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The Impact of Lending Growth and Financial Statistics on Bank Profitability : The Moderating Role of Credit Risk

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Abstract

The purpose of this study was to examine the effect of Lending Growth, BOPO, and CAR on Banking ROA with NPL as a moderating variable. The problem contained in this study is that there is a gap between the value of theory and the value of real practice based on the factors that create variations in ROA value. Indonesian banking companies for the period 2018-2022 published on the IDX website are used as the research population in this study. Selection of research samples through purposive sampling to obtain 19 companies. Panel Data Regression Analysis is a data analysis process that processes data using the Eviews 12 program. The level of loan, BOPO, and CAR are assumed to have an effect on bank profitability in this analysis. The effect of credit risk ratio amplifies the impact on the level of lending, BOPO, and CAR on profitability. The results of data analysis contain the statement that bank profitability can be influenced by lending and BOPO, but cannot be influenced by CAR. Similarly, the role of credit risk cannot moderate the effect of CAR on ROA but can weaken the effect of lending and BOPO on bank ROA.

Keywords: Lending, Operating Expenses Operating Income, Capital Adequacy Ratio, Return On Assets. Non Performing Loan

1. Introduction

Based on the Global Economic Prospect June 2022 (GEP), the projected growth of the world economy is predicted to experience a considerable decline, from 5.7% in 2021 down to only 2.9% thus marking a significant decline in 2022, which is affected by the escalation of various risks. International organizations such as the IMF limit the growth rate of the world economy to around 0.8 percentage points (Schulz, 2022).

The profitability performance of commercial banks conventional in Indonesia as proxied by Return on Asset (ROA) has decreased. The decline is a serious focus of attention for the banking sector because it affects competitiveness between banks, reduces investor attractiveness, and threatens the sustainability of bank operations. The growth of commercial bank profitability is seen to decline over the years, ROA in 2018 decreased by 0.17% to 2019. During the 2019-2020 period, it decreased with the highest difference reaching 0.44% which was associated with the outbreak of the Covid-19 pandemic. Along with the passing of the pandemic, it affected the level of decline in banking ROA which also experienced a decrease in the difference. The post-pandemic decline from 2020 to 2021 reached 0.12%, while 2021 to 2022 amounted to 0.04%. This decline created a gap between increased lending and decreased ROA (Otoritas Jasa Keuangan, 2022).

Table 1: Indonesian Banking Statistics

YEAR	ROA (%)	LOAN DISBURSEMENT GROWTH (%)	BOPO (%)
2018	2.48%	9.77%	77.86%
2019	2.31%	10.76%	79.34%
2020	1.87%	1.61%	85.49%
2021	1.75%	2.89%	83.58%
2022	1.71%	8.76%	78.53%

Source: Otoritas Jasa Keuangan, 2022

Significant fluctuations in lending by banks in Indonesia, while reflecting policies to encourage credit growth, also potentially pose significant credit risk. The decline in ROA that is not in line with the increase in lending creates a mismatch between operational performance and profitability. This statistical table notes a consistent increase in the Operating Costs to Operating Income or known as BOPO in Indonesian ratio indicating a likely increase in operating expenses from 2018 to 2020. A sustained increase in BOPO could be detrimental to profitability, indicating the need for improved operational efficiency.

In this context, factors such as increased operating expenses without comparable revenue growth, lack of operational efficiency, or increased risk may negatively affect ROA. Therefore, banks need to evaluate their cost structure, improve operational efficiency, and look for ways to diversify revenue. The importance of managing lending growth in balance with profitability, as well as understanding the relationship between financial ratios such as BOPO and CAR with profitability, is key in dealing with fluctuations and strengthening banks' financial performance. An in-depth evaluation is needed to understand whether these gaps bring positive impacts or indicate risks that need to be carefully managed.

Financial ratios are considered significant because they are able to anticipate economic phenomena including changes in profits, and provide an overview of the Company's financial position. This research empirically delves deeper into the predictions of financial statements related to the growth of corporate profits and is influenced by the changing components in the financial statements. Several studies on the impact of the relationship between lending and profitability (ROA) are contained with varying results including findings from research studies (Erzha et al., 2019) and (Jayanti and Sartika, 2021) show that lending positively affects bank profits, as well as the study of (Lestari, 2019) and (Sukirno, 2020) demonstrates that lending does not have a positive influence on bank profitability. Not similar to the study (Dewi et al., 2021) that there is no clear relationship between lending strategies and bank profits.

