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The Influence of Banking Risks on the Health Level of Commercial Banks Listed on the Indonesia Stock Exchange from 2017 to 2022

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ABSTRACT

This research aims to test and analyze empirical evidence regarding the influence of credit risk, market risk, liquidity risk, and operational risk on the health level of banks. The dependent variable in this study is the health level of banks, which is measured based on self-assessment ratings at each bank. The independent variables in the study are credit risk, measured by NPL (Non-Performing Loans), market risk, measured by NIM (Net Interest Margin), liquidity risk, measured by LDR (Loan to Deposit Ratio), and operational risk, measured by BOPO (Operational Cost to Operational Income Ratio).

The population in this research consists of all commercial banks listed on the Indonesian Stock Exchange during the period 2017 – 2022. The sample determination in this study uses a purposive sampling technique with specific criteria. The total sample in the study consists of 45 commercial banks listed on the Indonesian Stock Exchange during the period 2017 – 2022. The analysis method used in the research is the ordinal logistic regression model.

The results of the analysis indicate that credit risk, market risk, and operational risk have a significant negative impact on the health level of banks. Additionally, liquidity risk does not have a significant impact on the health level of banks.

Keywords: credit risk, market risk, liquidity risk, operational risk, and the health level of banks.

INTRODUCTION

A financial institution, such as a bank, plays a role in economic growth as an intermediary institution. Intermediary institutions gather wealth from individuals with surplus wealth as savings, which can later be redistributed to those in need of credit or other banking products. The activities of these banks are beneficial in supporting the economic well-being of many people. Furthermore, commercial banks have the task of implementing decisions of Bank Indonesia, which serves as the Central Bank through monetary policies. Bank Indonesia is responsible for ensuring the stability of the value of money or prices and maintaining the circulation of money in the economy of a country. Apart from fulfilling their roles as fund gatherers and distributors, banks also have another objective, which is to maximize profitability.

The quality of a bank's performance in carrying out its tasks of gathering and redistributing funds can be seen from the level of the bank's health. The health of a bank, as indicated by its level, represents the bank's ability to collect funds, manage funds, redistribute funds, fulfill its obligations to the public, and comply with applicable banking regulations [2]. According to Peraturan Bank Indonesia No. 13/1/PBI/2011, it is stated that "Banks are required to improve or maintain the level of bank health by implementing risk

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[2] Ardhansyah and Dwi, "Bank Dan Lembaga Keuangan Lainnya."

management and prudence principles in their business activities." Both the board of directors and the board of commissioners have responsibilities for the continuity of the bank's operations, maintenance, and monitoring of the bank's health level.

The financial ratios reported in a bank's annual report depict the bank's performance during a specific period. Analyzing financial ratios helps management identify changes in the bank's financial condition. The results of ratio analysis reveal the sources of these changes, thereby assisting management in making calculations and decisions regarding the company's future success.

Table 1
The Average Financial Ratios of Banks Listed on the Indonesia Stock Exchange (BEI) for the Years 2017-2022.

Years	NPL	NIM	LDR	BOPO
2017	3,69	6,31	84,68	93,02
2018	3,62	6,35	91,44	91,15
2019	3,68	5,58	90,99	92,83
2020	3,82	4,28	84,96	95,87
2021	3,44	4,11	78,46	104,73
2022	3,08	4,68	88,53	93,41

Source: Processed Data, 2023

Based on Table 1, it shows how there have been increases and decreases in the average financial ratios of banks listed on the Indonesia Stock Exchange (BEI) from 2017 to 2022. The average Non-Performing Loan (NPL) ratio increased in 2020 during the COVID-19 pandemic. There was a decrease in the average Net Interest Margin (NIM), indicating a decline in the bank's interest income. Changes in the average figures for each year are also reflected in the Loan-to-Deposit Ratio (LDR), which indicates a bank's liquidity capacity. The Cost-to-Income Ratio (BOPO), showing the percentage of expenses incurred, also experienced fluctuations from 2017 to 2022.

