

# The Model of Financial Banking in Indonesia

Pranoto<sup>1</sup>, Udin Ahidin<sup>2</sup>, Ali Maddinsyah<sup>3</sup>

<sup>1,2,3</sup>Lecturer of Universitas Pamulang, Banten, Indonesia.

Correspondent Author : amarta.nandan@gmail.com

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## Abstract:

The purpose of this study is to explain in terms of effect the loan to deposit ratio (LDR), Non-Performing Loan (NPL), and Operating Expenses Against Operating Income (BOPO) on Earnings Banking proxies by Return on Assets (ROA). Non-Performing Loan (NPL), and Operating Expenses Against Operating Income (BOPO) on Earnings Banking proxies by Return on Assets (ROA). Data used in this study taken from the annual financial report of any commercial banks 2015-2019. Sample website taken from 10 total commercial banks with assets above 372.5 trillion in the period he used the technique 2015-2019. Analysis of model with random approach. The results showed the CAR variable have positive and significant impact on ROA, LDR variable have positive effect and no significant on ROA, NPL variable and BOPO variable have negative effect and significant on ROA. The predictive capacity of five independent variables on ROA amounted to 71.50% which indicated by R<sup>2</sup>, and the last of 28.50% is explained by other variables outside the research model.

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## I. INTRODUCTION

The research is repeated research of the study Pranoto (2017) titled determinant of profitability banking firms, but this research objects larger than previous studies, in all banks in Indonesia. Banking Industry have an important position for economics development as Financial Intermediary between investor and debtor. According with the Law of the Republic of Indonesia No. 10 of 1998 on banking in article 1 (3): "Commercial Bank is a conducting conventional business bank and or based on sharia principles in their activities providing services in payment traffic". Banking firm in Indonesia include state-owned banks, private national foreign exchange banks, private banks non-foreign national, regional development banks, joint venture banks and foreign banks.

Bank is an institution which acting as financial intermediaries (financial intermediary) between the parties who have the funds (surplus units) with the parties who need funding (deficit units)

as well as an institution that serves to expedite the flow of continuity payment. In addition, the bank also as an industry in its business activities rely on public confidence in the soundness of banks that should be maintained (Merkusiwati, 2007).

Based on this background of problems identification obtained as:

1. Capital Adequacy Ratio (CAR) can affect the Return on Assets (ROA).
2. Loan to Deposit Ratio (LDR) can affect the Return on Assets (ROA).
3. Non Performing Loan (NPL) can affect the Return on Assets (ROA).
4. Net and Ratio of Operating Expenses to Operating Income (ROA) can affect the Return on Assets (ROA).
5. CAMEL (Capital, Assets, Management, Earnings, Liquidity) can affect the Return on Assets (ROA).
6. ROA many companies as a measure of performance used especially banking company.
7. important corporate performance assessment carried out, either by management, shareholders, government, and other interested parties
8. Assessment of the performance of a bank can be done using analysis of financial statements.

9. For investors, in assessing the performance of a bank do not see bank profits in one perode alone, but see earnings change from year to year.
10. Profit is used as a basis for making investment decisions, and predictions to forecast changes in future earnings.
11. Predicted changes in the company's profit by using financial statement information is very important to be implemented.
12. Internal factors the company can be measured by financial ratios.
13. External factors also affect the performance of the company such as a country's economic policies.
14. Internal policies issued by the board of directors may influence the profits of a company's revenue.
15. One of the external factors that can be used is the interest rate that is issued by the central bank.
16. The power of prediction effect on the financial ratios ROA found to differ by several researchers.
17. From the results of previous studies, there are several variables that affect the bank's profit, but inconsistent results.

Based on the formulation of the problem, this study aimed to:

1. Knowing the biggest Capital Adequacy Ratio (CAR) partially affect the Return on Assets (ROA).
2. Knowing how big the Loan to Deposit Ratio (LDR) partially affect the Return on Assets (ROA).
3. Knowing how big the Non Performing Loan (NPL) partially affect the Return on Assets (ROA).
4. Knowing how big the ratio of Operating Expenses to Operating Income (ROA) partially affect the Return on Assets (ROA).
5. Knowing the Capital Adequacy Ratio (CAR), Loan to Deposit Ratio (LDR), Non Performing Loan (NPL), and the ratio of Operating Expenses to Operating Income (ROA) simultaneously or together affect the return on Assets (ROA).

