



The Effect of LDR, NPL, and NIM on Profitability in Conventional Commercial Banks on IDX

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ARTICLE INFO

Keywords: LDR, NPL, NIM, Profitability

Received: 12 June

Revised: 17 July

Accepted: 20 August

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ABSTRACT

Banks are monetary mediators whose work is to gather reserves from the open and convey these reserves to the open. Banks must generate profits from the primary and supporting activities to ensure long-term sustainability and optimize profitability. This study aims to analyze the effect of Loan Deposit Ratio (LDR), Non-Performing Loan (NPL), and Net Interest Margin (NIM) on profitability proxied by the ROA ratio. This research is quantitative in the form of associative. The research population is all conventional commercial banks on the Indonesia Stock Exchange during the observation year 2018-2022, totalling 43 companies. The research sample was obtained from as many as 27 companies based on purposive sampling. The data analysis technique used is panel data multiple linear regression analysis with the help of the EViews 12 program. The results showed that LDR had no significant effect on profitability. NPL has a negative and significant effect on profitability. NIM has a positive and significant effect on profitability

INTRODUCTION

The managing an account division is one of the segments that can multiply and back the national economy whereas playing a noteworthy part in national improvement. Law of the Republic of Indonesia Number 10 of 1998 concerning Corrections to Law Number 7 of 1992 concerning Keeping money clarifies that a bank could be a trade entity that collects stores from the open within the frame of stores and conveys them to the open within the shape of credit and or other shapes in arrange to progress the lives of numerous individuals. Banks are required to generate profits from leading and supporting activities (Putra & Rahyuda, 2021). Therefore, banks must maintain their performance to remain healthy (Susilawati et al., 2022).

Bank Health is depicted as the capacity of a bank to carry out its operational exercises more often than not and satisfy all commitments by appropriate directions (Rahayu et al., 2024). The appraisal of the Health level of banks is controlled in POJK No. 4/POJK.03/2016 concerning the Evaluation of the Health Level of Commercial Banks and emphasized through the OJK SE No. 14/SEOJK.03/2017. An assessment of the bank's health level can be done by looking at the bank's performance through financial statements (Soetjiati & Mais, 2019). The financial performance of banks can be measured using profitability ratios.

One of the ultimate goals that a company wants to achieve is to obtain maximum profits (Kasmir, 2019, p. 198). Banks use profitability metrics as a benchmark in assessing how effective and efficient a bank's performance is in generating profits from its assets (Anggreningsih & Negara, 2021). Generally, profitability can be measured using financial ratios consisting of ROA and ROE (Saputri et al., 2024). However, this study will use ROA as a dependent variable for further analysis.

The selection of ROA as the study's dependent variable refers to several reasons that indicate that it is better to use ROA in assessing profitability in the assessment of banks' financial performance (Wakid et al., 2022). Bank Indonesia says ROA is a more critical bank ratio (Dwiningtyas & Yoewono, 2023). Usually since Bank Indonesia emphasizes the esteem of a bank's productivity as measured by resources, most of which come from open stores, so ROA is more agent in measuring a bank's productivity level (Rosa & Murni, 2023).

Table 1. Average Movement of ROA of Conventional Commercial Banks on the IDX for the Period 2018-2022 (Percent)

Ratio	2018	2019	2020	2021	2022	Average
ROA	(2,574)	0,657	0,344	(0,003)	0,882	(0,139)

Source: Data Processing, 2023

Table 1 shows that the performance of conventional commercial banks on the IDX for the 2018-2022 period measured using the ROA ratio experienced fluctuating average movements. If examined again, this fluctuating condition indicates that the bank's ability to generate profits through total assets tends to be influenced by financial ratio factors. Research conducted by Santoso (2021),

Ken & Santioso (2022), and Meidawati et al. (2024) found that there is a determination of profitability seen from financial ratios, including LDR, NPL, BOPO, NIM, and CAR. Based on empirical studies, inconsistent results have been seen in the influence of the LDR, NPL, and NIM ratios on profitability proxied by ROA.