Observing how the changes in average financial ratios in banks listed on the Indonesia Stock Exchange (BEI) have experienced increases and decreases, researchers are interested in conducting further research on the impact of banking risks on the health of banks over the last six years. This research is documented in the thesis with the title "The Influence of Banking Risks on the Health Level of Commercial Banks Listed on the Indonesia Stock Exchange from 2017 to 2022".

THEORETICAL FOUNDATION

The agency theory explains the interaction between an agent and a principal, where the principal is typically represented by the owner or shareholders, and the agent is represented by management [3]. In this theory, the agent's role is to provide reports on the financial condition and has a duty to the principal to maximize profits, as demonstrated by increased earnings. Meanwhile, the principal acts as a supervisor or the shareholders who provide capital to the company. The primary focus of this theory is the conflict of interest between the agent and the principal.

The agency theory makes an assumption that every individual is motivated by the desire to fulfill both their own interests as a principal and as an agent. This leads to conflicts of interest between the agent and the principal. Management has a better understanding of the company's condition because they run the company directly to gain

[3] Jensen and Meckling, "Theory of the Firm: Managerial Behavior, Agency Costs and Ownership Structure."

profit. In agency theory, this is referred to as information asymmetry, which is the situation where the agent possesses more comprehensive or complete knowledge about the company than the principal. The agent has more information about the current and future prospects of the company than the principal.

In the context of banks listed on the Indonesia Stock Exchange (BEI), the agent is represented by the bank's management, and the principal is represented by the shareholders. Banks have an obligation to consistently generate profits. Losses incurred by the bank can erode the trust of shareholders who have invested their capital. Furthermore, losses can lead to a decrease in the public's confidence in depositing their funds in the bank. The implementation of risk management in banks aims to anticipate or minimize the negative impacts of risks that the bank may face. As agents, banks have a responsibility to establish reliable risk management to enhance the trust of the principals (shareholders).

The influence of credit risk on the level of bank health

Credit risk is the risk resulting from the inability of an entity or individual to repay a loan in a timely manner, either at the scheduled time or thereafter [4]. Credit risk arises when borrowers or other parties are unable to fulfill their obligations to creditors or banks. The negative impact of high credit risk reflects the ineffective risk management in handling risks, especially non-performing loans. According to Widyastuti, Andriyani, and Leon (2021), risk management is necessary to handle credit risk because there is a high likelihood of negative consequences and pressure associated with credit risk that a bank may face. High credit risk increases the likelihood of a bank's performance declining. Deteriorating bank performance will affect the bank's health level. If there is a high level of credit risk, often due to a high number of non-performing loans, the bank may incur losses, indicating a decline in the bank's health. Conversely, a low level of credit risk, indicating a low number of non-performing loans, leads to profits for a healthy bank.

H1: Credit risk has a negative effect on the bank's health level

The influence of market risk on the health of a bank

Market risk is the risk that arises from differences in the overall market conditions, including differences in asset prices that can impact the administrative accounts and balance sheet positions [5]. Changes in market conditions, including price differences, can occur with this type of risk. High market risk makes it challenging for banks to increase their profits due to the highly unstable market conditions. Uncertain changes in market conditions and situations will disrupt a bank's ability to achieve expected profits. Therefore, banks affected negatively by high market risk will experience profit shortfalls because of uncertain market conditions, indicating that the bank's health level becomes less healthy. On the other hand, low market risk enables banks to generate profits, signifying an increasingly healthy bank.

H2: Market risk has a negative impact on the health of a bank

The influence of liquidity risk on the health of a bank

Liquidity risk is the risk of a bank's difficulty in meeting its obligations that are past due using cash flow and/or assets that can be easily sold [6]. The source of funding used does not disrupt the bank's operational efficiency or overall financial condition. Banks that are

[4] Mosey, Tommy, and Untu, "Pengaruh Risiko Pasar Dan Risiko Kredit Terhadap Profitabilitas Pada Bank Umum Bumn Yang Terdaftar Di Bei Periode 2012-2016."
[5] Mosey, Tommy, and Untu.
[6] Aji and Manda, "Pengaruh Risiko Kredit Dan Risiko Likuiditas Terhadap Profitabilitas Pada Bank BUMN."

unable to meet short-term obligations will disrupt the bank's financial condition. When a bank faces high liquidity risk, it indicates losses incurred by the bank due to the inability to settle short-term obligations, implying that the bank's health level becomes less healthy. Conversely, if a bank has low liquidity risk, it indicates profits for the bank, resulting in an increasingly healthy bank.

