Financial Resilience Amidst the Pandemic: A Study on Net Interest Margin and Key Banking Ratios in Indonesia

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Article Info:	Abstract
	This study aims to analyze the influence of credit disbursement ratio, low-cost fund ratio, efficiency ratio, and credit quality on Net Interest Margin (NIM) in the conventional banking industry in Indonesia before and during the COVID-19 pandemic. The formulation of the problems raised in this study includes how these financial ratios affect NIM in stable economic conditions and crises such as pandemics. The research method used is quantitative with a causal associative approach, using panel data from 46 conventional banks listed on the Indonesia Stock Exchange (IDX) during 2017-2022. The study results show that the credit disbursement ratio did not significantly affect NIM before the pandemic but had a significant influence during the pandemic. The ratio of low-cost funds did not significantly affect NIM before or during the pandemic. The efficiency ratio significantly affected NIM in both periods, demonstrating the importance of operational efficiency in maintaining bank profitability. Credit quality only significantly influenced NIM during the pandemic, where high credit risk impacted increasing interest rates to compensate for such risks. This research makes a theoretical contribution by enriching the literature on banking risk management in crises. In practical terms, these findings reference bank management's strategic decisions to maintain financial stability amid severe economic challenges. The latest of this research lies in comparative analysis before and during the pandemic, which provides insight into financial dynamics amid a crisis.

INTRODUCTION

The COVID-19 pandemic that hit the world at the end of 2019 brought major changes in various aspects of life, including the banking sector (Gazi et al., 2022). As a sector highly dependent on economic stability and customer confidence, banking has experienced significant pressure during the pandemic (Banna et al., 2021; Lucky Nugroho et al., 2023). Declining economic activity, increasing uncertainty, and changes in consumer behavior are the main challenges for banks in maintaining their financial performance. One of the most

important performance indicators in the banking industry is Net Interest Margin (NIM), which reflects the difference between interest income from productive assets and interest expense on bank liabilities (Labetubun et al., 2021; Maudos & Solís, 2009). The stable and high NIM reflects the bank's operational efficiency and ability to manage credit risk and liquidity. Before the pandemic, Indonesia's banking industry showed relatively stable performance, with a fairly strong NIM due to good asset and liability management. However, with the arrival of the pandemic, many banks are experiencing unprecedented pressure. The main issues affecting the bank's NIM during this period were the increase in Non-Performing Loans (NPLs), the decline in credit demand, and challenges in maintaining operational efficiency (Basmar et al., 2022; Lucky Nugroho et al., 2021). This raises questions about how the credit disbursement ratio, low-cost fund ratio, efficiency ratio, and credit quality affect NIM in conditions before and during the pandemic (Lisa et al., 2023; Lucky Nugroho, Orban, et al., 2024).

Previous research has discussed many factors that affect NIM in stable economic conditions. For example, the credit disbursement ratio, which measures how much funds are disbursed in the form of credit compared to the total funds available, has been shown to positively influence NIM (Lestari et al., 2021). The higher the credit disbursement ratio, the greater the interest income that can be earned, increasing NIM. However, in a pandemic, an increase in the credit disbursement ratio can be accompanied by an increase in credit risk, reducing its effectiveness in increasing NIM (Magwedere & Marozva, 2022; Lucky Nugroho, 2020b). The low-cost fund ratio, which measures the proportion of funds obtained by low-cost banks, such as savings and current accounts, to total third-party funds, also plays an important role in determining NIM (Aktaş et al., 2015; Lucky Nugroho, Badawi, et al., 2020). Moreover, banks that have a high ratio of low-cost funds tend to have lower funding costs, which can increase the net interest margin. However, in crisis conditions, banks' ability to attract low-cost funds may be hampered by economic uncertainty, which may reduce the influence of this ratio on NIM (Lucky Nugroho, 2020a; Lucky Nugroho, Utami, et al., 2020).

The efficiency ratio, which measures a bank's ability to manage operational costs to generate revenue, is also a key factor in determining NIM. Banks that are more efficient in their operations can maximize their net income, thereby increasing NIM (Lucky Nugroho & Bararah, 2018; Yeveskina, 2021). During the pandemic, banks faced the challenge of maintaining efficiency amid rising costs related to credit risk and economic uncertainty, which made the influence of efficiency ratios on NIM even more important. In addition, credit quality, indicated by the Non-Performing Loan (NPL) ratio, also significantly impacts NIM. Poor credit quality increases the cost of provision for credit losses, reducing the bank's net income and lowering NIM (Kayombo et al., 2023; Yusufa et al., 2022). During the pandemic, the increase in NPLs became one of the main issues banks faced, directly impacting their NIM.

