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Research Article

Impact of Non-Performing Loans, Loan to Deposit Ratio and Education Diverstiy on Firm Performance of Indonesia Banking Sectors

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Abstract

The banking industry has a significant role in creating equity and supporting economic growth. However, the quantity of banks is increasing day by day, creating a tight gap, where lowers the performance of a bank because it is unable to compete in the market; so many banks are not healthy and even financially unhealthy. This study aims to determine the effect of Non-Performing Loans, education diversity and Loan to Deposit Ratio on Return on Assets in Conventional Banking listed on the Indonesia Stock Exchange for the period 2015 to 2019 as per the geographical location, as the effect of loans vary on the basis of geographical perspectives. The research method used in this study is quantitative with panel data. The technique used was purposive sampling to obtain a sample of 33 companies from a population of 41 companies. The data analysis technique used in this research is descriptive statistical analysis, the coefficient of determination test, the F test, and the t-test. Data processing used SPSS 20. The results showed that the Non-Performing Loan, the Loan to Deposit Ratio and education diversity simultaneously had a significant effect on Return on Assets. Partially, Non-Performing Loans have a significant negative effect on Return on Assets, and the Loan to Deposit Ratio has a significant positive effect on Return *on Assets. The return on assets and effect of loan were found to vary as per the geographical variations.*

Keywords

Non-Performing Loan; Loan to Deposit Ratio; Return on Assets.

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Introduction

The banking industry has a significant role in creating equity and also supporting economic growth (Abdul Hadi, Hussain, Suryanto, & Yap, 2018; Angelina & Nugraha, 2020). Where the government together with related stakeholders must continue to coordinate with each other to ensure that the direction of the policies to be carried out can be right on target (Mulyani, 2016). So far, the Indonesian banking industry is seen as the best in the world, this is due to many factors, one of which is that Indonesian banking has an advantage in the Capital Adequacy Ratio (Harinowo, 2018) . Because of this, the banking industry is considered to have followed the government's invitation to grow better (Kristiyana, 2018; Ritter, 2012). The quantity of banks is increasing day by day, thereby creating increasingly fierce competition, this can lead to lower bank performance as a result of their inability to compete in the market, therefore many banks are unhealthy or financially unsound. Even though Bank Indonesia has determined that banks must always maintain their performance to remain optimal and must also maintain a healthy level in a good condition (Meilawaty, 2016; Nayan, MOHMADISA, HANİFAH, YAZID, & BALKHIS, 2020).The ratio of non-performing loans or known as bad credit is still a major problem in the Indonesian banking sector. Because of the frequent high number of bad credit, it becomes a bank failure in identifying which debtor decisions are appropriate and able to be given a loan (Eneng Trisnawati Dewi & Srihandoko, 2018). Another thing is because the Indonesian economy is affected by an uncertain global economy and an unstable exchange rate. According to the Financial Services Authority (OJK), the gross non-performing loan ratio increased by 2.59% from 2.56%, as well as the net non-performing loan ratio, which increased by 1.17% from 1.13%. This increase occurred due to the treatment of the restructured loan.

The liquidity of the banking sector is getting tighter because the *Loan to Deposit Ratio* reaches 94.3% which must be watched out for. After all, it has passed the safe limit set by Bank Indonesia and also the Financial Services Authority (OJK). Tight liquidity can be caused by higher credit growth than third-party funds (Damayanti, 2018; Erdil-Moody & Thompson, 2020; Torun, 2020). The high *Loan to Deposit Ratio* will show the risky condition of a bank's liquidity. Because with an increase in the *Loan to Deposit Ratio*, interest income also increases, which means that there is an indication of an increase in profit growth which is getting bigger due to increased probability (Santoso, 2016)

Figure I. Return on Assets in Conventional Banking in Indonesia which is listed in Indonesia Stock Exchange 2015-2019 period.

