

CHAPTER III

RESEARCH METHOD

3.1. Population and Sample

Population in this research are conducted on rural banks in Indonesia. Until September 2018, there were 1,598 rural banks that spread throughout Indonesia (Financial Services Authority, 2018). According to the Banking Act No. 10 of 1998, Rural bank are classified into three types, namely:

1. Rural Bank (Rural Credit Agency), consist of:
 - a. Village Bank
 - b. Village Granary
2. Rural Banks (Not Rural Credit Agency), consist of:
 - a. Rural Bank after LDKP
 - b. Market Bank
 - c. BKPD (*Bank Karya Produksi Desa*)
 - d. Employee Bank
3. LDKP (*Lembaga Dana dan Kredit Pedesaan*)

The technique used in this research is purposive sampling technique. The purpose of the purposive sampling technique is to get a representative sample with the specified criteria. The required sample of this research was carried out with the following criteria:

1. Rural banks registered in the Financial Services Authority and Indonesian Banks
2. Rural banks that publish their annual financial statements from 2013 until 2018.
3. The sample companies have complete data.

3.2. Data Collection

Based on observations by researchers from 1,598 rural banks in Indonesia, there are 76 rural banks that have assets of 25 billion rupiahs to 1 trillion rupiahs, and there are 50 rural banks that has published their data from 2013 - 2017. Which could be seen in the following table:

Table 3.2.1. Research Sample Selection

No	Description	Amount
1.	Total of Rural Bank	1.598
2.	Rural Bank (total asset 25 billion – 1 trillion)	76
3.	Rural bank with complete data	50
4.	Total sample	50

The following is a list of rural banks to be sampled based on the research criteria:

Table 3.2.2. 50 Rural Banks

No	Name of Rural Bank
1.	PT. BPR Surya Yudhakencana
2.	PT. BPR Dana Nusantara
3.	PT. BPR Utomo Manunggal Sejahtera Lampung
4.	PT. BPR Sri Artha Lestari
5.	PT. BPR Jawa Timur
6.	PT. BPR Hasa Mitra
7.	PD. BPR BKK Purwodadi
8.	PD. BPR Bank Jogja Kota Yogyakarta
9.	PD. BPR Bapas 69
10.	PT. BPR Delta Artha
11.	PD. BPR Bank Sleman
12.	PD. BPR BKK Purwokerto

13.	PT. BPR Indra Candra d/h MAI BP Indra
14.	PT. BPR Surya Yudha
15.	PT. BPR Gunung Slamet
16.	PT. BPR Sejahtera Batam
17.	PT. BPR Bhakti Daya Ekonomi
18.	PT. BPR Intidana Sukses Makmur
19.	PT. BPR Mentari Terang
20.	PT. BPR DP Taspen
21.	PD. BPR Bank Daerah Pati
22.	PD. BPR Bank Jepara Artha
23.	PD. BPR Serang
24.	PD. BPR Bank Boyolali
25.	PT. BPR Danamas Simpan Pinjam
26.	PT. BPR Cinde Wilis
27.	PD. BPR Bank Daerah Gunungkidul
28.	PT. BPR Shinta Daya
29.	PT. BPR Artharindo
30.	PT. BPR Gamon
31.	PD. BPR BP Kab. Temanggung
32.	PT. BPR Universal
33.	PD. BPR BKK Ungaran
34.	PD. BPR BKK Cilacap
35.	PT. BPR Rejeki Insani
36.	PD. BPR Bank Wonosobo
37.	PD. BPR BKK Kendal
38.	PT. BPR Bina Sejahtera Insani
39.	PD. BPR Bank Bantul
40.	PT. BPR Sukawati Pancakanti
41.	PD. BPR Bank Jombang
42.	PT. BPR Padma

43.	PD. BPR Bintang
44.	PT. BPR Angga Perkasa
45.	PT. BPR Universal Karya Mandiri Riau
46.	PT BPR Saudarakita
47.	PT. BPR Central Dana Mandiri
48.	PT. BPR Semarang Margatama Gunadana
49.	PT. BPR Pembangunan Nagari
50.	PT. BPR Citra Artha Sedana