A financial indicator linked to bank capital is the Capital Adequacy Ratio (CAR), or capital adequacy ratio, which serves as a proxy for financial statistics. So that if the bank's capital can cover unavoidable losses, then the management of all its activities, including bank assets, can run effectively. (Rositasari and Dailibas, 2022). CAR above 8% generally indicates the stability of a bank that is trusted by the (Putri and Susila, 2022). A good CAR ratio of a bank can show how well the bank manages its capital. While research studies conducted by (Sukma and Burhany, 2021) contains a statement that profitability can be significantly influenced by CAR. Meanwhile, (Kusumastuti and Alam, 2019) shows that CAR has no effect on bank profitability (ROA), in research from (Nyoka, 2019) In part, there is a discernible no significant negative impact of the CAR variable on profitability (ROA).

Firdaus and Santioso, (2023) stated that a bank's operational performance reflects its skill in administering operating expenses and revenue receipts. The high BOPO value of the bank may charge large operating funds compared to its income (Wardoyo et al., 2020). A decrease in BOPO should increase ROA, and signal an improvement in the bank's financial performance (Kustiningsih et al., 2020). BOPO has a role in how much profit is obtained from a company's assets (ROA). (Juwita et al., 2018). Costs that exceed revenue will reduce the profit generated, in accordance with similar research findings, namely (Hermawan and Fitria, 2019) and (Setyaningsih et al., 2023) that ROA has a negative impact on ROA.

Based on the phenomenon and the current research gap, researchers are interested in reassessing by integrating the variables of lending growth and financial ratios, including BOPO and additional Capital Adequacy Ratio (CAR), on profitability. This study also considers credit risk as a moderating factor represented by NPL (Non Performing Loan).

2. Literature Review

2.1. Signaling Theory

Signalling theory or signal theory, which is an understanding of the existence of information asymmetry, which creates an imbalance between information and truth. Signaling theory is the basis for company management to present financial statement information as a basis for decision making (Spence, 1973). By revealing details about the state of the firm, the signaling theory and the stated factors are connected. If the financial statements show the health of the company, this situation can attract the attention of investors in making investments. With the funds obtained from the investment, investors can improve banking operational performance by providing credit opportunities to customers. The ability of a bank to lend money to clients based on the capital of the business is one way to evaluate the efficacy of banking profitability. The better the company's capacity to channel credit funds, the better the return reflected in banking profitability.

2.2. Lending and Profitability

The level of lending is the process of delegating bank funds / bills to other parties, with the agreement to pay back within a time limit accompanied by interest / profit sharing. The ability of banks to distribute credit is influenced by internal (fund raising, interest rates) and external factors (economic conditions, government regulations). Lending, as the main source of banking income through interest, dominates the allocation of bank funds (Smith et al., 2003). An increase in banking profitability will have an impact through the growth of the level of lending, while a decrease in the level of lending can lead to a decrease in profitability. Based on research (Mushafiq et al., 2023) shows that lending contributes favorably to operating results.Thus, a hypothesis can be proposed:

H_1 = Lending has a significant effect on Profitability

2.3. Financial Statistics and Profitability

Financial Statistics serves as a health check for the Company and the company's financial well-being by measuring its performance and condition in defines financial statistical analysis as a method of determining a comparison on a balance sheet or income statement either in a company's personal financial statements or a combination of two company financial statements (Wanke et al., 2022). Financial statistics is a method by comparing the numbers in the financial statements as an assessment of the company's health condition. Financial statistics are proxied by BOPO which aims to assess the level of efficiency by using a comparison of operating expenses and income earned . And CAR which purpose to assess the credibility of the bank in terms of capital by using the predetermined capital adequacy.