Based on Figure 1 above, the profitability ratio of assets, namely the Return on Assets of banks, has fluctuated. According to the Financial Services Authority (OJK) in the banking industry due to an increase in the ratio of non-performing loans, banks need to increase their reserve costs. However, when viewed in detail, according to the Indonesian Banking Statistics (SPI) the decline in Return on Assets was driven by three factors. First, interest rates have continued to decline in line with global conditions, making it difficult to raise interest rates on credit. Second, the regulatory burden is considered burdensome for banks, so they have to set aside some of their assets, especially liquid ones. Third, high credit risk, even though the credit ratio has decreased slowly, but it still has to deal with credit that is at risk of becoming problem credit. Return on assets of a bank will affect the level of public trust, if it has a high value, it means that the banking performance is good, thereby also affecting the increase in the Loan to Deposit Ratio so that banking operations can run smoothly (Caliskan & Zhu, 2020; Pinasti & Mustikawati, 2018). And also. Return on assets in banking cannot be separated from the macro context, where the economic downturn is very influential due to falling world commodity prices.

Literature Review

Non-Performing Loan (NPL)

Non-Performing Loan is defined as a loan that is difficult to repay due to deliberate or external factors that are beyond the ability of the debtor but can be measured from its collectability. According to (Hariyani, 2010) this ratio of non-performing loans shows the ability of bank management to manage non-performing loans provided by banks. So the higher the ratio, the worse the quality of a bank will be, where the possibility of a troubled bank is also getting bigger. Non-Performing Loans can be calculated using the formula:

$$NPL = \frac{Total\ non - performing\ loans}{Total\ Loans}\ x\ 100\%$$

Based on Bank Indonesia regulation number 18/14/PBI/2016 of 2016 concerning amendments to Bank Indonesia regulation 15/15/PBI/2013 of 2013, concerning Commercial Banks' Minimum Statutory Reserves in Rupiah and Foreign Currency for Conventional Commercial Banks which states that banks must meet the Non -Performing Loan, total gross credit is less than 5%.

Loan to Deposit Ratio (LDR)

According to Pandia (2012), the Loan to Deposit Ratio states how far a bank has used depositors' money to provide loans to its customers. The Loan to Deposit Ratio can be calculated using the formula:

$$LDR = \frac{Credit}{Third\ Party\ Fund}\ x\ 100\%$$

Based on Bank Indonesia regulation number 18/14/PBI/2016 of 2016 concerning changes to Bank Indonesia regulations 15/15/PBI/2013 of 2013, concerning the Minimum Statutory Reserves Commercial Banks in Rupiah and Foreign Currency for Conventional Commercial Banks, which states that the lower limit of the Loan to Deposit Ratio is 80% and the upper limit of the Loan to Deposit Ratio is 92%

Return on Assets (ROA)

According to (Amalia, 2021; Kasmir, 2014; Nugraha, Ramadhanti, & Amaliawiati, 2021) The term "return on assets" refers to a company's ability to make a profit from its total assets. Among the various profitability ratio, the Return on Assets (ROA) is the most essential (Nugraha, Herlambang, Nugraha, & Amalia, 2020; Nugraha & Susyana, 2021; Sumantri, 2021). The formula for calculating return on assets is as follows:

$$Return\ On\ Assets\ = \frac{Net\ Profit\ After\ Tax}{Total\ Assets} x\ 100\%$$

Thinking Framework and Hypotheses

A framework that contains the dependent variable Return on Assets (ROA) and the independent variable of financial ratios, which consists of the Non-Performing Loan Ratio and the Loan to Deposit Ratio based on existing theory and research.

