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The Role Of Credit Risk, Management Risk And Capital On The Profitability Of Indonesian Banks

Eka Yusditasari[1], Hendra Galuh Febrianto[1], Junet Kaswoto[1]
University of Muhammadiyah Tangerang

*Correspondence: Eka Yusditasari
Email: ekayusditasari11@gmail.com

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Abstract: The rapid growth and development of the business world has also strengthened the role of banks as financial institutions. A bank's health can be measured by its profitability. The purpose of this study is to determine the impact of credit risk, operational risk and solvency on the profitability of IDX listed banks over the period 2018-2022. A quantitative approach uses multiple regression to process statistical data. Types of quantitative studies and causality. The survey includes 46 IDX listed banks from 2018 to 2022. The sample contains 17 banks. From 2018 to 2022, credit risk will not hurt the profitability of IDX-listed banks, according to his research. Operational risk will affect the profitability of IDX-listed banks from 2018 to 2022. Solvency will impact the profitability of IDX-listed banks from 2018 to 2022.

Keywords: Credit Risk, Operasional Risk, Capital Adequacy dan Profitability

INTRODUCTION

Due to the swift expansion and progress of the enterprise, the requirement for funding is on the rise. In such a scenario, monetary organizations are pivotal in fulfilling the financial necessities of individuals, and are anticipated to make a substantial contribution to the growth of the Indonesian economy. The banking sector is governed by Law No. 7 of 1992. This legislation is a mechanism devised by the government to oversee the operations of banks and financial institutions to prevent any actions that might jeopardize the banks, liabilities, and the nation.

Bank performance is measured using profitability ratios. The decline in public trust in banking (1) defines profitability as the end result of various policies and decisions. A metric called ROA is used to measure profitability. A bank's operational earnings can be impacted by credit risk, which stems from customers or affiliated parties being unable to fulfill their contractual obligations to the bank (Indonesian Bankers Association, 2016). The bad debt (NPL) ratio is a metric used to evaluate credit risk.

Another factor that allegedly affects banking profitability is operational risk, namely the risk that arises as a result of problems within the company's internal scope, precisely those that arise due to a weak management control system from the internal company (2). Operational risk is proxied using the operating expenses operating income ratio.

The subsequent aspect is the capacity to remunerate. Solvency is characterized as the capability of a financial institution to uphold satisfactory funds and to recognize, gauge, and supervise the progression of diverse hazards that impact its degree and scale of funds. (3). The adequacy of funds is explained by the capital adequacy proportion (CAR).

LITERATURE REVIEW

Profitability

Profitability according to (4) is a ratio that plays a role in measuring the ability to achieve profits owned by a company. This ratio relates the net income obtained from the company's operations with the amount of investment or assets used to generate operating profits (33). According to (5), Profitability is a measure of how profitable a company is through its performance.

According to this explanation, the general profitability pertains to the capacity of a business to produce earnings during a specific duration and is an indicator of how effectively a company employs its extra resources.

Profitability is measured by return on investment (ROA). Definition of ROA acc (6) is a ratio that describes the acquisition of the use of assets by a company in a certain amount. This ratio measures the efficiency of using assets to generate net profit for the company (34). ROA functions to obtain results from activities comparing profits with profit-generating capital, or profits with assets. Current profit (current income) is profit obtained through periodic payments, such as payment of interest on deposits, interest on bonds, dividends, and so on (35). Use of ROA refers to the ability to measure the effectiveness of a company's asset utilization. profitability is a reference or benchmark in the form of a percentage that functions to determine how a company is able to earn profits based on certain standards or acceptable criteria.

Credit risk

Defines credit risk (7) as the risk that an obligor, customer or partner will not be able to meet its contractual loan financing obligations. The reason for this risk is the deterioration of creditworthiness. This reduction does not necessarily affect failed transactions, but at least it can increase the probability of failure. According to this definition, global credit risk is the failure of a company, organization, entity or individual to meet its obligations under its rules or original contract in a timely manner.

Credit risk is calculated using bad debt (NPL). Non-performing loans (NPL) are obtained by comparing total credit limits with total credit amounts distributed to borrowers or debtors.

