based on consideration of the completeness of the available data, which aims to get a representative sample. Sample criterias used are as follows :

1. Quarterly financial statements on a five *Sharia* Bank with BUS status, among others, BRI *Sharia* Bank, Bukopin *Sharia* Bank, Mega *Sharia* Bank, Muamalat Indonesia Bank and Mandiri *Sharia* Bank.
2. The financial statements have been published or are listed on www.bi.go.id.
3. Quarterly financial reports from January 2009 to December 2012.

D. Data Collection Techniques

Techniques of data collection in this study was done by using the documentation, which is a technique to document the data taken online at the website of Indonesia Bank www.bi.go.id in the directory of Financial Banks Statements downloaded in accordance with the requirements of data.

E. Operational Definitions of Research Variables

1. Dependent Variable

   Mudaraba Financing

   Mudaraba is an agreement on the type of cooperative effort in which the first party and second party provided funds responsible for the management of the fund. *Mudaraba* contract is an agreement which is commonly used in *syirkah/* joint venture, in which the bank became financiers and customers as *mudharib*. On the basis of the business are managed by *mudharib* advantage, then *mudharib* will divide the profits to the investors/ banks with an agreed ratio. Data on financing is derived from the financial statements (balance sheet) is the amount of financing period of t in 2009-2012 according to BUS publication.

2. Independent Variables

   a. DPK (Third Party Funds)

      Third party funding (DPK) is a source of bank funds raised from the public as customers in the form of savings or deposits. Data on deposits obtained from financial statements (balance sheet)

the total funds managed by third parties that *sharia* banking is the sum of *wadiah* deposits, *mudaraba* savings and *mudaraba* deposits in BUS publication with period t in 2009-2012.

b. Profit Sharing

Profit sharing is the average return for the *mudaraba* and *musharaka* financing that is part of *sharia* banks at a given time. Determination of the shares of financing is determined by considering the reference level and the estimated profit margin profit level business/ project financed. Data on the results obtained from the financial statements (profit/ loss) is the amount of revenue sharing *mudaraba* publication BUS with period t in 2009-2012.

c. SWBI Bonus (*Wadiah* Certificate of Bank Indonesia)

SWBI (*Wadiah* Certificate of Bank Indonesia) is one of Indonesia Bank monetary instruments that cater for *sharia* banks in Indonesia are short-term fund deposits evidence using *wadiah*. SWBI is one tool for absorbing excess liquidity faced by *sharia* banking. Data on SWBI Bonus obtained from financial statements (balance sheet) BUS publications with period t in 2009-2012.

d. NPF (Non Performing Financing)

Non Performing Financing (NPF) is the amount of the liability can no longer be paid by the customer either part or all of their

obligations to the bank as they had promised. Data obtained from the NPF financial statements (financial ratio calculations) BUS publication in the form of NPF (Non Performing Financing) with period t in 2009-2012.

e. ROA (Return on Assets)

Return on Assets is the ratio between the net income which is inversely proportional to the total assets to generate earnings. This ratio indicates how much of the net income derived from the measured value of the company assets. Analysis return on assets or often translated in Indonesian as a measure of economic profitability profitable growth companies in the past. This analysis is then projected into the future to see the companys ability to generate earnings in the future. Data on ROA obtained from financial statements (financial ratio calculations) BUS publication in the form of ROA (Return on Assets) with period t in 2009-2012.

f. CAR (Capital Adequacy Ratio)

Capital Adequacy Ratio is a way to measure bank is capital, which was shown as the opening of the bank's risk-weighted credit. Data on the CAR obtained from financial statements (financial ratio calculations) BUS publication in the form of CAR (Capital Adequacy Ratio) with period t in 2009-2012.

F. Quality of Data Test

In this study, quality data test in this study is used with classical assumption test (multicollinearity test, heteroscedasticity test and autocorrelation test), T test, F test and analysis Coefficient of Determination Test (Adj. R^2) by following this explanation :

1. Classical Assumption

   The classical assumption includes multicollinearity test, heteroscedasticity test and autocorrelation test. The explanation as follows :

   a. Multicollinearity test

      Multicollinearity test is a situation where there is a correlation between independent variables. The multicollinearity test is used to in finding independent variable that is similar towards other independent variable in one model. A good regression model is actually when there is no correlation at all towards any of the independent variable (Ghozali, 2009). Multicollinearity testing in this study uses Variance Inflation Factor (VIF) and Condition Index (TOI). There is also a criterion used in this study which is as follow: If the tolerance value > 0.10 or equals to the value of VIF < 10, then there is no multicollinearity between independent variables (Ghozali, 2009).