H3: Liquidity risk has a negative impact on the health of a bank

The influence of operational risk on the health of a bank

Operational risk arises from inadequacies in internal processes, inappropriate human resources quality, and the failure of systems or external events [7]. The bank's inability to control its operational costs to carry out its core banking activities, including the process of fund collection and distribution, will lead to losses. Excessively high operational costs increase the bank's operational risk. When operational risk is significant, the bank has to incur additional costs due to these risks, which can burden the bank's finances, disrupting the bank's financial condition.

H4: Operational risk has a negative impact on the health of a bank

RESEARCH METHOD

Research Variables

Anything in any form that is selected for examination, and from which knowledge is obtained to draw conclusions, is considered a research variable [8]. The type of research used is quantitative research because systematic calculations are required to understand the impact of one variable on another. The independent variables, or variables that influence, are credit risk, market risk, liquidity risk, and operational risk. The dependent variable, or the variable influenced in this study, is the health level of the bank.

Sample Selection

Samples are obtained from the results of selecting a portion of the population. The selection outcome is expected to represent all characteristics of the population. Thus, an effective sample is one that fully reflects the population's characteristics. The sampling method used is a purposive sample, meaning that the selection of samples is based on specific criteria, and they are obtained not randomly but through certain considerations. The following are the criteria for selecting samples for the upcoming testing:

1. Commercial banks listed on the Indonesia Stock Exchange (BEI) from the year 2017 or earlier.
2. Commercial banks that have been in operation for a minimum of six years up to 2022.
3. Commercial banks that consistently report annual financial statements, accessible on the BEI website or each bank's website, for the period from 2017 to 2022.
4. Commercial banks with information availability on Bloomberg, which can be found at the Faculty of Economics and Business, Diponegoro University, and annual financial reports for the period from 2017 to 2022.

[7] Sante, Murni, and Tulung, "Pengaruh Risiko Kredit, Risiko Likuiditas Dan Risiko Operasional Terhadap Profitabilitas Perusahaan Perbankan Yang Terdaftar Di Lq45, Buku Iii Dan Buku Iv Periode 2017-2019."
[8] Ghozali, "Aplikasi Analisis Multivariete SPSS 25."

By adhering to the established criteria, samples that meet the requirements can be selected. Out of the 47 banks in the population, 45 commercial banks listed on the Indonesia Stock Exchange that meet the criteria were selected as samples for the study.

Analysis Method

The data analysis in this study utilizes the Ordinal Logistic Regression model, also known as the Ordinal Logistic Regression model, as the method because the dependent variable used is on an ordinal scale. The regression equation in this research is as follows:

$$TKS = \alpha + \beta_1 NPL + \beta_2 NIM + \beta_3 LDR + \beta_4 BOPO + e$$

Keterangan:

TKS	: Health level of the bank
NPL	: Credit risk
NIM	: Market risk
LDR	: Liquidity risk
BOPO	: Operational risk
α	: Constant
β1,2,3,	: Regression coefficient
e	: Standard Error

RESEARCH RESULTS AND DISCUSSION

Sample Research Description

The research objects used in this study are Commercial Banks listed on the Indonesia Stock Exchange from 2017 to 2022. The sample selection in this research employs purposive sampling with several criteria:

Table 2
Research Sample Data

No	Criteria	Number of Companies
1.	Commercial Banks listed on the Indonesia Stock Exchange from 2017 to 2022	47
2.	Commercial Banks with incomplete annual report data from 2017 to 2022	(2)
3.	Total number of Commercial Banks selected as samples for the study	45