Bank operating expenses involve expenditures in the context of core activities such as interest rates, product marketing, labor, and some other operations. Revenue mainly comes from loan interest and other sources of operating income. The lower level of the BOPO ratio is an indication of the higher efficiency of the use of company resources. this will encourage improved bank management performance. Thus, the high level of productivity in managing the company's operating expenses will have an impact on reducing the BOPO value, and vice versa, a high BOPO value is an indication of inefficient management of operating costs. Some findings with similar research results were obtained in (Yusuf and Surjaatmadja, 2018) which contained the statement that BOPO had a significant negative effect on profit productivity. Thus, a hypothesis can be proposed:

H_2 = Operating Costs have a significant effect on Profitability

CAR is a financial ratio used to assess the adequacy of a bank's capital in supporting assets that carry or produce risk, such as loans disbursed to customers. The presentation of the proportion of the bank's minimum asset ratio, including paid-up capital, capital deposit funds, general reserves, other reserves, the rest of last year's profit and current year's profit is contained in the Capital Adequacy Ratio (CAR). The Bank of International Settlements (BIS) recommends a minimum CAR of 8% to fund its operations and contribute positively to profitability. The maximum limit of the plan to increase the CAR value that banks must provide is 12% through additional capital from shareholders or non-prioritized lending. The assessment provided indicates that the greater the CAR, the better the bank's condition. Thus, the optimal ability of banks to respond to challenges in each credit or productive asset is determined by the acquisition of an increased CAR value. The findings of several parallel research results were obtained in (Rahman, 2023) which attests to the fact that CAR significantly and favorably affects profitability. Thus, a hypothesis can be proposed:

H_3 = Capital Adequacy Ratio has a significant effect on Profitability

2.4. Lending, Profitability, and Credit Risk Moderation

Lending is the core of a bank's business and determines its profitability. While an increase in loan volume may increase profit potential, it also carries the risk of non-payment by customers, which may result in non-performing loans or NPLs. A high NPL ratio reflects poor credit quality, leading to losses for the bank and decreased profits. Therefore, credit risk management and NPL handling are key to minimizing losses and maintaining bank profitability. Similar findings were obtained in (Kadek, 2022) which confirms that credit risk can moderate the impact of lending on profitability, the research study has a gap in meaning that NPL cannot strengthen the influence between variables on profitability. Thus, a hypothesis can be proposed:

H_4 = Credit Risk is able to moderate the effect of Lending on Profitability

2.5. Operating Expenses Operating Income, Profitability, and Credit Risk Moderation

NPLs have a major impact on a bank's operating income, especially that earned from loan interest. Controlling NPLs is important to keep the ratio low and increase bank income. High NPL levels increase bank costs, including reserves, impairing bank performance and profitability. Research obtained in (Witjaksono and Natakusumah, 2020) suggests the moderating impact of NPL with BOPO on profit profit productivity shows favorable results

H_5 = Credit Risk is able to moderate the effect of BOPO on Profitability

2.6. Capital Adequacy Ratio, Profitability, and Credit Risk Moderation

Non-performing loans, represented by Non-Performing Loan (NPL), serve as a moderator in the relationship between Capital Adequacy Ratio (CAR) and profitability (ROE) in the banking industry. The key role of NPL is to reduce the positive impact of CAR on ROE. In other words, if a bank has more non-performing loans, it may increase the capital adequacy ratio and thus hinder profit generation. This closure underscores the urgency of addressing non-performing loans to improve efficiency and profitability in the banking sector.

H_6 = Credit Risk is able to moderate the effect of CAR on Profitability

2.7. Research Model

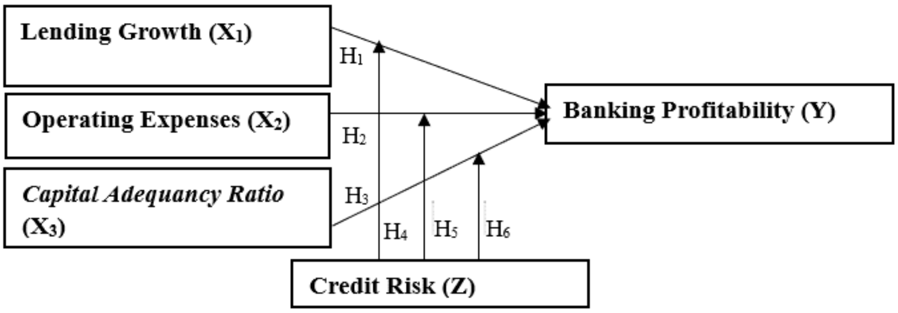

Figure 1: Conceptual Framework
Source: Data Processed by author (2024)

3. Materials and Methods

3.1. Materials

The exploratory study is applied through a quantitative research approach, causal associative analysis is involved as an instrument for testing hypotheses and formulating conclusions. The research design adopts the explanatory research method, and aims to measure statistical testing in the cause-and-effect correlation between variables. The research data was obtained secondarily through descriptive surveys from reliable sources, such as the financial statements of Conventional Commercial Banks and on the IDX website. The variables involved in this study include the Growth Rate of Lending, Capital Adequacy Ratio (CAR), and Operating Cost of Operating Income (BOPO) as independent variables, with Return On Assets (ROA) as the dependent variable. are applied as independent variables. And NPL (Non Perfoming Loan) is applied as a moderating variable.