Deteriorating financial performance of banks is characterized by an increase in non-performing loans (8). A bank's bad debts are high when the number of bad debts is greater than the number of loans distributed to borrowers or debtors. Therefore, the high value of bad debts will affect the increase in reserves, production assets and other costs in the sense that banks' performance may be adversely affected as the value of bad debts of banks increases. will be

Operational risk

(Indonesian Bankers Association, 2018: 59) defines operational risk as the risk arising from the occurrence of internal processes that are not running smoothly, system failures, human error and other external events that affect the operation of banking activities.

According to this definition, operational risk is the totality of risks arising from the day-to-day operations of a company. Operational risk can be mapped using Operatin Income Operating Expense. (9) define operational risk as a measure of efficiency in banking activities. The result is later determined in the form of a comparison of operating expenses and operating profit.

Adequacy of equity capital

Loud (10) defines equity as the remaining rights after deducting the liabilities arising in connection with the business (enterprise). On the other hand, (11) Equity is defined as the right of the owner of a company to exceed the value of the company's assets through retained earnings, retained earnings, share capital (equity) or various liabilities.

Based on this understanding, it can be said that the capital adequacy ratio is a banking regulation that establishes a work plan for capital management by banks and custodians. Capital adequacy can be expressed by the capital adequacy ratio (CAR). CAR is a measure of the amount of risky banking assets (loans, investments, securities, and other types of debt) backed by a bank's private capital, excluding funds from loans, public wealth funds, etc. a similar source.

Conceptual framework

The conceptual framework of this study was built on theoretical work and the results of several previous investigators.

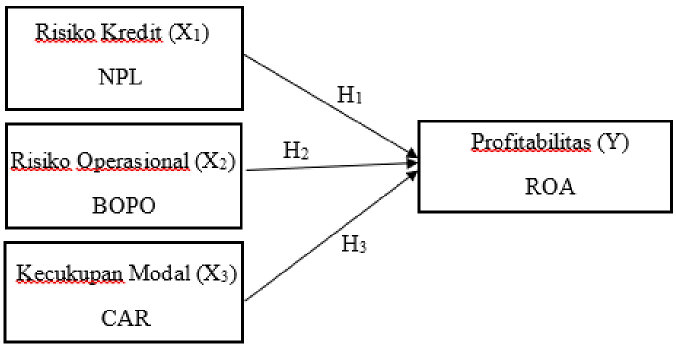

Figure 1. Research conceptual framework

Research Hypothesis

Effect of Credit Risk on Profitability

(12), In the sense that a bank's non-performing loans have a negative impact on a bank's operations, a high level of non-performing bank loans can incur costs such as reserves and other costs of productive assets. affect higher growth. An increase in the share of non-performing loans (NPL) indicates a decrease in the quality of bank lending, which affects the total amount of non-performing loans, which in turn leads to loss of loans. The percentage of non-performing loans (NPL) that are impaired indicates an increase in the bank's profitability or rate of return (ROA). (13)(14) His research showed that credit risk has a significant positive impact on profitability. Thus, the first hypothesis of this study is:

H-1: Credit risk will positively impact profitability of IDX-listed banks from 2018 to 2022

The Impact of Operational Risk on Profitability

In this study, operational risk is represented by cost of operation and profit per operation. Operational risk, by definition, is a measure of management's ability to manage operating expenses relative to operating income. Low operating costs are an indicator of the efficiency of a bank's operating expenses and ensure that the chances of the bank getting into trouble are minimized.

His study (15), (16), (13) We found that operating income and expenses had a significant, but negative, impact on profitability, as the level of a bank's operating ability affected its bottom line. He indicated that, in line with the study's second hypothesis, the hypotheses proposed in this study were as follows:

H-2: Operational risk positively impacts bank firm profitability in 2020-2022

Impact of Adequacy of Capital on Profitability

Capital adequacy refers to banking rules used to define structures such as the conceptualization of banks and custodians when dealing with existing capital. The definition of capital is value/utility, reflecting the needs of owners within the enterprise. In relation to the book value, equity is defined as the difference between the book value of assets and the book value of liabilities, the so-called net worth. It should be noted that banks raise funds from various sources. The initial capital raised during the creation of the bank came from the founders and investors. In this case, the goal of the investor investing in the bank is to make a profit in the future.

His study (17), (18), (19) showed that capital adequacy ratio (CAR) has a significant positive impact on bank profitability (ROA). The hypotheses put forward in this study are:

H-3: Capital adequacy will positively affect bank profitability in 2020-2022

METHOD

A quantitative approach was used in this study. This study uses hypothesis testing as a type of research, hypothesis testing aims to prove whether the hypothesis is accepted or rejected. The hypothesis serves as a framework for the researcher, giving direction and facilitating the preparation of research reports.