From the table in Appendix 1.a, it can be seen that there is no problem multicollinearity. The reason is the value of the correlation matrix of all variables less than 0.8.

Then could conclude that all the independent variables in this research was not happen Multicollinearity.

b. Heteroscedasticity test

Heteroscedasticity test is objective to test whether there is or not an inequality variance from residual of the observations to the other observations. If the residual variance from one observer to the next is constant, then it is considered as homoscedasticity. However, if it is different, then it is considered as heteroscedasticity.This testing can be done in two ways, namely by looking at the line scatterpolt and glejser test. If the lines scatterpolt has dot which is spread randomly and not united into one so it can be concluded that there is no heteroscedasticity problem. The next way is by glejser test. If siginifikansi value for the independent variable is greater than 0.05 then it can be concluded that there is no heteroscedasticity problem. (Latan and Temalagi, 2013:46). A good regression model is when there is no heteroscedasticity at all.

The purpose of GLS method by choosing "white heteroscedasticity-consistent covariance" is to anticipate the data

that is not homocedasticity. So that heteroscedasticity problem can be resolved (Novan, 2009:55).

c. Autocorrelation test

Autocorrelation test is used in finding whether there is or not a correlation between the interference of t period in the linear regression equation. Autocorrelation test can be detected with Durbin Watson (DW) Test, which is: (Singgih Santoso, 2010)

- If the DW number < - 2, then there is an autocorrelation.
- If $-2 \leq$ DW number $\geq +2$, then there no autocorrelation.
- If DW number > + 2, then the autocorrelation is negative.

In the appendix of 1.a shows that the value of DW-stat is 1.032575 which is not in the range of 2 (1.5 <DW-Stat <2.5), this indicates that those models have autocorrelation problem.

2. T test

T test is used to find the significant influence of each independent variable towards the dependent variable.

To find the conclusion:

a. If the probability is < 0.05, then the hypothesis is accepted.
b. If the probability is > 0.05, then the hypothesis is rejected.

3. F test

F test is used to find the jointly influence of independent variable towards the dependent variable. If the calculation of value F < alpha, then there is a jointly influence of the independent variable (DPK/

Third Party Fund, Profit Sharing, SWBI Bonus/ *Wadiah* Certificate of Bank Indonesia, NPF/ Non Performing Financing, ROA/ Return on Assets and CAR/ Capital Adequacy Ratio) towards the dependent variable which is the *mudaraba* financing.

4. Coefficient of Determination Test (Adj. R^2)

Coefficient of determination test (Adj. R^2) is used to measure how big the ability of the model in explaining the variation of dependent variable. The coefficient of determination value is between the number zero and one. The adjusted R^2 value that is small means independent variables ability in explaining the variation dependent variable is very limited. The value that is close to one means that the independent variables can give almost all of the information that is needed to predict the variation dependent variable. In general, coefficient of determination is used in time series data that is normally has a high in the coefficient of determination value.

The general weakness in using coefficient of determination is refracted towards the sum of independent variables that is used in the model. By adding every one independent variable, then the adjusted R^2 value is always increased. It does not matter whether the variables influence towards the dependent variably significantly. Because of that, many researchers encourage to use the adjusted R^2 value when evaluating which regression model is the best. However, unlike R^2,

adjusted R^2 value can increase or decrease depending on adding an independent variable in the model (Ghazali, 2009).

G. Hypothesis Test and Analysis Data

1. Multiple Regression

The purpose of multiple regressions is to examine the influence of several independent variables on the dependent variable. The general form of multiple regressions can be written as follows :

$$Y = \beta_0 + \beta_1 x_1 + \beta_2 x_2 + \beta_3 x_3 + \beta_n x_n + \varepsilon_i \quad \ldots\ldots\ldots\ldots\ldots (1)$$

Explanation :

Y : Dependent variable

β : Constanta from independent variable

x_n : Independent variable

ε_i : Error term

2. Fixed Effect

In this study the data used is a combination of cross section data and time series data called panel data. The panel data is a group of individual data is examined during a certain span of time so that the data panel gives information of each individual in the sample observations. The advantage of using panel data (Gujarati 2003) i.e. :

a. In the data usage panel that includes cross section data in a certain span of time, vulnerable due to heterogeneity. Use of

data estimation techniques panel will take into account explicitly the heterogeneity.

b. Using a combination of data, will provide information, smaller kolineraritas level between variable and more efficient.

c. Use panel data minimising bias can be generated to aggregate the data of individuals into a larger aggregation.

d. In the panel data, variable will still describe other changes as a result of the use of time series data. In addition the use of unbalanced data will not reduce the sharpness of the estimation.