This research included 47 companies within the banking sector, and the purposive sampling technique was employed for selecting samples in order to conduct the study. The following standard criteria are set based on sample withdrawal:

Table 2: Sample Selection Criteria

No.	Sample Selection Criteria	Quantity:
1.	Banking companies listed on the IDX	**47**
	Criteria Violation	
1.	Conventional banking firms listed on the IDX	**(4)**
2.	Banking firms that did not release financial data on the IDX during the study period	**(4)**
3.	Banking institutions that suffered losses during the study period	**(16)**
4.	Banking institutions that experienced a decline in lending growth in the study period	**(4)**
	Research Sample	**19**
	Number of Research Samples (period 2018 - 2022)	**19 x 5 = 95**

3.2. Methods

This study refers to data sourced from the banking sector's financial statement overview data for the period 2018-2022, which are sourced from the IDX website and each company's own webpages. Data analysis is carried out using Moderated Regression Analysis (MRA) using Eviews software version 12. Before evaluating the hypothesis estimation test, it is treated to conduct a Classical Assumption Test which includes multicollinearity and heteroscedasticity tests. The approach used employs the use of a panel data regression model, with panel data regression analysis serving as the analytical instrument.

3.2.1. Operational Definition of Variables

Profitability is the dependent variable employed in the present research. What is meant by profitability in this research is an indicator of the the ability of the bank to generate income through operational activities, especially in the context of lending growth and financial statistics. Profitability is measured using the formula ROA = $\frac{Earning\ After\ Tax}{Total\ Assets}$ x 100%.

The independent variable used is Lending Growth. What is meant by lending growth with this research refers to changes or increases in the volume of credit channeled by banks to borrowers or customers in accordance with the provisions. Lending growth is measured by using the formula: $\frac{General\ Credit\ (Xn) - General\ Credit\ (Xn{-}1)}{General\ Credit\ \ (Xn{-}1)}$ x 100%.

The independent variable used is financial statistics, and uses the CAR and BOPO proxies. What is meant by BOPO is a ratio in measuring how much the proportion of operating income to bank operating costs. With this research, BOPO can be one of the indicators of financial statistics which is measured by the formula: $\frac{Operating\ Expenses}{Operating\ Income}$ x 100%.

The independent variable used is financial statistics, and uses the CAR and BOPO proxies. What is meant by CAR with this research is a critical indicator that measures the capacity of banks with adequate capital from financial institutions to protect against possible threats arising from their operations. Financial statistics are measured using the formula CAR = $\frac{Capital}{ATMR}$ x 100%.

The moderating variable used is Credit Risk. What is meant by credit risk growth with this research refers to the possibility that the debtor's unwillingness to fulfill the terms of their loan or debt arises. Credit risk is measured using the formula NPL = $\frac{Non{-}Performing\ Loans}{Total\ Credit}$ x 100%.

3.2.2. Equation

Panel regression analysis is used to verify regression models on panel data, including the Chow, Lagrange multiplier, and Hausman tests. The variables in the model are examined using the Moderated Regression Analysis (MRA) approach. Here's an example of the MRA model equation:

$$Return\ on\ Assets = \mathrm{C} + b_1\ PK + b_2\ BOPO + b_3\ CAR + b_4\ PK \times NPL + b_5\ BOPO \times NPL + b_6\ CAR \times NPL + \varepsilon$$

4. Results and Discussion

4.1. Results

Panel Data Regression Tests

In the feasibility test assessment, the equation is implemented using the MRA test and evaluated using the model feasibility test, which includes the Chow test, Lagrange Multiplier test, and Hausman test. The results of this evaluation will determine the model used in the test. The model feasibility test provides the following results:

Table 3: Panel Data Regression Test Results

Chow Test	Hausman Test	Lagrange Multiple Test
Probability value 0.0049 < 0.05, selected model Fixed Effect Model	Probability value 0.0556 > 0.05, selected model Random Effect Model	Probability value 0.1627 > 0.05, selected model Common Effect Model

Data source: Eviews, Data Processed, 2024

The Common Effect Model is the most appropriate regression model in the study based on model feasibility testing in table 3.