Population

The study population includes 46 banks listed on He IDX in the period 2018-2022.

Sample

The sample is selected using criteria which are described in Table 1.

Table 1 Research Sample

Criteria	Amount
Banking sector companies will continue to be listed on the Indonesian Stock Exchange (IDX) from 2018 to 2022	46
Organizations in the banking sector that have not consistently published annual reports for 2018-2022.	(25)
Entities in the banking sector that do not have complete data on the variables used in the study	(3)
Companies in the banking sector that do not use the Rupiah (RP) currency.	(1)
Total number of sample companies	17
Research period (years)	5
All research data	85

Source: processed secondary data, 2023

Variable Operational Definitions

Dependent Variable (Y)

Profitability refers to the capacity of a business to produce earnings by efficiently utilizing its operational abilities, asset utilization, and capital allocation. (22). Profitability is proxied by using Return On Assets

(ROA). According to (23) financial analysts is the net income divided by the total assets. Essentially, ROA measures how efficiently a company is using its assets to generate profits. (2), namely:

$$\boxed{\text{ROA} = \frac{\text{Laba Setelah Pajak}}{\text{Total Aset}} \text{X}100\%}$$

Independent Variable

1. Credit risk (X1) the risk that the customer, debtor or partner is unable to pay the credit financing obligations according to the contract.
2. Operational hazard (X2) refers to the possibility of loss that results from the inadequacy or breakdown of internal procedures, human errors, system malfunctions, or external factors that impact banking activities.
3. Capital adequacy (X3) is a banking regulation that sets the framework for how banks and custodians manage bank capital.

Data Analysis Technology

The technique employed for data analysis in this research involves the utilization of multiple regression analysis, because the study uses multi-years and
multi companies, the suggested model is anel regression. using the subsequent formula:

$$\boxed{Y = a + b_1X_1 + b_2X_2 + b_3X_3 + \varepsilon}$$

Information :

Y = profitability
β0 = constant
β1 – β3 = regression coefficient of each independent variable
X1 = Credit Risk
X2 = operational risk
X3 = capital adequacy
e = other variables not included in this model.

Classic Assumption Testing

Classical acceptance tests were performed to ensure that no normality, autocorrelation, multicollinearity, or heteroscedasticity was found in the multiple linear regression models in this study.

Multicollinearity test

According to (25), The objective of this examination is to determine whether the regression model can establish associations among the predictor variables. A reliable regression model must not exhibit any associations among the predictor variables. When the predictor variables are correlated, they are not orthogonal. Orthogonal variables are predictor variables that possess a correlation value of zero. By utilizing an error tolerance and an appropriate variance inflation factor (VIF), it is possible to identify the presence of multicollinearity. These two measures reveal the extent to which each predictor variable is explained by the other predictor variables. The outcome of this examination can be observed from the VIF score. A tolerance >0.10 or VIF <10 signifies no multicollinearity. (26).

Heterodispersity test

According to (26), The objective of carrying out the heteroscedasticity test is to establish whether there is any disparity in the variation among the residual observations in a regression model. If the residual variance is consistent across all observations, it is known as homoscedasticity, whereas if it is inconsistent, it is termed as heteroscedasticity.

To detect heteroscedasticity, a useful method is to examine the graph illustrating the correlation between the predicted values of the dependent variable ZPRED and the residual SRESID. A visible pattern, such as a consistent arrangement of points, indicates uneven distribution. It is essential to note that the absence of a recognizable pattern means that heterogeneity is not present.

Hypothesis Test

To test the proposed hypothesis, the t-test (partial effect test) is used according to (27), The condition is that the suggested proposition is acknowledged if the importance worth of the t-test is below 5% alpha. On the other hand, if the importance worth of the t-test is more than 5% alpha, the suggested proposition is declined. To execute some of the aforementioned assessments, we sought the assistance of the Eviews software.