Variable Description

Tabel 3
Case Processing Summary

		N	Marginal Percentage
Tingkat Kesehatan Bank	Sangat Sehat	17	6.9%
	Sehat	200	81.6%
	Cukup Sehat	28	11.4%
Valid		245	100.0%

Missing	0
Total	245

Source: SPSS Output

Based on the descriptive statistical analysis table above, it can be observed that the average value of the bank health level variable is "Sehat". The majority of the commercial banks listed on the Indonesia Stock Exchange are rated as "Sehat," with a percentage value of 81.6%. Additionally, 6.9% of banks fall into the "Sangat Sehat" category, while 11.4% are categorized as "Cukup Sehat".

Tabel 4
Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
Tingkat Kesehatan Bank	245	1	3	2.04	.427
NPL	245	.00	10.66	3.3748	1.94154
NIM	245	-4.00	18.56	4.6291	2.49473
LDR	245	20.53	151.75	84.9391	21.51559
BOPO	245	26.50	202.74	88.6096	23.31373
Valid N (listwise)	245				

Source: SPSS Output

Based on the descriptive statistical analysis table above, it can be observed that the average NPL (Non-Performing Loans) is 3.37 for the commercial banks listed on the Indonesia Stock Exchange, which falls into the "Sehat" category based on Kodifikasi Peraturan Bank Indonesia. The average NIM (Net Interest Margin) of 4.63 is considered "Sangat Sehat," as is the average LDR (Loan-to-Deposit Ratio) of 84.94. However, the BOPO (Cost-to-Income Ratio) is considered "Kurag Sehat" with a value of 88.6.

Result and Discussion

Normality Test

The normality test serves the purpose of testing whether the residual values or error terms in the regression model have a normally distributed characteristic. A normally distributed residual value indicates a good model compared to a non-normal distribution. In this research, the assumption of the Central Limit Theorem is used. The Central Limit Theorem states that data is considered normal when the sample size is sufficiently large. If the number of observations is substantial, typically greater than 30, the normality assumption can be considered as met [9]. Therefore, according to the Central Limit Theorem, the data in this study can be considered to follow a normal distribution because the sample size in this study consists of 245 samples, which is well above the 30-sample threshold. Although the normality test results may still show non-normality after removing outliers, the presence of outliers in the data can disrupt the results of the test. Hence, in the subsequent tests, the analysis was conducted using the 245 samples with outliers removed.

Autocorrelation Test

The autocorrelation test is used to identify whether there is correlation or mutual interdependence between variables in a prediction model regarding changes over time

[9] Gujarati, "Dasar-Dasar Ekonometrika Jilid I Dan II."

periods. The test conducted needs to pay attention to the Durbin-Watson (DW) statistic, calculated as dU and dL. A good regression model is one that is free from autocorrelation.

Table 5
Results of the Autocorrelation Test after Correction

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.461[a]	.212	.199	.33537	1.965

Source: SPSS Output

After conducting the autocorrelation correction using Cochrane-Orcutt, a Durbin-Watson (DW) statistic of 1.965 was obtained. Based on the test results, the Durbin-Watson value exceeds dU and is less than 4-dU, or dU < d < 4-dU (1.81384 < 1.965 < 2.18616). From the autocorrelation test results, it can be concluded that there are no signs of autocorrelation, either in the form of negative or positive autocorrelation.

Multicollinearity Test

The multicollinearity test is used to identify correlations among independent variables in regression analysis. An ideal regression model should show no significant correlations among the independent variables. To identify the presence of multicollinearity, we can refer to tolerance values or variance inflation factors (VIF).

Tabel 6
Result of the Multicollinearity Test

Model		Collinearity Statistics	
		Tolerance	VIF
1	NPL	.818	1.223
	NIM	.927	1.079
	LDR	.931	1.075
	BOPO	.821	1.218

Source: SPSS Output

Based on the results of the multicollinearity test, the smallest Tolerance value is associated with NPL, with a Tolerance value of 0.818. This value indicates that there is no significant correlation among the independent variables because there is no Tolerance value below 0.01. Furthermore, the Variance Inflation Factor (VIF) is highest for NPL, with a VIF value of 1.223. It was found that there are no independent variables with a VIF exceeding 10. Therefore, the conclusion drawn is that there is no multicollinearity among the independent variables in the regression model.