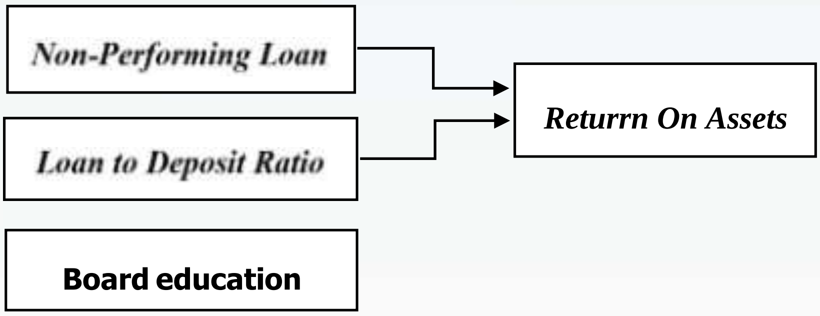

Figure 2 Thinking Framework

Effect of Non-Performing Loans on Return on Assets

Non-Performing Loans are included in the three categories of credit quality, namely loans with non-current quality, credit with doubtful quality, and credit with bad quality. Non-Performing Loans occur when a customer is no longer able to pay a loan or credit given by a bank, so the bank must accept the risk of loss, therefore there is uncollectible credit. The emergence of Non-Performing Loans makes banking companies lose their opportunity to obtain income from loans given to customers, thus affecting the urban village in earning profits, therefore banks must increase their allowance for reserves for productive assets, and funds will affect reducing bank capital. This makes Return on Assets decrease so that the return on assets in cash will decrease. In his research (Ambarawati & Abundanti, 2018; Aminar Sutra Dewi, 2018) that Return on Assets is significantly affected by Non-Performing Loans. However, contrary to the research owned by (Pinasti & Mustikawati, 2018)that Return on Assets is not significantly affected by Non-Performing Loans.

H_1: For the period 2015-2019, non-performing loans have an impact on Return on Assets in Conventional Banking listed on the Indonesia Stock Exchange.

The effect of the Loan to Debt Ratio on the Return on Assets

The loan-to-debt ratio demonstrates how a bank uses depositors' funds to provide loans to third parties or customers. Therefore, the credit provided by the bank is a fund that comes from public deposits. Banking assets are monies collected from the public in the form of deposits such as time deposits, demand deposits, and savings. Then the bank will distribute loans in the form of credit. The credit will be paid by the customer in installments containing principal installments plus loan interest, where the loan interest is one of the income for banks. The more funds collected from the public by banks, the higher the credit that will be given to people who need funds by banks, so that bank interest income will increase, as well as bank profits that will also increase. An increase in the Loan to Debt Ratio will influence the ability of banks to increase profits or their Return on Assets when an increase in interest and pockets of debt is paid, it will affect an increase in Return on Assets in the form of cash on asset returns. In his research (Ambarawati & Abundanti, 2018; Erturk & Ziblim, 2020) that the Loan to Deposit Ratio positively and significantly affects the Return on Assets. However, contrary to research owned by (Fajari & Sunarto, 2017) that Return on Asset is not influenced by the Loan to Deposit Ratio.

H_2: For the period 2015-2019, the Loan to Debt Ratio has an impact on Return on Assets in Conventional Banking listed on the Indonesia Stock Exchange.

Educational Diversity and Return on Assets

Bathula supports the result (2008). (Bathula, 2008) studies the diversity of education with specific links to and impact on company performance between board members with PhD holders.He used samples, consisting of BODs, for four years from 2004 to 2007, from 156 listed companies in the New Zealand Stock Exchange. Results reveal that in relation to the number of doctoral candidates on the board they are adversely affected by the performance of the company and even by research and analysis knowledge and skills, PhD members do not add any value to the performance of the company. In addition, the link between educational diversity and business performance is weak for (Bhagat et al., 2010). Data on education of 1800 individuals who served as CEOs of Standard and Poor's Composite 1500 companies were analysed to determine the effects of training on the sales of CEOs and the performance of businesses. There is no clear evidence of the connection between education and corporate performance of directors (CEOs). Moreover, the result is weak and, probably, statistically insignificant even if the leadership of a CEO holding an MBA from a top 20 business school is proof (Ahmad & Bin Mohammad, 2019; Ahmad, Bin Mohammad, & Nordin, 2019; AHMED, RIAZ, AQDAS, & HASSAN, 2021).
H3: The education diversity had a significant association with return on assets