3.3. Data and Source of Data

This research is classified as causal research. The purpose of this research is to examine the impact of the emergence of Fintech on rural bank. The data used in this research is quantitative data from secondary data in the form of data contained in the annual report of rural banks. Secondary data that is needed data from the annual report of rural banks in 2013 to 2018. Required data can be obtained from <https://www.ojk.go.id>, <https://www.bi.go.id>, and library research. In addition, document from rural banks is also needed in collecting the data, which is the data obtained from the various archives and documentation at rural banks website. The data obtained in this research are data on asset quality, liquidity, and profitability in rural banks (NPL, ROA, LDR, and NLTA). The data needed is the data contained in the research period. The variables of NPL, ROA, LDR, and NLTA were measured in a period of three years before the emergence of Fintech and three years after the emergence of Fintech. In 2016 was used as separator in the measurement, because of the emergence of Fintech seen from the Financial Service Authority which is giving a license to the Fintech company started in 2016.

3.4. Research Variable and Operational Definition

Operational definitions of variables are the terms of the variables that are used and must have an empirical reference (can be measured and calculated), and expressed in an operation that can be measured specifically. In this research, the variables used are:

3.4.1. Dependent Variable

The dependent variable is a variable that is influenced by the independent variable. In this study the dependent variable is:

1. Asset quality ratio

a. Non-Performing Loan (NPL)

NPL is used to assessing a bank's asset quality ratio by dividing the non-performing total/the total amount of outstanding loans

to total loans in the bank's portfolio. The amount of NPL is calculated as follows:

$$\text{NPL} = \frac{\text{Non-Performing Loans}}{\text{Total Loans}}$$

2. Profitability ratio

a. Return on Asset (ROA)

ROA is a ratio that measures the ability of banks to generate profits or earnings (can be called profitability) by comparing net income to resources or total assets. Its function is to see how effective banks in using its assets in generating revenue. The greater the value of ROA means the better the ability of banks to generate profits. The amount of ROA is calculated as follows:

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

3. Liquidity ratio

a. Loan to Deposit Ratio (LDR)

LDR is used to assess a bank's liquidity by dividing the bank's total loans by its total deposit. This number is expressed percentage. If the ratio is too high, it means that the bank may not have enough liquidity to cover any unforeseen fund requirements, and conversely, if the ratio is too low, the bank may not be earning as much as it could be. The amount of LDR is calculated as follows:

$$\text{LDR} = \frac{\text{Loans or Debts}}{\text{Deposits}}$$

b. Net Loan to Total Asset (NLTA)

NLTA measures the percentage of assets that is tied up in loans. NLTA is also another important ratio that measures the liquidity condition of the bank. Whereas Loan to Deposits is a ratio in which liquidity of the bank is measured in terms of its deposits, NLTA measures liquidity of the bank in terms of its total assets. That is, it gauges the percentage of total assets the bank has invested in loans (or financings). The higher is the ratio, the less the liquidity of the bank is. The bank with low NLTA is also considered to be more liquids compared to the bank with higher NLTA. However, high NLTA is an indication of potentially higher profitability and hence more risk. The higher the ratio, the less liquid the bank is. The amount of LDR is calculated as follows:

$$NLTA = \frac{\text{Net Loans}}{\text{Total Asset}}$$

3.3.2 Independent Variable

Independent variables are variables that determine the direction or a specific change in the dependent variable, or in other words the variables that explain or affect other variables. The independent variable in this research is the factors of the emergence of Fintech whether it has any influence on rural banks or not.

3.5. Normality test

The normality test aims to test whether in the regression model, the disruptive or residual variable has a normal distribution. A good regression model has normal or near-normal data distribution.

Kolmogorov Smirnov test aims to find out whether the data spread normally or not by making a hypothesis. Kolmogorov-Smirnov test is done by making a hypothesis:

H0: The residual data distribution is normal, if *sig. 2-tailed* > $\alpha = 0.05$

Ha: The residual data distribution is not normal, if *sig. 2-tailed* < $\alpha = 0.05$

The research data is said to be a normal distribution or meet the test of normality when:

Asymp. Sig (2-tailed) value of residual variable is above 0.05. Otherwise if

Asymp. Sig value (2-tailed) residual variable is below 0.05, then the data is not normally distributed or the data does not meet the normality test.