LDR may be a proportion that measures the bank's capacity to satisfy money related commitments that must be satisfied utilizing credit continues gotten from intrigued charged on stores, expecting there are no awful advances (Rahma & Sutrisno, 2023). The comes about of the investigate conducted by Wahyu (2021) appeared that LDR influences productivity proxied by ROA. The discoveries are upheld by investigate conducted by Joyful et al. (2022) and Iqbal et al. (2023), which found that LDR essentially influenced productivity. In contrast to the research conducted by M. A. Putri & Tristiarto (2022), Fadhilah & Masdjojo (2023), Nurinfiaa & Damayanti (2023), Rosa & Murni (2023), Meidawati et al. (2024), and Saputri et al. (2024) which states that LDR did not affect profitability.

NPL is when the customer cannot pay part or all of the obligations to the bank as promised (Dwiningtyas & Yoewono, 2023). Previous research conducted by Sukmadewi (2020), Polimpung & Irawan (2021), Saleh & Winarso (2021), and Tresnawaty (2022) showed that NPL affected the profitability, which was proxied with ROA. In line with these results, the research conducted by Susilawati & Nurulrahmatiah (2021), Merry et al. (2022), and Yulyanti et al. (2022) found that NPL had a significant impact on profitability. In contrast to the research conducted by Soares & Yunanto (2018), Liyana & Indrayani (2020), Puspitasari et al. (2021), Wahyu (2021), Muhtadin et al. (2022), and Punagi et al. (2022) found that NPL did not affect profitability.

NIM is utilized to degree the capacity of bank administration to oversee its beneficial resources to create net intrigued pay (Jati et al., 2022). The results of the research conducted by Liyana & Indrayani (2020), Wahyu (2021), Tiana & Nurhayati (2022) and Tresnawaty (2022) show that NIM affects profitability. These findings are in line with the results of research conducted by Listiawati et al. (2021), Susilawati & Nurulrahmatiah (2021), Merry et al. (2022), M. Putri (2022), and Nurinfiaa & Damayanti (2023) which found that NIM had a significant effect on profitability. This is in contrast to the research conducted by Sari et al. (2024) and Tsany & Daniel Bagana (2022), which found that NIM did not affect profitability.

The theory of financial intermediation can explain the relationship between LDR, NPL, and NIM ratios to profitability. From the perspective of intermediation theory, the function of banks as intermediaries between debtors and creditors increases the impact of credit risk on bank profitability (Harahap et al., 2022). On the other hand, the bank must bear the risk of debtor default by continuing to pay interest costs to creditors, reducing its profitability (Harahap et al., 2022). Banks that successfully carry out the intermediation function will be reflected when they can balance LDR, NPL, and NIM to achieve profitability. Therefore, the intermediation theory states that the process will minimize risk (Ketaren & Haryanto, 2020).

Based on the phenomenon and empirical gaps above, this study aims to further analyze the effect of LDR, NPL, and NIM on profitability, which will be carried out at conventional commercial banks on the IDX with an observation period of 2018-2022.

LITERATURE REVIEW

Theory of Financial Intermediation

Gurley & Shaw (1960, p. 192) state that the theory of financial intermediation discusses one of the functions of banking institutions through intermediating funds from parties with excess funds to parties with insufficient funds. Intermediation theory explains the role of banks as intermediaries between debtors and creditors, further strengthening the influence of credit risk on bank profitability (Harahap et al., 2022). In carrying out the intermediary function, banks must bear the risk of default from debtors while still paying interest costs to creditors, which impacts bank profitability (Harahap et al., 2022).

Bank Health

In running their trade, banks are required to preserve their Health level continuously. Bank Health level evaluation is directed in POJK No. 4/POJK.03/2016 concerning Health Level Appraisal of Commercial Banks, emphasized through SE OJK No. 14/SEOJK.03/2017. Banks, in measuring their Health, are required to evaluate the Health level of the bank employing a Risk-based Bank Rating with the scope of evaluation of variables counting Hazard Profile, Great Corporate Administration (GCG), Profit, and Capital.

Bank Financial Ratios

Agreeing to Harahap (2018, p. 297), money related proportions are numbers gotten from comparing one monetary articulation thing with other things with a important and noteworthy relationship. The comes about of budgetary proportions are utilized to evaluate administration execution in enabling company assets successfully so that the coming about execution can be utilized as an assessment to make strides or keep up company execution in understanding with company targets (Kasmir, 2019, pp. 104-105).