Research Method

A quantitative technique employing panel data was used in this study (Nugraha & Susanti, 2019; Susanti, Widajatun, Aji, & Nugraha, 2020). The quantitative method is a method of testing a particular theory by examining the relationship between the variables (Amalia, Fadjriah, & Nugraha, 2020; Nariswari & Nugraha, 2020; Nugraha, Herlambang, et al., 2020; Ritter, 2012; Susanti et al., 2020). Quantitative is data in the form of numbers which is an indicator of the effect of asset growth on 33 conventional banks in Indonesia, namely data on Return on Assets, Loan to Debt Ratio, and Non-Performing Loans. The combined cross-section and time-series data are called panel data. Time series data is a collection of data that is collected over time, namely 2015 to 2019, and cross-section data is a collection of several banks following predetermined criteria.
Sources of research data used are secondary data. According to (Nugraha & Susanti, 2019; Qotrotul, Adnansyah, & Nugraha, 2021; Ridhwan & Nugraha, 2020; Sekaran & Bougie, 2016) Secondary data is information gathered from current sources that are used to create new data. This secondary data is in the form of financial report notes and also annual reports of banking in Indonesia which are obtained through observation and access to the internet via the official website, namely https://www.idx.co.id/.
According to (Nugraha, Johanes, & Hendiarto, 2021; Sugiyono, 2017; V. Widajatun, Rahmadzikrishafira, Nugraha, & Susanti, 2020) a population is a generalized area made up of things or persons with a specific quantity and set of characteristics that researchers have determined to examine and derive conclusions. The population of this study consisted of 41 conventional banking companies that were listed on the Indonesia Stock Exchange (IDX) from 2015 to 2019. Purposive sampling was utilized to collect samples in this investigation, where there are reasons why not all populations can be sampled (Nugraha, Damayanthi, & Nugraha, 2020; Nugraha, Hakim, Fitria, & Hardiyanto, 2020; Octavia, 2020). Because not all banking companies publish their financial reports or annual reports in a certain year Then a sample of 33 companies can be obtained from a population of 41 companies.
The descriptive statistical analysis, multiple regression test, determination coefficient test, F test, and T-test were utilized to analyze the data in this study (Solihah, Budiawan, & Nugraha, 2021; V. W. Widajatun, Nugraha, & Ichsani, 2019). Descriptive statistical analysis is a statistic to analyze data by describing existing data (Nugraha, Herlambang, et al., 2020; Nugraha & Susanti, 2019). Descriptive statistics themselves are used to describe data so that it becomes clear information, can be easily understood and shows the relationship between the independent variables(Nugraha & Hapsari, 2018) (Nuryaman & Veronica, 2015; Zulganef & M.M., 2018). According to (Nugraha, Hakim, et al., 2020) (Ghozali, 2011) the purpose of descriptive statistical analysis is to describe data in the form of mean, minimum, maximum, and standard deviation.
The multiple regression test according to (Ayunitha, Sulastri, Fauzi, Sakti, & Nugraha, 2020;

Nugraha, 2021; Suciaty, 2019) is to get a broad picture of the effect of the independent variable on the dependent variable, which has a one-way relationship, namely the impact of non-performing loans and the Loan to Deposit Ratio on Return on Assets. The following is the formula for a multiple regression equation:

$$\mathbf{Y = \alpha + b_1X_1 + b_2X_2 + b_3X_3 + e}$$

Description :

Y = Return on Assets

α = Constant

b_1-b_2 = Coefficient of independent variable regression

X_1 = Non-Performing Loan

X_2 = Loan to Deposit Ratio

X_3 = education diversity

e = Error

Test determination coefficient R^2 by (Ayunitha et al., 2020; Ghozali, 2011) was used to measure how the model's ability to explain the dependent variable. The coefficients of determination have values of zero and one, respectively. If the value of R^2 is small, very limited means of independent variables to explain the variation that is owned by a dependent variable. But if the value of R^2 close to one, meaning that the independent variable can account for nearly all of the data used to predict the dependent variable (Firdaus, Suryadi, Govindaraju, & Samadhi, 2012; Nugraha, Widajatun, & Rozak, 2019).

According to (Ghozali, 2011; Nugraha, Sulastri, Nugraha, Puspitasari, & Putra, 2020), the F test is to figure out how the independent variable affects the dependent variable simultaneously. The significance level is 5% or 0.05 and degrees of freedom (nk) where n refers to the total number of samples; k is the number of variables (Aji, 2020;) (Nugraha, Anwar, Priadana, & Firdaus, 2017). The test decision is rejected if $\alpha > 0.05$ and the decision is accepted if $\alpha < 0.05$ (Florensia & Susanti, 2020; Nugraha, Nugraha, & Sapitri, 2020)

The T-test is used to determine the independent variable's partial influence on the dependent variable by determining each variable's hypothesis (Taohid, Sujai, & Nugraha, 2021; Wijaya & Nugraha, 2020). Where H_0: the dependent variable is not partially influenced by the independent variable, and H_a: the dependent variable is partially influenced by the independent variable (Puspitasari, 2021; Qotrotul et al., 2021). The test decision in the T-test has 2 conditions. First, the terms of the comparison of t-count and t-table, the decision to test H_0 is accepted if t-count > t-table, the decision to test H_0 is rejected if t-count < t-table. Second, the level of signification 5% or 0.05 and degrees of freedom (nk) where n is the number of samples; k is the number of variables, the H_0 test decision is accepted if the significance level is > 0.05, the H_0 test decision is rejected if the significance level is < 0.05.

