CHAPTER III

RESEARCH METHODOLOGY

3.1. Type of Study

This Research was classified as a causal research. The purpose of this research was to examine the influence of macroeconomics factors toward bank efficiency. This research used inflation rate, interest rate and exchange rate for macroeconomics factors and for bank efficiency that used bills payable, fixed assets, and deposits plus borrowing from other financial institution as input and investment, loans, and zakat or CSR as output.

This research used qualitative approach by using data collection method on non probability sampling. The research instrument used DEA to get bank efficiency. The data for this research were obtained from annual report from conventional bank and sharia bank that consist of bills payable, fixed assets, deposits plus borrowing from other financial institutions, investment, loans, and zakat or CSR. For macroeconomics factors consist of inflation rate, interest rate, and exchange rate.

3.2. Population and Sample

Population is all object of research. The population used in this research was annual report of conventional bank and sharia bank in Indonesia.

Sample is the representative of population. The method used to get the sample in this research is Non-probability sampling. This method gave the same chance for every element of population to be sampled. The sample used in this research was annual report of every bank in Indonesia from 2007-2014.

3.3.Data Collection Method

The variable used in this research was technical efficiency based on under loan base approach as the output and income based approach as the input that was taken from annual report from 2007-2014 published by each bank through official website of each bank. The measurement of the efficiency of bank was taken from DEA (Data Envelopment Analysis) which was under loan based approach as the output and income based approach as the input. Macroeconomic factors was collected from the website of Bank Indonesia that was officially published.

3.4.Research Variable and Operational Definition

The variable used in this research was technical efficiency based on under loan based approach as the output and income based approach as

the input that was taken from annual report from 2007-2014 which was published by each bank through official website of each bank. The measurement of the efficiency of bank was taken from DEA (Data Envelopment Analysis) which was under loan based approach as the output and income based approach as the input.

A. Bank Efficiency

The measurement of the efficiency of bank was taken from DEA (Data Envelopment Analysis) which was under loan based approach as the output and income based approach as the input. DEA method used a software called DEAOS to calculate the efficiency of bank.

In the second stage, the researcher tried to analyze the correlation between macroeconomic factors and bank efficiency.

- Input

  In this research, variable input based on income based approach that consist of:

  ▪ Bills Payable

    Bills payable based on annual report of bank that consist of:

    o Tax payable

    o Payable to notary

    o Payable to insurance company

    o Another bank payable

- o Cost of financing facility given payable

- Fixed Asset

  Fixed asset based on annual report of bank that consist

  of:

  - o Land rights

  - o Building

  - o Installation

  - o Motor vehicle

  - o Office equipment

- Deposits Plus Borrowing from Other Financial

  Institution

  Deposits plus borrowing from other financial institution

  based on annual report of bank that consist of :

  - o Wadiah deposits

  - o Deposits from other banks

- Output

In this research, variable output based on under loan based

approach that consist of:

- Investment

  Investment based on annual report of banks consist of:

  - o Investment in marketable securities

  - o Temporary investment in shares

  - o Restricted investment

- o Unrestricted investment
- Loans

  Loans based on annual report of bank that consist of:

  - o Performing loan

  - o Non performing loan

- Zakat

  Zakat is a term used in Islamic finance to refer to the obligation that an individual has to donate a certain proportion of wealth each year for charity. Zakat is a mandatory process for Muslims in order to physically and spiritually purify their yearly earnings that are over and above what is required to provide the essential needs of a person or family.

- Corporate Social Responsibility (CSR)

  Corporate social responsibility is a company's sense of responsibility toward the community and environment (both ecological and social) in which it operates. Companies express this citizenship through their waste and pollution reduction processes, by contributing educational and social programs, and by earning adequate returns on the employed resources.

B. Inflation Rate

Calculating inflation rate requires a consumer price index or historical price records. The formula to calculate inflation rate is :

$$\text{Inflation rate} = \frac{(B-A)}{A} x \ 100\%$$

B = price on the latter date

A = Price on the earlier date

C. Exchange Rate

The data of exchange rate, could be found in Bank Indonesia website.

D. Interest Rate

To find the data of interest rate, could be found in Bank Indonesia website.

3.5.Data analysis

Data analysis was explained by describing the statistical analysis which was the way to describe the data that had been collected without intending to make the conclusion which was applied to public. The data were the mean, standard deviation, and variant.

a. **Time Series Regression**

Time series data were the data collected on the same observational unit at a multiple time period. This method was used to analyze the correlation between bank efficiency and macroeconomic factors. The formula of time series regression is like this:

$$BE = \alpha + \beta_1 INF + \beta_2 INTR + \beta_3 EXCHR$$

Where as:

BE = Bank Efficiency

β_1INF = Inflation Rate

β_2INTR = Interest Rate

β_3EXCHR = Exchange Rate

b. Partial Test (t test)

Partial test is a method to test the hypothesis by partial which is there is the influence of macroeconomic factors by partial to bank efficiency. The procedure for this test is:

- Determine the formulation of hypothesis

  $H_0 : \beta = \beta_0$ (X and Y did not had any influence)

  $H_1 : \beta > \beta_0$ (X and Y had positive influence)

- Determine α and t table

  $\alpha = 5\% (0.05)$

  The value of t table had free degrees

- Determine the criteria of testing

  H_0 was accepted (H_1 rejected) if p value > 0.05

  H_0 was rejected (H_1 accepted) if p value < 0.05

- Determine the value of statistical test

- Determine the conclusion

  It can be concluded that H_0 is accepted or rejected

c. Simultaneously Test (F test)

   F test was used to know about the influence of macroeconomic factors simultaneously to bank efficiency. This model was used to test the first hypothesis, which was to test the truth of time series regression. The procedure for this test was:

-   Determine the formulation of hypothesis

    $H_0 = X$ did not had the influence to Y

    $H_1 = X$ had the influence to Y

-   Determine α and F table

    $\alpha = 5\%$ (0.05)

    The value of F table had free degrees