Profitability

The benefit proportion may be a proportion that evaluates the company's capacity to create benefits or benefits in a certain period whereas appearing how compelling the administration of a company is (Kasmir, 2019, p. 114). Banks' high and low profitability levels significantly impact public trust, so they must perform well by increasing their profitability (Rosa & Murni, 2023).

Loan to Deposit Ratio (LDR)

LDR reflects the most action of a bank, which can be utilized to appear the level of loaning and affect the ROA esteem (Dwiningtyas & Yoewono, 2023). Inquire about conducted by Anggraini and Suputra (2021) found that LDR emphatically affected benefit proxied with ROA. This explanation is backed by investigate conducted by Anggreningsih & Negara (2021), Parhusip & Cakranegara (2021), Santoso (2021), Insight & Santioso (2022), Rifansa & Pulungan (2022), and Supriyatna & Candradewi (2023) which found comparative comes about. This appears that the higher the LDR, the higher the stores channelled to third-party reserves so that LDR can increment bank productivity.

H₁: LDR has a positive effect on profitability

Non-Performing Loan (NPL)

NPL is when customers cannot pay part or all of their obligations to the bank as promised (Dwiningtyas & Yoewono, 2023). Research conducted by Restadila et al. (2020) found that NPLs negatively influence profitability proxied with ROA. This is also supported by the findings of Anggraini & Suputra (2021), Mandagie (2021), Rosa & Murni (2023), and Supriyatna & Candradewi (2023), who also found similar results. A higher NPL ratio will worsen credit quality, resulting in more non-performing loans and allowing banks to face non-performing conditions (Dwiningtyas & Yoewono, 2023).

H₂: NPL has a negative effect on profitability

Net Interest Margin (NIM)

NIM reflects advertise dangers that emerge due to the development of advertise factors that can be negative to banks (Fasha & Chaerudin, 2021). Research conducted by Puspitasari et al. (2021) found that NIM positively affects profitability as proxied by ROA. The same results were also found in research conducted by Fasha & Chaerudin (2021), Yulianah & Aji (2021), Rifansa & Pulungan (2022), Supriyatna & Candradewi (2023), and Meidawati et al. (2024). This shows that the larger the NIM, the better or higher the company's financial performance (Wakid et al., 2022).

H₃: NIM has a positive effect on profitability

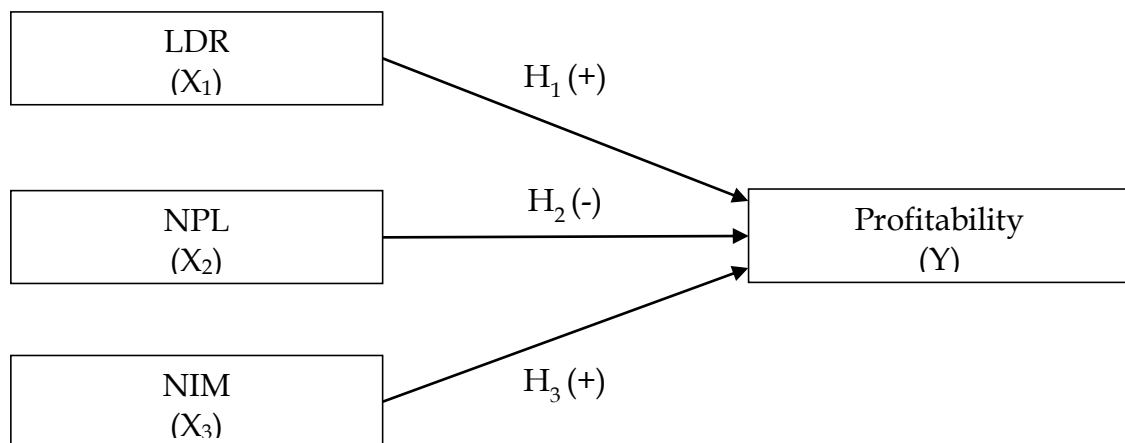


Figure 1. Conceptual Framework

METHODOLOGY

This investigate may be a quantitative ponder with an affiliated frame. The populace of this consider comprised of customary commercial banks on the IDX, totalling 43 companies. The procedure utilized in deciding the test is purposive testing with the required criteria, counting 1) customary commercial banks on the Indonesia Stock Trade; 2) have distributed total budgetary reports and information amid the 2018-2022 period; 3) posted benefits amid the 2018-2022 period so that the test of this think about summed to 27 companies. This study uses quantitative data from secondary data in annual reports published by banking subsector companies on the Indonesia Stock Exchange collected through non-participant observation methods. The analysis of the research data was

carried out through panel data regression estimation. The collected data was analyzed using multiple linear regression techniques using the EViews 12 program. The regression equation used is as follows.