Heteroskedasticity Test

The heteroskedasticity test is used to examine whether there is an unbalanced or uneven variation in the residuals in a regression model. One method to test for heteroskedasticity is by performing a Glejser test. The test results are based on the Chi-Square statistic.

Table 7
Result of the Heteroskedasticity Test

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	T	Sig.
1	(Constant)	.225	.058		3.880	.000
	NPL	.002	.006	.023	.321	.749
	NIM	-.002	.004	-.029	-.442	.659
	LDR	.000	.000	-.030	-.446	.656
	BOPO	-.001	.000	-.125	-1.763	.079

Source: SPSS Output

Based on the heteroskedasticity test results from the transformed data, the smallest significance value is 0.079. This means that all independent variables tested have significance values exceeding 0.05 or are not significant with values below 0.05. The absence of variables below 0.05 in the test results indicates the absence of heteroskedasticity.

Model Fitting Information Test

The Fitting Information test is a way to determine whether including independent variables in an ordinal logistic regression model results in an improved fit compared to a model with just an intercept. It helps understand whether adding independent variables to the model can make a significant contribution to the overall quality of the model.

Table 8
Model Fitting Information

Model	-2 Log Likelihood	Chi-Square	df	Sig.
Intercept Only	293.357			
Final	234.451	58.906	4	.000

Link function: Logit.
Source: SPSS Output

Based on Table 8, there is a decrease in the -2 Log Likelihood from Intercept Only to Final, where it goes from 293.357 to 234.451. This decrease in the value indicates that the regression model used has improved results. The significance value in the test is found to be 0.00, which is lower than 0.05. This suggests that the model is a good fit with the addition of the independent variables.

Goodness Of Fit Test

This test aims to demonstrate the goodness of fit of the model to empirical data. The Goodness of Fit test is assessed based on the significance value of the Chi-Square statistic. If the significance value exceeds 0.05 (significance values for Pearson and Deviance > 0.05), the conclusion is drawn that the model under study fits well with the observed data. In other words, when the significance level of the Chi-Square test statistic is

greater than 0.05, it suggests that the model being examined is a good match for the observed data.

Table 9

Goodness Of Fit Test

	Chi-Square	Df	Sig.
Pearson	381.940	484	1.000
Deviance	234.451	484	1.000

Link function: Logit.

Source: SPSS Output

Based on Table 9, the Chi-Square values are 381.940 (Pearson) and 234.451 (Deviance) with significance values of 1.000 for both. With a p-value of 1.000, which is greater than 0.05, it indicates that the Goodness of Fit suggests that the model is a good fit for the data. This means that the regression model used is appropriate and fits well with the empirical data.

Pseudo R-Square

Pseudo R-Square is performed to assess the extent to which dependent variables are explained by independent variables in a statistical model. The values generated range from zero to one and are derived from Nagelkerke, Cox and Snell, and McFadden values. Pseudo R-Square is a measure of the goodness of fit of a statistical model. It provides information about how well the independent variables in the model explain the variation in the dependent variable.

Table 10

Pseudo R-Square

Cox and Snell	.214
Nagelkerke	.306
McFadden	.201

Link function: Logit.
Source: SPSS Output

Based on the table above, three different models are shown: Nagelkerke, Cox and Snell, and McFadden. In this test, the model with the highest R-Square is Nagelkerke, with a value of 0.306. This value indicates that approximately 30.6% of the variation in the dependent variable is explained by the independent variables, while the remaining 69.4% is influenced by other variables not included in the statistical model. This value suggests that the independent variables in the study, which are the banking risks, can predict about 30.6% of the bank's health or performance.

Test of Parallel Lines

The Parallel Lines test is conducted to examine whether the parameters across all categories are similar or not. This test is used to assess the appropriateness of the model, as model mismatch can occur due to errors in selecting the link function or model. In this test, the goal is to determine if the model's assumptions hold, indicating that they have a similar relationship with the independent variables.