Based on this background, this study aims to analyze the influence of credit disbursement ratio, low-cost fund ratio, efficiency ratio, and credit quality on NIM in the conventional banking industry in Indonesia before and during the COVID-19 pandemic. This research is expected to answer some of the following questions:

- How does the ratio of credit disbursement to Net Interest Margin affect the conventional banking industry in Indonesia before and during the COVID-19 pandemic?
- How does the ratio of low-cost funds affect the Net Interest Margin of the conventional banking industry in Indonesia before and during the COVID-19 pandemic?
- How does the efficiency ratio affect the Net Interest Margin in the conventional banking industry in Indonesia before and during the COVID-19 pandemic?

- How does the credit quality ratio affect the Net Interest Margin of the conventional banking industry in Indonesia before and during the COVID-19 pandemic?

Furthermore, referring to the above formulation, the objectives of this study are as follows:

- Identify the effect of credit disbursement ratio on Net Interest Margin on the conventional banking industry in Indonesia before and during the COVID-19 pandemic.
- Identify the effect of the ratio of low-cost funds on Net Interest Margin on the conventional banking industry in Indonesia before and during the COVID-19 pandemic.
- Identify the effect of efficiency ratio on Net Interest Margin on the conventional banking industry in Indonesia before and during the COVID-19 pandemic.
- Identify the effect of credit quality on Net Interest Margin in the conventional banking industry in Indonesia before and during the COVID-19 pandemic.

The results of this research are expected to make a significant contribution, theoretically and practically. Theoretically, this study enriches the literature on banking risk management by providing new insights into how financial ratios affect NIM in crisis conditions such as pandemics. In addition, this research can be the basis for further research to explore the dynamics of the banking sector in crises. Practically, the implications of the results of this study can be a reference for bank management in making strategic decisions, especially in the face of unexpected crisis conditions such as the COVID-19 pandemic. A deeper understanding of the factors affecting NIM can help banks design more effective policies to maintain financial stability and increase profitability amid tough challenges.

The latest of this study lies in its focus on examining the influence of credit disbursement ratio, low-cost fund ratio, efficiency ratio, and credit quality on NIM before and during the COVID-19 pandemic. The study is also unique in that it combines analysis before and during the pandemic, which makes it possible to see changes in financial dynamics in crisis conditions. Data from the conventional banking industry in Indonesia makes an important empirical contribution, given that most of the previous research was conducted more in developed countries or stable economic conditions.

LITERATURE REVIEW

Agency Theory explains the relationship between a company's principal and the management (agent). This theory is based on the understanding that owners and management have a potential conflict of interest. However, owners expect that management will make decisions that maximize the company's profits and value, while management may tend to make decisions that are more favorable to themselves, even if they are not always in line with the owner's interests (Kräkel, 2002; Lucky Nugroho, Setiyawati, et al., 2024). Net Interest Margin (NIM) is one of the most important performance indicators in the banking industry. NIM is the difference between the bank's interest income from productive assets (such as loans) and the interest costs paid on obligations (such as customer deposits) (Anto et al., 2021; Nasfi et al., 2022; L Nugroho et al., 2024). The bank's management, as an agent, is responsible for managing the bank's assets and liabilities in such a way that it can maximize NIM. However, in a bid to increase NIM, management may face the temptation to take on greater risks, potentially harming banks in the long run. Therefore, maintaining a high NIM is challenging for management in the context of agency theory. They must balance the desire to increase NIM and the obligation to manage risk carefully. Otherwise, efforts to maximize NIM could increase the risk of default or decreased liquidity, ultimately damaging the bank's reputation and public trust.

Furthermore, NIM is a key indicator of the bank's business sustainability because it describes the effectiveness of management in managing productive assets and liabilities. A

high NIM indicates that the bank has minimized funding costs while maximizing income from productive assets, contributing directly to the bank's profitability. Thus, a high NIM can improve the bank's reputation from the perspective of investors, shareholders, and the general public and strengthen customer trust (Silaban, 2017). Therefore, previous research shows that various factors, including the ratio of credit disbursement, the ratio of low-cost funds, and the ratio of efficiency, influence NIM. For example, research by Septianingrum (2023) and Barik & Raje (2019) found that factors such as the ratio of low-cost funds and the ratio of efficiency significantly affect NIM. Meanwhile, Zahirah & Thomas (2018) showed that the efficiency ratio positively influences NIM.

This study focuses on the influence of Credit Disbursement Ratio, Low-cost Fund Ratio, and Efficiency Ratio on Net Interest Margin (NIM). Each variable is important in determining banking performance, especially in situations before and during the COVID-19 pandemic. The following is a discussion of the relationship between variables based on previous research and hypothesis development:

Ratio of Credit Distribution and NIM

The Credit Disbursement Ratio measures the extent to which banks disburse funds in credit compared to the total available funds. The higher this ratio, the higher the NIM because the interest income from the loans disbursed will increase. However, a loan disbursement ratio that is too high can also increase the risk of bad loans, which can have a negative impact on NIM. Research by Pratiwi et al. (2023) and Rachmaniyah et al. (2024) shows that the ratio of credit disbursement has a positive effect on profitability, including NIM. Therefore, the hypothesis in this study is as follows:
- H1: The Loan Disbursement Ratio affects the Net Interest Margin in the conventional banking industry in Indonesia.