$$Y = \alpha + \beta_1 X_{1it} + \beta_2 X_{2it} + \beta_3 X_{3it} + \varepsilon_{it} \dots\dots\dots(1)$$

Information:

- Y = Return on Asset (ROA)
- α = Constant
- $\beta_1 \dots\dots \beta_3$ = Regression Coefficients of $X_1 \dots\dots X_3$
- X_1 = Loan to Deposit Ratio (LDR)
- X_2 = Non-Performing Loan (NPL)
- X_3 = Net Interest Margin (NIM)
- ε = Error Term
- i = Entity (cross-section)
- t = Period (time series)

RESULT

Descriptive Statistics

Based on the information that has been collected, a expressive factual investigation is carried out to discover out the data on the least, greatest, cruel, and standard deviation of each variable utilized amid the perception period.

Table 2. Descriptive Statistical Results

	Profitability	LDR	NPL	NIM
<i>Mean</i>	1.571037	82.34000	2.746519	4.753778
<i>Maximum</i>	4.310000	163.0000	7.990000	11.30000
<i>Minimum</i>	0.040000	12.35000	0.000000	-3.520000
<i>Std. Dev.</i>	1.090257	23.34952	1.432461	1.769997
<i>Observations</i>	135	135	135	135

Source: Data Processed, 2024

Descriptive statistics show that the Profitability variable (Y) has a minimum value of 0.04, a maximum value of 4.31, and an average value of 1.57 with a standard deviation of 1.09. The LDR variable (X_1) has a minimum value of 12.35, a maximum value of 163.00, and an average value of 82.34 with a standard deviation of 23.34. The NPL variable (X_2) has a minimum value of 0.00, a maximum value of 7.99, and an average value of 2.74 with a standard deviation of 1.43. The NIM variable (X_3) has a minimum value of -3.52, a maximum value of 11.30, and an average of 4.75 with a standard deviation of 1.76. The standard deviation value, which is smaller than the average value, indicates that the gap or variation of the data for each variable is low.

Panel Data Regression Model Selection

Board information relapse show choice has to be done some time recently conducting classical suspicion tests and different linear regression tests to decide the foremost proficient show between Common Impact Demonstrate (CEM), Settled Impact Demonstrate (FEM), and Arbitrary Impact Demonstrate (REM).

Table 3. Results of Panel Data Regression Model Selection

Test Method	Probability Value	A Selective Approach
Uji Chow	0.0000	Fixed Effect Model
Uji Hausman	0.1766	Random Effect Model
Uji Lagrange Multiplier (LM)	0.0000	Random Effect Model

Source: Data Processed, 2024

Model testing through the Chow Test is used to identify the most appropriate model among CEM or FEM in estimating panel data. The Hausman test is a test used to identify the most appropriate model between REM and FEM. The Lagrange Multiplier (LM) test is conducted to determine the appropriate model between CEM and REM. The Chow Test results show the Prob. A value of 0.0000 is smaller than 0.05, so the better model to use is FEM. The Hausman Test results show the Prob. A value of 0.1766 is more significant than 0.05, so REM is the most appropriate model. The LM Test results show Breusch-Pagan with a Prob. A value of 0.0000 is smaller than 0.05, so the most appropriate model to use is REM. Based on the test results, it was shown that the Random Effect Model (REM) was the chosen approach for estimating the regression of this study. REM uses the Generalized Least Squares (GLS) technique as its estimation technique. This model does not need to test or overcome problems with classical assumptions because the equation already meets classical assumptions (Napitupulu et al., 2021, p. 120).

Multiple Linear Regression Analysis

This investigation strategy is utilized to demonstrate the truth of the impact of autonomous factors on the subordinate factors to be considered, to be specific LDR, NPL, and NIM, on benefit proxied by the ROA proportion of ordinary commercial banks on the IDX for the 2018–2022 period both in part and at the same time.