Table 11

Test of Parallel Lines

Model	-2 Log Likelihood	Chi-Square	df	Sig.
Null Hypothesis	234.451			
General	227,500	6.951	4	.139

Source: SPSS Output

Based on Table 11, the test results show a Chi-Square value of 6.951 and a p-value of 0.139. According to the test results, the p-value exceeding 0.05 indicates that the model has consistent parameters for its variables, and the link function is consistent for all equations. Therefore, the use of the link function is appropriate, and further model selection is not necessary. This suggests that the model's assumptions about the similarity of parameters across categories and the choice of the link function are valid and do not need further adjustments or changes.

Ordinal Logistic Regression Analysis

Hypothesis testing in this research uses the Wald test to determine whether any of the independent variables have an impact on the dependent variable. The decision to accept or reject the hypotheses is based on the coefficients' values and their significance. The coefficient values in the test results indicate whether the independent variables have a positive or negative influence. The Wald test helps to assess the statistical significance of the coefficients of the independent variables in the ordinal logistic regression model.

Table 12

Result of the Wald Test

		Estimate	Std. Error	Wald	df	Sig.
Threshold	[TingkatKesehatanBank = 1]	-.123	.986	.016	1	.901
	[TingkatKesehatanBank = 2]	5.794	1.085	28.519	1	.000
Location	NPL	.310	.100	9.683	1	.002
	NIM	-.170	.071	5.712	1	.017
	LDR	-.007	.009	.695	1	.405

BOPO	.039	.008	22.838	1	.000

Link function: Logit.

Source: SPSS Output

The Health of a Bank = α + 0,310NPL – 0,170NIM – 0,007LDR + 0,039BOPO + e

From the regression equations, it can be interpreted that the variables of credit risk and operational risk, as measured by the NPL and BOPO indicators, have a negative impact on the health of banks. On the other hand, the variables of market risk and liquidity risk, as measured by the NIM and LDR indicators, have a positive impact on the health of banks. This suggests that an increase in credit risk and operational risk tends to decrease the health of banks, while an increase in market risk and liquidity risk tends to improve the health of banks.

Table 13

Summary result of the Hypothesis Testing

No	Independent Variable	Hypothesis	Wald Test		Result
			Effect	Significance	
H1	Credit Risk	Negative	Negative	Significant	Accepted
H2	Market Risk	Negative	Negative	Significant	Accepted
H3	Liquidity Risk	Negative	Positive	Not Significant	Rejected
H4	Operational Risk	Negative	Negative	Significant	Accepted

Hypothesis 1

The first hypothesis in this research suggests that credit risk has a negative impact on the health of banks. This is based on agency theory, which assumes that banks will act in their own self-interest. When banks are pressured to extend as much credit as possible by shareholders, they may freely extend credit, resulting in a higher number of problematic loans. Based on the regression analysis presented, the regression coefficient for the credit risk variable indicates that credit risk has a negative impact on the health of banks. The higher the credit risk faced by the bank, the less healthy the bank's health level becomes. Therefore, hypothesis H1, which states that credit risk has a negative impact on the health of banks, is accepted.

Hypothesis 2

The second hypothesis in this research suggests that market risk has a negative impact on the health of banks. Interest income in a bank is one of the primary sources of revenue. Based on agency theory, banks are required to generate profits in unstable market conditions in their efforts to satisfy shareholders. According to the results of the regression

analysis, the regression coefficient for the market risk variable indicates that market risk has a negative impact on the health of banks. The higher the market risk faced by the bank, the less healthy the bank's health level becomes. Therefore, hypothesis H2, which states that market risk has a negative impact on the health of banks, is accepted.