## II. LITERATURE REVIEW

### Ratio Capital Adequacy Ratio (CAR)

According to regulation Bank of Indonesia, CAR (Capital Adequacy Ratio) is the ratio that shows how much the total assets of banks that contain risks (credit, investments, securities, bills on other banks) is also financed from its own capital in addition to obtaining

funds from the sources outside the bank. In line with the standards set by the Bank of International Settlements (BIS), to all banks in Indonesia are required to provide a minimum capital of 8% of risk weighted assets. (Mudrajad and Suhardjono, 2002).

Capital Adequacy Ratio is the ratio of capital that shows the bank's ability to provide funds for business development purposes as well as to accommodate the possibility of the risk of loss resulting from the bank's operations. The greater the ratio, the better the position of capital (Achmad and Kusuno, 2003).

Capital Adequacy Ratio (CAR) was calculated using the formula:  $CAR = \frac{\text{Capital (core capital + Supplementary capital)}}{RWA}$

RWA = Risk Weighted Assets

### Loan to Deposit Ratio (LDR)

LDR is a ratio which indicates the level of liquidity of bank. Also demonstrate the ability to carry out its intermediary function in the channeling of credit to a third party. Almilia and Herdiningtyas (2005) Loan to Deposit Ratio (LDR) is used to assess the liquidity of a bank by dividing the loan amount by the number of funds. Loan to Deposit Ratio (LDR) is a ratio which indicates the ability of a bank to provide funds to debtors with capital owned by banks and funds can be collected from the public. According Denda wijaya, Lukman (2003) Loan to Deposit Ratio (LDR) stating how far the bank's ability repay the withdrawal of funds by depositors by relying on loans as a source of liquidity. The higher the Loan to Deposit Ratio (LDR) gives indication of the low capacity of the relevant bank liquidity. This is because the amount of funds required to finance the larger credit. The amount of LDR follow the development of Indonesia's economic condition, and since the end of 2001 the bank is considered healthy if the magnitude of the LDR between 80% to 110% (Muljono, 1999).

In accordance with SE 6/23 / DPNP dated May 31, 2004 the amount of LDR of a bank is calculated by:  $LDR = \frac{\text{Loans}}{\text{Total Deposits}} \times 100\%$

### Non Performing Loan (NPL)

According Komang (2004), NPL ratio is used to measure the bank's ability to refute the risk of loan defaults by debtors. Credit risk is proxied by the non-performing loan (NPL) negatively affect the bank's financial performance proxied by return on assets (ROA). So if the greater the Non Performing Loan (NPL), will lead to decline in return on assets, which also means that the bank's financial performance declined. Vice versa, if the

non-performing loan (NPL) down, then the return on assets (ROA) will be increased, so the bank's financial performance can be said to be getting better. Thus, if a bank's high NPL conditions it would increase both the cost of provisioning costs of productive assets and other costs, so the potential for bank losses. Mathematically NPL can be formulated as follows (Kasmir, 2003):

$$\text{NPL} = \text{Total Loans} / \text{Total Loans Delinquent}$$

### **Operating Expenses to Operating Income (BOPO)**

BOPO is the ratio of operating expenses to operating income, the lower the level of BOPO ratio means the better performance of the bank's management, because the more efficient use of existing resources in the company. In addition, BOPO is also the ratio of operating expenses to operating income (Dahlan, 1995). Operating costs are costs incurred by the bank in order to carry out its activities, while operating income is any form of income earned from bank activities. BOPO ratio shows the efficiency in running the business substantially, especially credit based on the amount of funds collected.

Riyadi (2006) states BOPO is the ratio of operating expenses to operating income, the lower the level of BOPO ratio means the better performance of the bank's management, because the more efficient use of existing resources in the company. In addition, BOPO is also the ratio of operating expenses to operating income (Dahlan, 1995). Operating costs are costs incurred by the bank in order to carry out its activities, while operating income is any form of income earned from bank activities. BOPO ratio shows the efficiency in running the business substantially, especially credit based on the amount of funds collected. In the collection of funds, especially in the community required a fee in addition to interest charges. BOPO ratio calculation according to SE 6/23 / DPNP dated May 31, 2004 are: ROA: Operating Expenses / Operating Income x 100%