3.6. Hypothesis Testing

The method that will be used in this research is the average difference test with average or paired t-test. If the data in the study are not normally distributed, then the Wilcoxon Signed Rank Test will be used. This test is used where data is in pairs (not random). This test is often found in cases with one individual (Fintech), but is subject to two different behaviors. In this research, the different behaviors are before and after the emergence of Fintech.

3.5.1 Paired sample T test

Paired sample T test describes the variable before and after the emergence of Fintech. A paired sample t-test was conducted to compare the means of the 2013 to 2015 sample and the 2016 to 2018 sample.

Paired sample t-tests are used when data is normally distributed. Paired sample t-test is one of the testing methods used to assess the effectiveness of the treatment, marked by differences in the average before and average after the emergence of Fintech. The hypothesis of this test can be written as follows:

1. First Hypothesis Testing

Testing this hypothesis to determine whether there are differences in Non-Performing Loan from before and after the emergence of Fintech.

H_0 = there is no difference in NPL that is positive or negative, before and after the emergence of Fintech.

H_1 = there is a difference in NPL that is positive or negative, before and after the emergence of Fintech.

This research used a significance level of 5%, so if P Value < 0.05 then H_0 was rejected and H_1 was accepted.

2. Second Hypothesis Testing

Testing this hypothesis to determine whether there are differences in Return on Asset from before and after the emergence of Fintech.

H_0 = there is no difference in ROA that is positive or negative, before and after the emergence of Fintech.

H_1 = there is a difference in ROA that is positive or negative, before and after the emergence of Fintech.

Data from this third hypothesis is assumed to be normally distributed, since it used a paired sample t-test. If the data in this research is not normally distributed, the Wilcoxon Signed Rank Test was tested. If the test results using paired sample t-test, the significance level of 5% indicates P Values > 0.05 , then H_0 was accepted and H_1 was rejected, it means there is no difference from the LDR. So, Fintech does not affect ROA in rural bank.

3. Third Hypothesis Testing

Testing this hypothesis to determine whether there are differences in Loan to Deposit Ratio from before and after the emergence of Fintech.

H_0 = there is no difference in LDR that is positive or negative, before and after the emergence of Fintech.

H_1 = there is a difference in LDR that is positive or negative, before and after the emergence of Fintech.

Data from this third hypothesis is assumed to be normally distributed, since it used a paired sample t-test. If the data in this research were not normally distributed, the Wilcoxon Signed Rank Test was tested. If the test results using paired sample t-test, the significance level of 5% indicates P Values > 0.05 , then H_0 was accepted and H_1 is rejected, it means there is no difference from the LDR. So, Fintech does not affect LDR in rural bank.

4. Fourth Hypothesis Testing

Testing this hypothesis to determine whether there are differences in Net Loan to Total Asset Ratio from before and after the emergence of Fintech.

H_0 = there is no difference in NLTA that is positive or negative, before and after the emergence of Fintech.

H_1 = there is a difference in NLTA that is positive or negative, before and after the emergence of Fintech.

Data from this third hypothesis is assumed to be normally distributed, since it used a paired sample t-test. If the data in this research were not normally distributed, the Wilcoxon Signed Rank Test was tested. If the test results using paired sample t-test, the significance level of 5% indicates P Values > 0.05 , then H_0 was accepted and H_1 was rejected, it means there is no difference from the NLTA. So, Fintech does not affect NLTA in rural bank.

3.5.2 Wilcoxon test

Wilcoxon signed rank test is a non-parametric test used to analyze paired data because of two different treatments. Wilcoxon signed rank test is used if the data is not normally distributed. The basis for making the decision to accept or reject H_0 in the Wilcoxon signed rank test is as follows:

If the probability (Asymp.Sig) < 0.05 , then H_0 is rejected and H_a is accepted.

If the probability (Asymp.Sig) > 0.05 , then H_0 is accepted and H_a is rejected.

The test procedures for Wilcoxon signed rank test are as follows:

- a. Determine the hypothesis
- b. Determine the level of significant at 5% or 0.05
- c. Determine the testing criteria

H_0 is rejected if the probability value < 0.05 , it means there is differences in NPL, ROA, LDR, and NLTA before and after the emergence on Fintech.

H_0 is accepted if the probability value > 0.05 , it means there is no differences in NPL, ROA, LDR, and NLTA before and after the emergence on Fintech.

- d. Conclusions drawn based on hypothesis testing