The general form of panel data can be written as follows (Asteriou on Muryanto, 2009:47) :

$$Y_{it} = \alpha + \beta X_{it} + \mu_{it} \quad \text{.....(2)}$$

$$Y_{it} = \beta_1 + \beta_2 X_{2it} + \beta_3 X_{3it} + \mu_{it} \quad \text{.....(3)}$$

Explanation :

Y_{it} : Dependent variable in the time of t and unit i

β : Constanta from independent variable in the time of t and unit i and uit

X_{it} : Set from independent variable in the time of t and unit i

i : Cross section

t : Time series

α : Constanta

μ_{it} : Error

To test the effect of DPK/ Third Party Fund, Profit Sharing, SWBI Bonus/ *Wadiah* Certificate of Bank Indonesia, NPF/ Non Performing Financing, ROA/ Return on Assets and CAR/ Capital Adequacy Ratio on the *Mudaraba* Financing of Sharia banks used regression analysis with panel data model. There are two approaches commonly used to estimate the regression model with panel data namely Fixed Effect and Random Effect. Before the model is estimated with an appropriate model, first is tested by using F test. The F test is performed as follows:

$$F\ table = F\ statistic$$

$$(\alpha; df(N-1, NT-N-K) = \frac{(R^2RE - R^2FE)/(N-1)}{(1-R^2RE)/(NT-N-K)}$$

Whereas R^2RE : R square from Random Effect Model, R^2FE : R squares from Fixed Effect Model, N : Number of Corporation (cross section), NT : amount of cross section x amount of times series, K : amount of independent variables.

If the result of F statistic is greater than F table then Ho is rejected which means that the right model used is Random Effect Model. Vice versa, if the F statistic is less than F table then Ho is accepted and used model is the Fixed Effects Model.

GLS method (Generalized Least Square) selected in this study because of the value that is owned by GLS in estimating regression parameters. According Gujarati in Irawan's research, GLS methods

consider heterogeneity that contained in the independent variable explicitly that this method can generate an estimator that meets the criteria BLUE (Best Linear Unbiased Estimator) (Irawan, 2012:45).

3. Analysis Model

The model used in this research was obtained from the equation (1) and (2) namely :

$$Y = \alpha + \beta_1 X_{1it} + \beta_2 X_{2it} + \beta_3 X_{3it} + \beta_4 X_{4it} + \beta_5 X_{5it} + \beta_6 X_{6it} + \mu_{it} \ldots (4)$$

Explanation :

Y : *Mudaraba* Financing

α : Costant

β_1-β_6 : Regression coefficient, that is the value of the changing bonded variable that is caused by the alternation of every free variable unit

X_1 : DPK (Third Party Funds)

X_2 : Profit Sharing

X_3 : Bonus SWBI

X_4 : NPF (Non Performing Financing)

X_5 : ROA (Return on Assets)

X_6 : CAR (Capital Adequacy Ratio)

μ_{it} : Value of residue (standard error)

Because the standard unit of *mudaraba* financing, DPK (Third Party Funds), Profit Sharing, and SWBI Bonus (*Wadiah* Certificate of Bank Indonesia) are in rupiah money currency, then the model must be transformed to the natural logarithm form. The transformation in

the natural logarithm form is also used to decrease the coefficient value that is created. This is also because the difference in the standard unit within each variable is large. While the standard unit date of NPF (Non Performing Financing), ROA (Return on Assets), and CAR (Capital Adequacy Ratio) are in percentage form, then the model not must be transformed to the natural logarithm form. Because of that, the regression model equation is changed into the following:

$$LnY = \alpha + \beta_1 LnX_{1t} + \beta_2 LnX_{2t} + \beta_3 LnX_{3t} + \beta_4 X_{4t} + \beta_5 X_{5t} + \beta_6 X_{6t} + \mu_{it} \quad \text{.....(5)}$$

Explanation :

Y : *Mudaraba* Financing

α : Costant

β_1-β_6 : Regression coefficient, that is the value of the changing bonded variable that is caused by the alternation of every free variable unit

LnX_1 : DPK (Third Party Funds)

LnX_2 : Profit Sharing

LnX_3 : Bonus SWBI

X_4 : NPF (Non Performing Financing)

X_5 : ROA (Return on Assets)

X_6 : CAR (Capital Adequacy Ratio)

μ_{it} : Value of residue (standard error)