RESULTS AND DISCUSSION

Main Research Overview

For this study, 17 banking companies were selected as a sample. 46 banks listed on IDX

Descriptive Statistical Analysis

Table 2 Descriptive Statistical Analysis

Variabel	**Mean**	**Median**	**Maximum**	**Minimum**	**Std. Dev**
ROA	1.970.824	1.950.000	4.220.000	0.020000	0.995405
NPL	0.934941	0.800000	2.960.000	0.000000	0.635534
BOPO	1.752.586	7.615.000	9.812.000	0.800000	9.357.813
CAR	5.232.459	2.279.000	4.331.000	0.180000	2.687.161

Based on the table above, it can be concluded that descriptive statistics with a sample of 17 companies. The bank with the lowest ROA level is PT. West Java and Banten Regional Development Banks Tbk and PT. Bank CIMB Niaga Tbk and the company that has the largest number of ROA is PT. Bank Mega Tbk.

The company that has the smallest number of Non-Performing Loans (NPL) is PT. Regional Development Bank of West Java and Banten Tbk and the company with the largest number of NPLs is PT Bank Tabungan Negara (Persero) Tbk.

The company that has the smallest amount of operational risk is PT. Regional Development Bank of West Java and Banten Tbk and the company with the largest operational risk value is PT Bank Tabungan Negara (Persero) Tbk.

The company that has the smallest amount of CAR is PT. Regional Development Bank of West Java and Banten Tbk and the company that has the largest CAR value is PT Bank China Construction Bank Indonesia Tbk.

Choosing a Panel Data Regression Model Method

Chow test results

Table 3 Solid feed test results

Redundant Fixed Effects Tests
Equation: Untitled
Test cross-section fixed effects

Effects Test	Statistic	d.f.	Prob.
Cross-section F	5.072647	(16,65)	0.0000
Cross-section Chi-square	68.878108	16	0.0000

Analyzing the test results above, we find that the cross section F has a probability value of 0.0000 and the chi-square cross section has a value of 0.000. These values are below the 0.05 significance level of the test. From this we can conclude that the fixed effects model is more viable than the common effects model.

Hausmann test results

Table 4 Hausmann test results

Correlated Random Effects - Hausman Test
Equation: Untitled
Test cross-section random effects

Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Cross-section random	2.267903	3	0.5187

After analyzing the aforementioned test outcomes, we have determined that the numeric quantity of the stochastic random cross section is 0.5187. In case this figure surpasses the 0.05 level of significance of the examination, it can be inferred that there exists a random influence, and this model is more feasible than the model with fixed effects.

Lagrange multiplier test results

Table 5: Lagrangian Multiplier Test Results

Lagrange Multiplier Tests for Random Effects
Null hypotheses: No effects
Alternative hypotheses: Two-sided (Breusch-Pagan) and one-sided
(all others) alternatives

	Test Hypothesis		
	Cross-section	Time	Both
Breusch-Pagan	28.87298 (0.0000)	3.576027 (0.0586)	32.44901 (0.0000)

After analyzing the outcomes of the above calculation the probability value of the Breusch-pagan cross section <0.05, it can be concluded that the Random Effect Model (REM) is more appropriate to use than the Common Effect Model (CEM).

Conclusion Models

Table 6 Model Conclusion

Metode	**Pengujian**	**Hasil**
Uji *Chow*	CEM vs FEM	FEM
Uji *Hausman*	FEM vs REM	REM
Uji *Lagrage Multiplier*	CEM vsREM	REM

After analyzing the outcomes of the three examinations conducted, we can deduce that the panel data regression model and panel data regression equation employed in hypothesis testing are models of random effects (REM).

Test R^2

Table 7 Table of Coefficient of Determination (R^2)

R-*squared*	0,106722
Adjust R-squared	0,073637

As per the chart provided, the modified R-squared score stands at 0.073637, implying that 7.3% of the fluctuation in profitability alteration can be clarified by non-performing loans, BOPO, and CAR. Conversely, the remaining 92.7% can be accounted for by other factors that have been taken into account in this analysis. I am present here for this examination.