Results and Discussion

Descriptive Statistical Analysis

Table 1
Descriptive Statistical Results

	N	Minimum	Maximum	Mean	Std. Deviation
NPL	165	0.00	1016.00	260.4788	196.89107
LDR	165	78.00	14526.00	5935.9879	3924.99866
ROA	165	-1589.00	506.00	69.7030	213.34677
ED	165	1673.	504	79.7030	313.34677

(**Source:** SPSS Processed Data, 2021)

Based on Table 1.Descriptive Statistics Results above, statistical data can be shown mean and standard deviation of the variables Return on Assets, Loan to Deposit Ratio, and Non-Performing Loan in conventional banks listed on the Indonesia Stock Exchange for the period 2015 to 2019. Average Non-Performing Loans (NPL) in registered conventional banks on the Indonesia Stock Exchange is 260.4788 with a standard deviation of 196.89107. Then, the average Loan to Deposit Ratio (LDR) in conventional banking listed on the Indonesia Stock Exchange is 5935,9879 with a standard deviation of 3924.99866. And, the average Return on Assets in conventional banking listed on the Indonesia Stock Exchange is 69.7030 with a 213.34677 standard deviation.

Test of Multiple Regressions

Table 2
Results of Multiple Regression Tests

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	71 450	34 378		2078	0.039
	NPL	-0.223	0.084	-0.205	-2664	0.009
	LDR	0.174.02	0.004		2,260	0.009
	ED	0.323	0.074	0.405	2664	0.008

Source: Processed Data SPSS, 2021)

Based on Table 2.The multiple regression equation can be calculated using the results of the above Multiple Regression Test:

$$\mathbf{Y = 71.450 - 0.223X_1 + 0.009X_2 + 0.323X_2 + e}$$

Then it can be explained using the multiple regression equation above as follows:
The constant value of 71.450 states that if there is no non-performing Loan and Loan to Deposit Ratio, then the Return on Assets will be positive at 71,450. The regression coefficient for the variable is Non-Performing Loan -0.223, where the negative sign is a unidirectional relationship, so it can be stated that with every 1% increase in Non-Performing Loans, the Return on Assets will decrease by 0.223. The variable regression coefficient is Loan to Deposit Ratio 0.009, where the positive sign is a unidirectional relationship, so it can be stated that with every 1% increase in Loan to Deposit Ratio, the Return on Assets will increase by 0.009.

Test the coefficient of determination (R^2)

Table 3
Results the coefficient of determination (R^2)

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	0.247[a]	0.061	0.050	207.99781

(Source: SPSS Processed Data, 2021

The results of the coefficient of determination (R^2) are shown in Table 3. above, can be seen in the analysis of the correlation value R is indicated for the connection between the independent and dependent variables. The R-value is 0.247, which means that there is a moderate relationship between the Non-Performing Loan and Loan to Deposit Ratio variables with the variable Return on Assets because the value is close to +1. And the R Square value is 61%, which means that the influence of the Loan to Deposit Ratio and Non-Performing Loan variables on the variable Return on Assets has a contribution of 61%, meanwhile, other variables that were not studied affected by 39%

Hypothesis Test

Simultaneous (Test F)

Table 4
Results of F Test

Model		**Sum of Squares**	**df**	**Mean Square**	**F**	**Sig.**
1	Regression	456142,148	2	228071,074	5,272	0.006b
	Residual	700 8620,300	162	43263,088		
	Total	7464762,448	164			

Source: SPSS Processed Data, 2021)

The results of the F test are as shown in Table 4. above, it can be shown that the Sig. 0.006 < 0.05. So it can be concluded that the Return on Assets is significantly affected by the Non-Performing Loans and the Loan to Deposit Ratio simultaneously.