### **Return on Assets (ROA)**

ROA is the ratio between profit after tax (earnings after tax) against the total assets owned by the bank. The higher the ROA of a bank then the better the financial performance of the bank. ROA is a multiplying factor income net margin by asset turnover. Net income margin shows the ability to obtain profit from each sale created by the company, while the asset turn over indicates how much the company is able to create its creation assets. If these two factors increases, the ROA also increase means the company's profitability increased, its impact is to increase the confidence of shareholders and investors (Sud Husnan, 1998). By SE 6/23 / DPNP dated May 31,

2004 ROA can be calculated as follows:  
$$\text{ROA} = \text{Net Income} / \text{Total Assets} \times 100\%$$

Based on the above thinking framework, the hypothesis to be tested in this study are:

1. Capital Adequacy Ratio (CAR) partially positive effect on return on assets (ROA).
2. Loan to Deposit Ratio (LDR) partially positive effect on Asset Return (ROA)
3. Non Performing Loan (NPL) partially negatively affect the Return On Asset (ROA)
4. BOPO partially negatively affect the Return On Asset (ROA).
5. Capital Adequacy Ratio (CAR), Loan to Deposit Ratio (LDR), Non Performing Loan (NPL), and (ROA) simultaneously or together affect the Return on Assets (ROA)

### **III. METHODOLOGY/ MATERIALS**

The independent variables consist of CAR (X1), LDR (X2), NPL (X3), and BOPO (X4), and the dependent variable ROA (Y). Based on the picture, allegedly variables X1, X2, X3, and X4 affect Y. Under the influence of these variables, there are suspected of variable X dominant influence Y

This study will take objects banking companies listed in the Indonesia Stock Exchange. A population in a collection of individuals with qualities and characteristics - traits that have been established (Nazir, 2019: 240). Nazir also defines the sample as part of the population. Banking companies listing on the Indonesia Stock Exchange by December 31, 2019 a total of 41 companies.

In this study, samples will be taken by using purposive sampling method, the method of selecting samples with specific criteria (Emory & Cooper, 1999). This research sample criteria are:

1. The Company is listed on the Stock Exchange from 2015 until 2019.
2. Having Asset above Rp. 372.5 Trillion in 2019
3. Companies belonging to 10 companies with the largest assets according to Bank Indonesia in 2011 and the FSA in 2013.
4. Companies successively into the 10 companies with the largest Asset Cash magazine, Tribune, Compass and Viva.
5. The Company has made the publication of the financial statements with the full 31 December.

To test the strength of the variables determinant (CAR , LDR , NPL, BOPO) of the ROA , the model used in this research is panel data regression model (a combination of time series and cross section) with the help of the application program statistical computer Eviews 7.0 , Gujarati , (2008 : 213 ) argues that the panel data is a combination of periodic data (time series) and individual data (Cross Section) .

With panel data regression analysis has some advantages / advantages as mentioned by (Frankl , 2005: 18), among others :

1. Data panel is able to take into account the heterogeneity of individuals explicitly allowing individual specific variables .
2. The ability to control individual heterogeneity is further makes the panel data can be used to test and build a more complex behavioral models .
3. Panel data were based on the observation cross section repeatedly (time series), so that the panel data method is suitable for use as a study of dynamic adjustment.
4. The high number of observations have implications on the data more informative , more varied, colinearity between variables diminishing, and increased degrees of freedom or the degrees of freedom (degrees of freedom - df ), so that the estimation results can be obtained more efficiently.
5. Panel data can be used to study models of complex behavior.
6. Panel data can minimize the bias that may arise by aggregation of individual data.

Based on these advantages above , then the panel data model should not be performed classical assumption test, such as testing multikolinearitas, heteroskedasitas, autokolrelasi, and normality (Gujarati, 2003; Wibisono, 2005).

At panel data regression known three kinds of approaches (Gujarati, 2003) which consists of a least squares approach (pooled least square), fixed effects approach (fixed effect), and the approach of random effects (random effect) .