Hypothesis testing

F test

Table 8 F Test Results

Root MSE	0.665388	R-squared	0.106722
Mean dependent var	0.828446	Adjusted R-squared	0.073637

The value of the F-statistic shown in the table above is 3.225746. However, a reference F-table with a 5% significance level, df1(k-1) = 3 and df2(n-k) = 13, gives an F-table value of 3.41. Therefore, based on the F-statistic (3.225746), the F-table (3.41), and the probability value (F-statistic) of 0.026783 0.05, we can conclude that Ha is acceptable, and the study found that the independent variable is fixed debt , operating expenses, operating income, and capital adequacy ratio all affect investment returns at the same time.

t test

Table 9 Test t

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	2.023740	0.532362	3.801436	0.0003
NPL	0.065699	0.165743	0.396394	0.6929
BOPO	-0.018422	0.006994	-2.633953	0.0101
CAR	0.053760	0.020667	2.601298	0.0110

The t-score for inadequately executing loans, otherwise called non-performing loans (NPLs), is 0.396394. We can deduce that H0 is agreeable, and this research demonstrates that the NPL variable has no impact on ROA. The t-statistic for Business Operating Expenses is -2.633953. leading to the conclusion that Ha is acceptable. The CAR t-statistic value (2.601298) is greater than the t-table value (2.16037), and the corresponding probability value leads to the conclusion that Ha is acceptable.

Multiple Linear Regression Analysis

$$\boxed{Y = 2.023740 + 0.065699\ \text{NPL} - 0.018422\ \text{BOPO} + 0.053760\ \text{CAR} + \varepsilon}$$

One possible interpretation of the regression findings is:

The results of the first variable test show that Non Performing Loans (NPL) partially have no significant effect on Return On Assets (ROA) with a significance level of 0.6929 or greater than 0.05 so that the first hypothesis is rejected.

The results of the second variable test show that operational income operating expenses (BOPO) partially have a negative effect on Return On Assets (ROA) with a significance level of 0.0101 or less than 0.05 so that the second hypothesis is accepted.

The results of the third variable test show that the capital adequacy ratio (CAR) partially affects return on assets (ROA) with a significance level of 0.0110 or less than 0.05 so that the third hypothesis is accepted.

Impact of credit risk on profitability

The outcomes of the initial examination suggest the existence of Non-Performing Loans (NPL), as evidenced by a T-Score <; 0.396394. This may not have a noteworthy effect on your ROA. According to the t-score chart of 2.16037, the significance level is higher than 0.6929 or 0.05, thereby dismissing the first hypothesis. This implies that the return on invested capital is not subject to postponement. The findings of this investigation are in harmony with the previous researches. (17), (28), (29). This suggests that loan defaults only give investors an indication of the level of credit monitoring by banks.

The Impact of Operational Risk on Profitability

The impact of the second factor, specifically enduring profit and enduring expense (BOPO), has a partially adverse influence on the return on investment (ROA) and the t value depicted in Table 2.16037 is -2.633953 > t, indicating significance. It is evident from the severity level of 0.0101 that the second computation is significantly lower than 0.05, therefore, the hypothesis is accepted. The repercussions of enduring benefits and expenses (BOPO) on ROI are as follows. The findings of this research are in line with prior studies. (17), (29), (30). In other words, the higher the BOPO, the higher the company's return on investment. Conversely, when BOPO decreases, the company's return on investment decreases.

Impact of Adequacy of Capital on Profitability

The findings of the third variable examination indicate that the t score exceeds the t table score of 2.16037. Furthermore, it has been established that the Capital Adequacy Ratio (CAR) moderately impacts the Return on Investment (ROA), with a significant level of less than 0.0110. This outcome is reliable as the significance level is lower than 0.05. Consequently, the third conjecture regarding the influence of capital adequacy ratio (CAR) on return on equity (ROA) appears to be accurate. These findings align with the outcomes of previous research. (31), (32), (17). In other words, the higher the CAR, the higher the ROI. Conversely, if the CAR decreases, the company's ROI decreases.

CONCLUSION

After analyzing the research and discussion, we can draw the following conclusions. First, part of the profitability of IDX-listed banks from 2018 to 2022 is immune to credit risk. However, operational risk will partially affect the profitability of his IDX-listed bank during this period. Capital adequacy is expected to partially affect the profitability of IDX-listed banks from 2018 to 2022, taking into account three factors. Limitations in this study include the lack of time, materials, data, to limited literature which causes it to not be on target. We suggests looking at all companies listed on IDX for a more comprehensive study, rather than limiting the study to the banking industry. In addition, in future studies, it is recommended to expand the sample of the observation year to obtain better results. For aspiring researchers, we provide the materials and literature necessary to deepen the theory of corporate profitability. In some cases, it takes even longer for a researcher to understand the long-term state of the tissue, up to five years or more.

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