Classical Assumption Tests

According to (Basuki and Prawoto, 2016), only heteroscedasticity and multicollinearity tests are required in panel regression testing. Derived from the results of heteroscedasticity and multicollinearity tests in the classical assumption test, it was found that the value of each test passed. The multicollinearity test results in correlation values of 0.062146, 0.626869, and -0.296950 for each independent variable, meaning that the correlation coefficient is less than 0.80 for each independent variable. The Chi-Square probability value of 0.1075 which is more than α = 0.05 indicates the value of the heteroscedasticity test using the Breusch-Pagan-Godfrey test. According to (Hamid et al., 2020), this indicates that the data are homoskedasticity residuals and there is no evidence of heteroskedasticity.

Table 4: Classical Assumption Test Results

Type of Test	Requirements	Results	Conclusion
Multicollinearity Test	Correlation Value < 0.80	PK × BOPO = 0.062146	Pass Multicollinearity Test
		PK × CAR = 0.626869	
		PK × NPL = -0.296950	
		BOPO × CAR = 0.256739	
		BOPO × NPL = 0.204964	
		CAR × NPL = -0.240072	
Heteroscedasticity Test	Prob. Chi-Square > 0.05	Prob. Chi-Square = 0.1075 > 0.05	Homoscedasticity (Pass Heteroscedasticity Test)

Data source: Eviews, Data Processed, 2024

Hypothesis Tests

Table 5: Hypothesis Test Results

Common Effect Model				
Variables	**Coefficient**	**Probability**	**Description**	**Hypothesis Conclusion**
Constant	6.372.047	0.0000	-	-
PK	0.003294	0.0299	Significant	Accepted
BOPO	-0.62142	0.0000	Significant	Accepted
CAR	-0.001140	0.7117	Not Significant	Rejected
PK x NPL	-11271.02	0.0238	Weakening	Accepted
BOPO x NPL	-11095.65	0.0004	Weakening	Accepted
CAR x NPL	-339.3026	0.9794	Weakening	Rejected

Data source: Eviews, Data Processed, 2024

According to the outcome of the regression equation, the constant exhibits a coefficient value of 6,372,047, the implies that the acquisition of banking profitability is around 6,372,047 if other the parameters remain constant. The coefficient value of Lending 0.003294 indicates that the improvement in profitability is a response to high lending, so ROA is significantly influenced by the characteristics of lending through the acquisition of a probability value of 0.0299. Based on operating expenses to operating income, in conclusion, a high BOPO value will result in a decrease in profitability in banks according to the value of the coefficient -0.62142, with a probability value of 0.0000, the BOPO variable is known to have a negative and significant effect on ROA. Capital Adequacy Ratio of -0.001140 indicates that a high value of CAR will lead to a decrease in profitability in banks, however, this impact is not statistically significant, as indicated by a probability value of 0.7117. In addition, the interactive variables of both Lending and Credit Risk yielded a negative value of -11271.02 with a probability of 0.0238 implying that the impact of lending and bank profitability is inhibited and weakened by credit risk. The interaction between Operating Cost of National Income and Credit Risk has a negative value of -11095.65 and a probability of 0.0004 implying that credit risk weakens the impact of operating expenses on operating income on bank profitability. There is an interaction effect between Capital Adequacy Ratio and Credit Risk has a negative value of -339.3026 with a probability of 0.9794 resulting in a statement that credit risk cannot moderate and strengthen the effect of capital Adequacy ratio on bank profitability.

4.2. Discussion

4.2.1. The Effect of Lending on Banking Profitability

Based on data analysis, it appears that the profitability of company shares in the banking sector is influenced by the level of lending. This is based on the fact that the potential for profit or profitability can be obtained largely through the main business carried out by banks, namely based on the high-low number of loan levels provided by the Bank to its customers. Customers will be aware of banking conditions, if good banking conditions will open up opportunities and great trust for customers to make credit installments at banks with good profitability.

4.2.2. The Effect of Operating Costs and Operating Income on Banking Profitability

Based on data analysis, it shows that the profitability of company shares in the banking sector is influenced by BOPO. The high BOPO ratio suggests that the bank has not been able to effectively manage its resources.The use of costs in operational activities needs to be considered and streamlined to avoid the negative influence of BOPO, this can be caused by high costs and a decrease in interest income from fund investment. If banks do not immediately take action in controlling large operational funds, it will have consequences on the lack of bank profits.