#### IV. RESULT AND FINDINGS

Significance of the influence of the independent variable on the dependent variable individually or partially. Statistical test F basically indicates whether all independent variables or free entry into the model have influence together on the dependent variable or dependent (Widodo, 2011: 98) F-test was shown to gauge

how much influence the dependent variable on the dependent variable (simultaneously or together)

Determenasi coefficient (R <sup>2</sup>) measures how far the ability of the model in explaining the dependent variable. Small determination coefficient describes the ability of the independent variables in explaining the variation of the dependent variable is very limited. (Ghozali, 2011)

Table 1

Conclusion Regression Model And Panel

No	Method of Testing	Testing	Results
1	F Test Restricted/ Uji Chow	PLS (Pooled Least Square) vs FEM (Fix Effect Model).	FEM (Fix Effect Model)
2	Lagrange Multiplier Test (LM)	Pooled Least Square (PLS) dan Random Effect Model (REM)	Random Effect Model (REM)
3	Haustman Test	Fixed Effect Model (FEM) vs Random Effect Model (REM)	Random Effect Model (REM)

Using estimates of Random Effects Model (REM) using Eviews 7.0 showed regression equation calculations for this model:

$$ROA = 0.081 + 0.0712CAR + 0.0031LDR - 0.2711NPL - 0.0812BOPO + e \dots$$

#### T-statistics Test

T-statistic testing was conducted to determine the level of significance of the independent variable on the dependent variable partially. This test is done by comparing the value t count with t-critical in the table or by comparing the probability value of t-statistic with a significance level. The assay used in this study was a test in one direction.

**H<sub>0</sub>** : Independent Variables no significant effect on the dependent variable

**H<sub>a</sub>** : Independent Variables significant effect on the dependent variable

Table 2

T-Statistic Test

Variabel Independent	Probability	H <sub>0</sub>	Keterangan

X1 = CAR	0.0015	Ho rejected	Significan at $\alpha = 0,01, 0,05$ dan $0,1$
X2 = LDR	0.5212	H0 accepted	Unsignifikan $\alpha = 0,05$
X3 = NPL	0.0214	H0 rejected	Significan at $\alpha = 0,01, 0,05$ dan $0,1$
X4 = BOPO	0.0001	H0 rejected	Significan at $\alpha = 0,01, 0,05$ dan $0,1$

Source: Data Processing

T Test results for the model are as follows:

#### 1. Variable CAR

The results obtained from the calculation of the t-statistic Probability value for the variable CAR is at 0.0015. This value is smaller than the significance level of 5% so H0 Rejected. This shows that in partial CAR significantly affect ROA, ceteris paribus.

#### 2. Variable LDR

The results obtained from the calculation of the t-statistic Probability value for the variable LDR is at 0.5212. This value is greater than the significance level of 50% so that H0 Accepted. This shows that in partial LDR influencing variables are not significant ROA, ceteris paribus.

#### 3. Variable NPL

The results obtained from the calculation of the t-statistic Probability value for the variable NPL amounted to 0.0214. This value is smaller than the significance level of 5% so H0 Rejected. This shows that in partial NPL ROA significantly affect, ceteris paribus.

#### 4. Variable BOPO

The results obtained from the calculation of the t-statistic Probability value for the variable ROA amounted to 0.0001. This value is smaller than the significance level of 5% so H0 Rejected. This shows that in partial BOPO significantly affect ROA, ceteris paribus.

### Overall Test (Test F-statistics)

F- test statistics used to measure whether the independent variables together significantly influence the dependent variable. Thus a significant F test would indicate that at least one independent variable has an influence on the dependent variable.

H0: Independent Variables together has no effect on the dependent variable

Ha: Independent Variables jointly affect the dependent variable

**Tabel 3**  
**F-Statistik Test**

Variabel Independent	Probability	H0	Keterangan
Probability F - Statistic	0.000000	H0 rejecte d	Significan at $\alpha = 0,01, 0,05$ dan $0,01$

Estimation results in the above table it is known that the F-Statistic Probability approaching 0 so H0 is rejected, which means at a significance level of 1%, 5%, and 10% of independent variables jointly affect the ROA (Return on Assets) significantly.

### The coefficient of determination (R2)

The strength of independent variables affect the dependent variable variation can be known from the value of the determinant coefficient (R2), the different between zero and one. R2 values between 0-1, which is getting close to 1 the model can be said to be good because the closer the relationship between the independent variables and the dependent variable, and vice versa.

From the estimation known the results of R-Square is 0.715010. This shows that the independent variables in the model is able to explain the dependent variable amounted to 71.50%, while the remaining 28.50% is explained by other variables outside the model.