Table 4. Multiple Linear Regression Analysis Results

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	1.2052	0.3087	3.9034	0.0002
LDR	-0.0014	0.0031	-0.4449	0.6571
NPL	-0.2650	0.0437	-6.0617	0.0000
NIM	0.2547	0.0401	6.3454	0.0000
R-squared	0.3502			
Adjusted R-squared	0.3354			
F-statistic	23.5428			
Prob. (F-statistic)	0.0000			

Source: Data Processed, 2024

Based on Table 4, it can be seen that the esteem of the steady (α) is 1.2052, the relapse coefficient of LDR (β_1) is -0.0014, the relapse coefficient of NPL (β_2) is -0.2650, the relapse coefficient of NIM (β_3) is 0.2547 so that a numerous direct relapse condition can be made as takes after:

$$Y = 1.2052 - 0.0014X_1 - 0.2650X_2 + 0.2547X_3 + \varepsilon \dots\dots\dots(2)$$

Based on the equation above, it can be seen that the constant value (α) of 1.2052 means that if LDR, NPL, and NIM have a constant value at zero, then the profitability value will increase by 1.2052. The value of the regression coefficient of the LDR variable (β_1) with a value of -0.0014 and a negative sign means that if the LDR increases by one per cent, then profitability will decrease by 0.0014 per cent, assuming that the other variables are constant. The value of the regression coefficient of the NPL variable (β_2) with a value of -0.2650 and a negative sign means that if the NPL increases by one percent, profitability will decrease by 0.2650 percent assuming that the other variables are constant. The value of the regression coefficient of the NIM variable (β_3) with a value of 0.2547 and a positive sign means that if the NIM increases by one percent, profitability will increase by 0.2547 percent assuming that the other variables are constant.

Determination Coefficient Test

The coefficient of determination test results shows the Adjusted R-squared value of 0.3354, which indicates that LDR, NPL, and NIM influence 33.54 percent of variations in profitability. In comparison, other variables outside the regression model in this study influence the remaining 66.46 percent.

Model Feasibility Test (F-Test)

The F-test results show that the F-statistic value is 23.5428, which is greater than the F-table of 2.673 and the Prob. (F-statistic) value of 0.0000 is less than 0.05, so the test results indicate that LDR, NPL, and NIM simultaneously have a significant effect on profitability with a confidence level of 95 percent.

Hypothesis Test (T-Test)

A hypothesis test (t-test) tests the significance of the partial regression coefficient of independent variables to dependent variables. Hypothesis testing is accepted if sig. The t-statistic is less than 0.05, which means that the independent variables significantly affect the dependent variable. The LDR variable (X_1) results show that the t-statistic is -0.4449, which is smaller than the t-table of 1.9782 with the Prob value. By 0.6571, which is greater than 0.05, LDR has no significant effect on profitability. The results of the NPL variable (X_2) show that NPL has a negative and significant effect on profitability with a t-statistic of -6.0617 and |t-statistic| by 6.0617, which is greater than the t-table of 1.9782 and the Prob value. By 0.0000, which is smaller than 0.05. The t-statistic result is 6.3454, more significant than the t-table of 1.9782 and the Prob value. 0.0000, which is smaller than 0.05, indicates that the NIM (X_3) variable positively and significantly affects profitability. Thus, LDR does not significantly affect profitability, while the other two variables, namely NPL and NIM, have a significant effect on profitability.

DISCUSSION

The Effect of LDR on Profitability

Based on the results of statistical tests, LDR does not significantly affect profitability proxied by ROA in conventional commercial banks on the IDX. In other words, this study's first hypothesis (H_1) was rejected, and the null hypothesis (H_0) was accepted. This indicates that the high and low LDR will not affect the bank's profitability. The results of this study are in line with the research conducted by Antari & Baskara (2020), Listiawati et al. (2021), Putra & Rahyuda (2021), Susilawati & Nurulrahmatiah (2021), and Soelistyoningrum et al. (2023) which found that LDR has no significant effect on profitability. This result is not by the theory of financial intermediation proposed by Gurley and Shaw in 1960, which explains that the success of a bank in performing the intermediation function is indicated by the LDR ratio, which is seen from the growth rate of credit (Nikmah et al., 2023).