4.2.3. The Effect of Capital Adequacy Ratio on Banking Profitability

Based on data analysis, it demonstrates that bank profitability is not significantly impacted by the Capital Adequacy Ratio (CAR). This is due to the tendency of banks to maintain CAR levels at least at 8% in accordance with the provisions set by the Financial Services Authority. The CAR level does not always affect bank profitability because the source of bank funds does not only come from internal capital, but can also be obtained from external loans. This study shows that a large size of bank capital does not always result in large profits. Banks that have large enough capital need to manage and utilize that capital efficiently to achieve optimal profits.

4.2.4. The Moderating Role of Credit Risk on the Effect of Lending on Banking Profitability

Based on data analysis, it demonstrates how credit risk, or non-performing loans, lessens the impact of lending volume on the profitability of commercial banks, or return on assets. Credit risk significantly affects how much lending a bank can make and how profitable it is. Lending is a means of earning profit in the form of loan interest but has enough opportunities to experience losses, one of the main reasons is the potential losses that can arise due to non-performing loans or bad debts. The more credit that is extended, the higher the chance of non-performing loans, which can lower bank profitability, hence banks must exercise caution when extending credit. To avoid this risk, banks are advised to maintain the principle of prudence by conducting careful credit analysis and strengthening credit management before and after lending, in order to reduce the possibility of non-performing loans that can cause a decrease in income or even losses for the bank.

4.2.5. The Moderating Role of Credit Risk on the Effect of Operating Costs and Operating Income on Banking Profitability

Based on data analysis, it shows that high BOPO can put negative pressure on ROA because it shows the high operating expenses of the company, which can be caused by the use of excess funds to cover loan interest costs. High credit risk, reflected in high NPLs, can weaken the effect of BOPO on ROA. When credit risk occurs, loan interest payments can be hampered or even substandard, and affect the reduction of bank income. This can result in the use of the bank's internal funds to cover increased operating costs, and ultimately can reduce ROA. A high ROA is characterized by a low BOPO, and indicates that the bank's sources of funds (such as credit) are running smoothly and not overly burdening operating costs. In this case, credit risk has the power to erode or even reverse the profitability and BOPO connection, with profitability remaining strong despite high operating costs.

4.2.6. The Moderating Role of Credit Risk on the Effect of Capital Adequacy Ratio on Banking Profitability

Based on data analysis,it demonstrates that the relationship between CAR and profitability cannot be moderated by credit risk, although CAR is a measure of the adequacy of bank capital to withstand risk, The link between CAR and profitability is unaffected by credit risk.The high level of NPL (Non-Performing Loans or Credit Risk) can reflect the poor performance of bank companies, and have an impact on reducing trust from customers. Loss of trust from customers can hamper the bank's ability to achieve profits and increase capital (CAR), thus potentially reducing profitability (ROA).

5. Conclussion

Based on the research and analysis that has been described, it results in the following conclusions: (1) The profitability of company shares in the banking sector is influenced by the level of lending. This is based on the fact that the potential for profit or profitability can largely be obtained through the main business carried out by banks, namely based on the high-low number of credit levels channeled by the Bank to customers ; (2) The profitability of company shares in the banking sector is influenced by BOPO. A low BOPO ratio will show that the bank uses its resources efficiently, so its management performance is better ; (3) CAR has no significant effect the profitability of banks. This can be explained by the fact that banks have other sources of funding besides internal capital, such as external loans ; (4) NPL has no moderating influence on the link between gross lending and profitability of commercial banks because most banks continue to make money from lending even in the face of non-performing loans ; (5) The relationship between BOPO and profitability cannot be moderated by credit risk because credit risk has the power to erode or even reverse this relationship ; (6) There is no relationship between CAR and profitability that credit risk can mitigate. In accordance with the conclusions obtained, the suggestions that can be given are (1) For companies to maintain the level of bank capital (CAR), it is advisable to pay more attention to the amount of capital owned, because capital is the main factor that must be owned by banks ; (2) In order to sustain higher profitability, businesses should work to lower the risk of non-performing loans. This is because the risk of non-performing loans has the potential to amplify the relationship between lending volume and capital adequacy ratio, which has an adverse effect on profitability ; (3) The company must improve supervision and management of operating costs and operating income in order to increase its profitability.

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