### Analysis of Hypothesis

#### First Hypothesis

The results were obtained regression coefficient for the variable CAR at 0.0712 which means a positive effect on ROA. Thus every 1% increase in the LDR would lead to an increase ROA amounted to 0.0712% if the other variables constant. In addition, the probability value of 0,0013 where the value is less than 0.05. So in this case the effect of CAR on ROA is significant. The results showed that the greater the CAR, the ROA acquired bank will be even greater because of the greater CAR, the higher the ability of bank capital to maintain the possibility of a risk of loss of their business activities, but not necessarily significantly affect the increase ROA Commercial Bank. On the other hand, a high CAR of commercial banks can reduce the ability of banks to expand their business because of the amount of capital reserves that are used to cover the risk of losses. Inhibition of business expansion due to the high CAR, which in turn will affect the bank's financial

performance.

As it is known that the CAR is also commonly called the capital adequacy ratio, which means the amount of equity capital required to cover the risk of loss that may arise from the planting of assets that contain risks and finance all fixed objects and bank inventory. Accordingly, bank management needs to maintain or increase the value of BI CAR accordance with the provisions of at least 8% due to sufficient capital, banks can expand our business more safely.

Thus, the first hypothesis which states that the CAR has positive influence on ROA is acceptable. These findings support the results of Mawardi (2005) which shows that the effect of CAR partially positive effect on ROA. Mawardi (2005) using multiple linear regression method with the objective to analyze the influence of variables on ROA CAR. Research results are coefficients independent variable capital is proxied by the Capital Adequacy Ratio (CAR) of 0.001893 with a probability value of 0.120. It means that the CAR has positive influence on ROA but not significant.

### **Second Hypothesis**

From the table the results of the partial test (t test) between the LDR on profitability (ROA) shows that the coefficient for this variable is worth 0.0031, with 0.5403 probability value that can be interpreted that the influence exerted by the LDR variables on ROA is positive and insignificant, So the hypothesis which states that the positive effect on ROA LDR received.

Thus every 1% increase in loan to deposit ratio will result in increased Return on Assets amounted to 0.0031% if the other variables constant. LDR healthy a bank if this ratio ranges between 80% -110%, while the annual average LDR ranging from 80.49% to 88.6%. This is why in this study LDR which is a measure of the liquidity ratio does not give real influence in measuring the performance of the bank's profitability.

The results showed that the higher the Loan to Deposit Ratio (LDR) LDR higher indicates more risky bank liquidity conditions, otherwise the lower LDR indicates a lack of effectiveness of the bank in lending.

If the percentage of loans to deposits is between 80% - 110%, then the bank can be said to have a good level of profitability, so that the bank's financial performance is also good (Bank Indonesia, 2011). But noting that the loans disbursed healthy enough (assuming the bank is capable of lending effectively)., Because if the loans are not right then it will menjdai bad debts are causing the value of PPAP (penyisihan earning assets priduktif) meningkat and ultimately reduce profits. With decreasing profits, return on assets (ROA) will also

decrease, because profit is a component that forms the Return On Asset (ROA).

Thus the second hypothesis which states that LDR positive effect on ROA is acceptable. This finding is consistent with research conducted by Yuliani (2007) which says that the loan to deposit ratio (LDR) but not significant positive effect on return on assets (ROA). Using the same method, namely multiple linear regression on the banking sector to go public the period 2004-2007.

### **Third Hypothesis**

Based on the regression equation shown that the coefficient for this variable is worth -0.2711, so it can be interpreted that the influence exerted by the NPL variables on ROA is negative. Regression coefficient of -0.2711 means that every 1% increase in NPLs would decrease by 0.2711% ROA. From Table 4.7 which shows the results of the partial test (t test) between the NPL on profitability (ROA) showed a significance value of 0.0211 is smaller than 0.05. This means that the NPL variable partial effect on ROA significantly.

This condition implies the higher the value of NPL in commercial banks to go public influence reduced levels of ROA in the bank. That is because the value of Allowance for Earning Assets (PPAP) large enough so as to affect the ROA. Bank profits can still be increased by a high NPL because banks are still able to obtain a source of income not only of flowers but also of other income sources such as fee-based income also gives effect is high relative to the level of ROA.