Banks are too cautious in placing third-party funds in the face of liquidity risk and credit risk, so they choose to place in safer assets such as securities in banks or other financial institutions with low-interest risk and income diversification through fee-based income (Putra & Rahyuda, 2021). The number of existing banking companies will further increase competition in the banking industry. The number of existing banking companies will further increase competition in the banking industry. This can trigger customer switching behaviour because the bargaining power of customers is high, so customers are more selective in using a bank's products or services. Customers are more likely to switch to a different service provider if they feel that the applicable price is inappropriate (Kathleen & Cokki, 2022). Low interest rates are a factor in customer consideration when taking credit. However, if the interest rate offered is high, it will increase the risk, so customers decide to cancel applying for credit (Wulansari & Sukaris, 2021).

The Effect of NPL on Profitability

Based on the statistical test results, NPL negatively and significantly affects profitability proxied by ROA in conventional commercial banks on the IDX. These results indicate that the second hypothesis (H_2) is accepted, and the null hypothesis (H_0) is rejected. This indicates that the higher the NPL owned by a bank will affect the worsening credit quality so that it can reduce the level of profitability and affect the level of bank health. The results of this study are in line with research conducted by Antari & Baskara (2020), Dewi & Badjra (2020), Miranda (2020), Rahmayani & Anggraini (2021), Juliani & Tanwijaya (2022), Sitepu et al. (2023) and Soelistyoningrum et al. (2023). This result is also in line with the theory of financial intermediation, which states that the role of banks as intermediaries between debtors and creditors further strengthens the influence of credit risk on their profitability (Harahap et al., 2022). This theory explains that the intermediation process will function as a supervisor (Ketaren & Haryanto, 2020).

A bank is considered to have a high NPL if the amount of non-performing loans exceeds that of loans granted to debtors (Sukmadewi, 2020). Failed loans will increase the provision for earning assets or loss of reserves, reducing profitability (Anggreningsih & Negara, 2021). Therefore, banks need to improve the quality of credit distribution by reducing the ratio of non-performing loans or NPLs as appropriate and balanced with increased profitability (Harahap et al., 2022).

The Effect of NIM on Profitability

Based on the statistical test results, NIM positively and significantly affects profitability proxied by ROA in conventional commercial banks on the IDX. These results indicate that the third hypothesis (H_3) is accepted, and the null hypothesis (H_0) is rejected. This reflects that the greater NIM owned by a bank will increase the bank's profitability. The results of this study are in line with research conducted by Sunaryo (2020), Parhusip & Cakranegara (2021), Putra & Rahyuda (2021), Ramadanti & Setyowati (2022), Sitepu et al. (2023), dan Febrianti & Setyowati (2024). These results align with intermediation theory, which explains that banks, as intermediary institutions, are responsible for paying interest to customers and receiving interest paid by borrowers (Saputri et al., 2024).

The benefits of NIM are obtained from the intermediary function of banking, namely as an institution that distributes funds from third parties to the public (Nianty & Amin, 2023, p. 52). When NIM increases, interest income on earning assets managed by the bank will increase, reducing the possibility of the bank experiencing problems and increasing profitability. (Putra & Rahyuda, 2021). To increase net interest income, banks must ensure that their loans are of good quality because changes in interest rates and the quality of productive assets significantly affect NIM (Merry et al., 2022).

CONCLUSION AND RECOMMENDATION

Conclusion

Based on the comes about of investigate and speculation testing, a few conclusions can be drawn: LDR does not have a critical impact on benefit, NPL contains a negative and noteworthy impact on benefit, and NIM encompasses a positive and critical impact on benefit. Considering the study's results, banks do not need to focus all their business on improving LDR; instead, they should carry out LDR management through a selective credit distribution strategy and prioritize credit quality. Banks need to improve the quality of risk management by paying attention to and managing NPL risks by applicable regulations through strict credit analysis and focusing on increasing NIM because it contributes significantly to bank profitability by increasing margins and minimizing burden costs through offering competitive lending rates. In addition, customers and prospective customers should pay attention to factors that affect the health level of the bank because the state of a company is inseparable from the influence of external and internal factors. This knowledge will be able to provide information on the benefits that the bank can provide.

Recommendation

This study has limitations from the observation period 2018-2022. Future research should use multi-periods by adding a more extended observation period. In addition, this study only examines the limited effect of LDR, NPL, and NIM on profitability. At the same time, the balanced R-squared comes about appear that other variables too influence benefit that are not utilized in this think about, so it is trusted that future analysts can include other factors as indicators that can influence bank benefit in expansion to the factors examined in this ponder.

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