Hypothesis 3

The third hypothesis in this study suggests that liquidity risk has a negative impact on the health of banks. This is based on agency theory, which states that banks act as freely as possible in lending to generate profits, resulting in a decrease in the liquidity of the bank. According to the results of the regression analysis, the regression coefficient for the liquidity risk variable indicates that liquidity risk has a positive impact on the health of banks. This is because the bank's lending behavior not only indicates low liquidity but also shows that the bank is capable of lending extensively. In addition, during the study period, there was a year of the pandemic, and there were changes in Bank Indonesia regulations governing the minimum required reserve and short-term liquidity loans for banks facing liquidity problems. Therefore, hypothesis H3, which states that liquidity risk has a negative impact on the health of banks, is rejected.

Hypothesis 4

The fourth hypothesis in this study suggests that operational risk has a positive impact on the health of banks. Based on agency theory, banks are expected to minimize the costs associated with maintaining their operational systems and the competency of their staff. Failures in the system and errors resulting from incompetent staff will lead to additional costs for the bank. According to the results of the regression analysis, the regression coefficient for the operational risk variable indicates that operational risk has a negative impact on the health of banks. The higher the operational risk that a bank faces, the unhealthier the bank's health level becomes. Therefore, hypothesis H4, which states that operational risk has a negative impact on the health of banks, is accepted.

CONCLUSION

The research was conducted using quantitative analysis on secondary data collected from various sources. The data sources included Bloomberg Financial Laboratory at the Faculty of Economics and Business, the official website of the Indonesia Stock Exchange (BEI), and the official websites of the banks being studied, covering the period from 2017 to 2022. The population of the study consisted of commercial banks listed on the Indonesia Stock Exchange from 2017 to 2022. The sample for this study was selected based on specific criteria (purposive sampling) and included a total of 245 samples, which were used in the research with ordinal logistic regression analysis conducted using IBM SPSS *Statistics* 25.

The Influence of Credit Risk on Bank Health

The first hypothesis proposed that credit risk has a negative impact on the health of a bank. Based on the research results, the first hypothesis was accepted, indicating that credit risk has a negative impact on the health of the bank. High credit risk suggests a lack of risk management implementation in preventing the adverse effects of credit risk, such as non-performing loans, which worsen the bank's health.

The Influence of Market Risk on Bank Health

The second hypothesis suggested that market risk has a negative impact on the health of a bank. Based on the research findings, the second hypothesis was accepted,

indicating that market risk has a negative impact on the health of the bank. The significant interest income of the bank suggests low market risk, allowing the bank to achieve interest income effectively.

The Influence of Liquidity Risk on Bank Health

The third hypothesis proposed that liquidity risk has a negative impact on the health of a bank. Based on the research results, the third hypothesis was rejected, indicating that liquidity risk does not have a significant impact on the health of the bank. This is because low liquidity capability of a bank may be due to the extensive lending to maximize profits. Changes in Bank Indonesia regulations during the pandemic year also affected the bank's liquidity capability.

The Influence of Operational Risk on Bank Health

The fourth hypothesis suggested that operational risk has a negative impact on the health of a bank. Based on the research findings, the fourth hypothesis was accepted, indicating that operational risk has a negative impact on the health of the bank. The malfunctioning of operational systems and inadequately competent human resources lead to operational risk, which forces the bank to incur avoidable costs.

LIMITATIONS

The limitations of this study include:

1. The research focuses only on publicly-listed commercial banks and specific variables, namely credit risk, market risk, liquidity risk, and operational risk, using financial ratio indicators such as NPL, NIM, LDR, and BOPO. There are other risks in banks that can affect the health of a bank.
2. The study period covers the years 2017 to 2022. In 2020, a pandemic occurred, and there were changes in Bank Indonesia's regulations that had an impact on the research variables.

RECOMMENDATIONS

Here are some recommendations:

1. Publicly-listed commercial banks should maintain and enhance their bank health ratings to ensure public trust in using banking products.
2. The Financial Services Authority (OJK) and Bank Indonesia are advised to consistently monitor the activities and performance of banks listed on the stock exchange.
3. For future studies, it is recommended to explore additional variables that may impact bank health. This will contribute to a more comprehensive understanding of the dynamics affecting bank health and provide deeper insights for practitioners, regulators, and researchers.

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