Therefore, the hypothesis to the three states that NPL negative effect on ROA is acceptable. These findings are consistent with results of research conducted by Mawardi (2005) and Adyani (2011) which states that the Non Performing Loan (NPL) negative effect on ROA. Based on statistical tests were performed Adyani (2011), it is known that NPF negative effect on profitability (ROA) of the bank. Then the threat of non-performing loans of banks getting bigger and the small possibility of a bank in a healthy condition. A banking institutions should be able to minimize problem loans, so that the public trust will remain intact.

### **Fourth Hypothesis**

The independent variable compared with the Operational Costs Total Operating Income (ROA) has a beta coefficient of -0.0812 with profitability value of 0.001. This shows that BOPO statistically significant, so BOPO effect on Return On Assets (ROA). The minus sign beta coefficient of ROA indicates that the larger the ratio of operating expenses to total operating income will

decrease Return On Assets. The amount of beta coefficient of -0.0812 means that any increase in ROA of 1% would result in decreased Return On Assets amounted to 0,0753%, when other variables constant. This condition occurs due to any increase in operating expenses Bank, which is not accompanied by an increase in operating income of banks will result in reduced profit before tax, which in turn will lower Return On Assets.

Thus, the fourth hypothesis that negatively affect the ROA Return On Assets (ROA) is acceptable. This is consistent with previous studies conducted by Sudiyatno (2015), Mawardi (2005), Adyani (2011), and Yuliani (2007) which states that BOPO negative effect on Return On Assets. Using the same method, namely multiple linear regression method and with similar samples which commercial banks.

### Fifth Hypothesis

The estimation results in the table above study note that the F-Statistic Probability approaching 0 so  $H_0$  is rejected, which means at a significance level of 1%, 5%, and 10% of independent variables jointly affect the ROA (Return on Assets) significantly.

From the results of the estimation table known the results of R-Square of 0.6044. This shows that the independent variables in the model is able to explain the dependent variable amounted to 71.50%, while the remaining 28.50% is explained by other variables outside the model.

From the above results, the obtained results that the hypothesis of Capital Adequacy Ratio (CAR), Loan to Deposit Ratio (LDR), Non Performing Loan (NPL), and the ratio of Operating Expenses to Operating Income (ROA) together influence to Return on Assets (ROA) is proved.

### V. CONCLUSION

Based on data analysis and discussion of results, it can be concluded as follows:

1. From the results of the study show variable Capital Adequacy Ratio (CAR) positive and significant impact on the return on assets (ROA). The results showed that the greater the CAR, the ROA acquired bank will be even greater because of the greater CAR, the higher the ability of bank capital to maintain the possibility of a risk of loss of their business activities.
2. From the results of the study show variable Loan to Deposit Ratio (LDR) and not significant positive effect on return on assets (ROA). The higher the Loan to Deposit Ratio (LDR) showed more risky bank liquidity conditions. If the percentage of loans to deposits is between 80% -110%, then the bank can be said to have a good level of profitability, so

that the bank's financial performance is also good (Bank Indonesia, 2011). With increasing profits, return on assets (ROA) will also increase, because profit is a component that forms the Return On Asset (ROA).

3. From the results of the study show variable Non Performing Loan (NPL) a significant negative effect on Return On Asset (ROA). If the higher NPLs in the bank affects the reduced levels of ROA in the bank. That is because the value of Allowance for Earning Assets (PPAP) large enough so as to affect the ROA. Bank profits can still be increased by a high NPL because banks are still able to obtain a source of income not only of flowers but also of other income sources such as fee-based income also gives effect is high relative to the level of ROA.
4. From the research showed variable compared with the Operational Costs Total Operating Income (ROA) and a significant negative effect on Return On Assets (ROA). This condition occurs due to any increase in operating expenses Bank, which is not accompanied by an increase in operating income of banks will result in reduced profit before tax, which in turn will lower Return On Assets (ROA).
5. The results showed variable Capital Adequacy Ratio (CAR), Loan to Deposit Ratio (LDR), Non Performing Loan (NPL), and the ratio of Operating Expenses to Operating Income (ROA) jointly significant effect on Return on Assets (ROA). That is, any changes in the independent variables, namely CAR, NPL, LDR, and ROA simultaneously or together affect the Return On Assets (ROA).

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