Partial (t-test)

Table 5

T-Test Results

Model		**Unstandardized Coefficients**		**Standardized Coefficients**	**t**	**Sig.**
		B	Std. Error	Beta		
1	(Constat)	71 450	34 378		2078	.039
	NPL	-.223	.084	-.205	-2664	.009
	LDR	.174.025	.004		2,260	.009

(**Source:** Processed Data SPSS, 2021)

The results of the t_{test} are as shown in Table 5. above, it can be shown that the significance value t_{count} Non-Performing Loans are 0.009 < 0.05, which means that Return on Assets is partially negatively affected by Non-Performing Loans. And the significance value t_{count} Loan to Deposit Ratio of 0.025 < 0.05, which means that Return on Assets is significantly positively influenced by the partial Loan to Deposit Ratio

Conclusions and Recommendations

Conclusion

Based on findings from studies on the impact of Non-Performing Loans and the Loan-to-Deposit Ratio on Return on Assets, it can be concluded that in the F test the Sig. 0.006 < 0.05 for the period 2015 to 2019, the Non-Performing Loan and the Loan to Deposit Ratio simultaneously had a significant effect on Return on Assets in conventional banks listed on the Indonesia Stock Exchange. Meanwhile, the variable Non-Performing Loan in the t-test shows the regression coefficient is -0.223, which means that each increase in Non-Performing Loans can reduce Return on Assets, and the significance value of $t_{count\ is}$ 0.009 < 0.05 so that partially Non-Performing Loans show that it has a significant negative effect on Return on Assets in banking listed on the Indonesia Stock Exchange for the period 2015 to 2019. This occurs because Conventional Commercial Banks still have activities in channeling credit funds as well as other commitments which are the biggest risks so that they can harm their profitability represented by Return on Assets. However, on the other hand, interest income from lending is the largest share of the revenue for Conventional Commercial Banks, so this interest income can increase profits or profitability represented by Return on Assets. The findings of this investigation support the research belonging to (Aminar Sutra Dewi, 2018)that Return On Assets is significantly affected by Non-Performing Loans. But contrary to the research owned by Pinasti (2018) that Return On Assets is not significantly affected by Non- Performing Loans.

Then the variable Loan to Deposit Ratio in the t-test shows a regression coefficient of 0.009, which means that any increase in the Loan to Deposit Ratio can also increase the Return on Assets, and the significance value of t_{count} is 0.025 < 0.05 so that partially the Loan to Deposit Ratio shows that it has a significant positive effect on Return on Assets in conventional banking listed on the Indonesia Stock Exchange for the period 2015 to 2019. This occurs because the source of banking income includes the difference between loan interest and deposit interest. If the distribution of credit funds increases, therefore banks have the potential for a higher interest rate of return. However, excessive lending of funds can increase the risk to these banks. So that banks have to be selective in channeling credit funds, because credit in addition to providing benefits for banks such as lending funds and interest income, but can also have high risks such as bad credit or non-performing loans. The results of this study support the research belonging to (Ambarawati & Abundanti, 2018) that Return on Assets is positively and significantly affected by the Loan to Deposit Ratio. However, it is contrary to the research owned by (Fajari & Sunarto, 2017)that Return on Assets is not affected by the Loan to Deposit Ratio.

Suggestions

Based on the above conclusions that have been described, the researcher can provide some suggestions while keeping in mind the study's limitations. For Conventional Banking in Indonesia, to pay attention to profitability, especially those related to banking assets, and also to take advantage of assets already owned, which indirectly can provide a healthy banking performance. If the assets that are owned are too many, it will affect the capital that is too high and will depress the bank's profit, as well as the assets that are too low, will have an effect on decreasing and even loss of sales, causing profitability to decrease. Besides, it is also to pay more attention to maintaining credit risk, because the research results show that the required Return on Assets is significantly negatively affected by the Non-Performing Loan variable, and must maintain the stability of the Bank's Loan to Deposit Ratio so that it is not too low but not too high either as determined by the Financial Services Authority (OJK) and Bank Indonesia which have determined the liquidity limit of a bank is between 75% < ratio ≤ 100%. For investors, it is advisable to choose to invest in banks that have non-performing loans low because they have low credit risk, but besides that, they also need to pay attention to the value of the Loan to Deposit Ratio, because investors themselves have the goal of maximizing profits from their investment. For researchers or academics, the number of other independent variables incorporated in banking financial ratios such as Net Interest Margin, Operational Opinion Cost of Operations, Capital Adequacy Ratio, and others should be increased. It is hoped that it can reconsider or reflect the effect of banking financial ratios on overall profitability, or use a longer period, because the longer the research period, the higher the maximum percentage of outcomes that can be obtained.

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