Ratio of Low-cost Funds and NIM

The Efficiency Ratio reflects the bank's ability to manage operational costs to generate revenue. More efficient banks are expected to have higher NIMs, as controlling operational costs can increase net income. Novianty et al. (2023), and Septianingrum (2023) found that the ratio of low-cost funds significantly affects NIM because the lower cost of funds allows banks to increase net interest margins. Therefore, the hypothesis in this study is as follows:
- H2: Low-cost Funds Ratio affects Net Interest Margin in the conventional banking industry in Indonesia

Efficiency and NIM Ratio

The Efficiency Ratio reflects the bank's ability to manage operational costs to generate revenue. More efficient banks are expected to have higher NIMs, as controlling operational costs can increase net income. Furthermore, according to Puspitasari et al. (2021) and Setiawan & Wisna (2021) it shows that the efficiency ratio has a positive influence on NIM. Another study by Homaidi et al. (2018) supports these findings, showing that good operational efficiency contributes positively to NIM. Following this, the hypothesis in this study is as follows:
- H3: Efficiency Ratio affects Net Interest Margin in the conventional banking industry in Indonesia.

Credit Quality and NIM Ratio

Research by Akter & Roy (2017) and Iftikhar (2016) shows that poor credit quality, indicated by high NPLs, can reduce NIM. Meanwhile, research by Rahman et al., (2015) shows that credit quality can affect NIM, especially in challenging economic conditions such as the COVID-19 pandemic. Referring to this, the hypothesis in this study consists of:

- H4: Quality affects Net Interest Margin in the conventional banking industry in Indonesia.

METHOD

This study uses a quantitative method with a causal associative approach to determine the causal relationship between independent variables (Credit Disbursement Ratio, Low-cost Fund Ratio, Efficiency Ratio) and dependent variables (Net Interest Margin / NIM). This method was chosen because it is suitable for analyzing the influence of independent variables on dependent variables.

The population in this study is all conventional banks listed on the Indonesia Stock Exchange (IDX) during the 2017-2022 period. Based on the sample selection criteria, which included the completeness of financial statement data and consistency during the research period, the research sample consisted of 46 conventional banks. Using the purposive sampling method, the total number of observation data in this study reached 276, consisting of annual data of each bank for 6 years (2017-2022).

The data used in this study is secondary data obtained from the annual financial statements of banks listed on the Indonesia Stock Exchange (IDX) during the 2017-2022 period. The data includes information on credit disbursement ratios, low-cost fund ratios, efficiency ratios, net interest margins, and credit quality. Data is taken from the IDX's official website and other trusted official sources.

The data that has been collected is then processed using Eviews 13 software. The stages of data processing include the following steps:

- Descriptive Statistical Test: Conducted to provide an overview of the data distribution, mean, standard deviation, minimum and maximum values of each variable.
- Classical Assumption Test: Includes normality test, multicollinearity test, autocorrelation test, and heteroscedasticity test to ensure the data meets the assumptions required in regression analysis.
- Panel Data Regression Model Testing: Conducted to select the most appropriate regression model between a fixed effect model, a random effect model, or a pooled least squares model. This test was carried out using the Chow test, Hausman test, and Lagrange Multiplier test.

Furthermore, this study's data analysis was carried out using multiple linear regression. Multiple linear regression tests the effect of credit distribution ratio, low-cost fund ratio, and efficiency ratio on net interest margin.

The operational variables in this study are as follows:

- Credit Disbursement Ratio (X1): Measured by comparing the total credit disbursed with the available funds.
- Low-cost Funds Ratio (X2): Measured by comparing total low-cost funds (savings and current accounts) with total third-party funds.
- Efficiency Ratio (X3): Measured by comparing operating costs with operating income.
- Net Interest Margin (NIM) (Y): Measured by comparing net interest income to total productive assets.
- Credit Quality (M): Measured by the Non-Performing Loan (NPL) ratio, which is calculated by comparing non-performing loans with total loans disbursed.

RESULTS AND DISCUSSION
Results

Model Classical Assumption Test

The classical assumption test was carried out to ensure that the regression model used in this study met the basic assumptions of linear regression. The results of the classical assumption test on the model are as follows:

- The normality test was carried out using the Jarque-Bera test. The test results show that the residual data is normally distributed, indicated by a probability value of Jarque-Bera greater than 0.05, so it can be concluded that the regression model meets the normality assumption. Below are Figures 1 and 2 showing the results of the normality test:

Figure 1. Normality Test with Jarque-Bera Test for the 2017-2019 Period (Before the Covid-19 Pandemic)
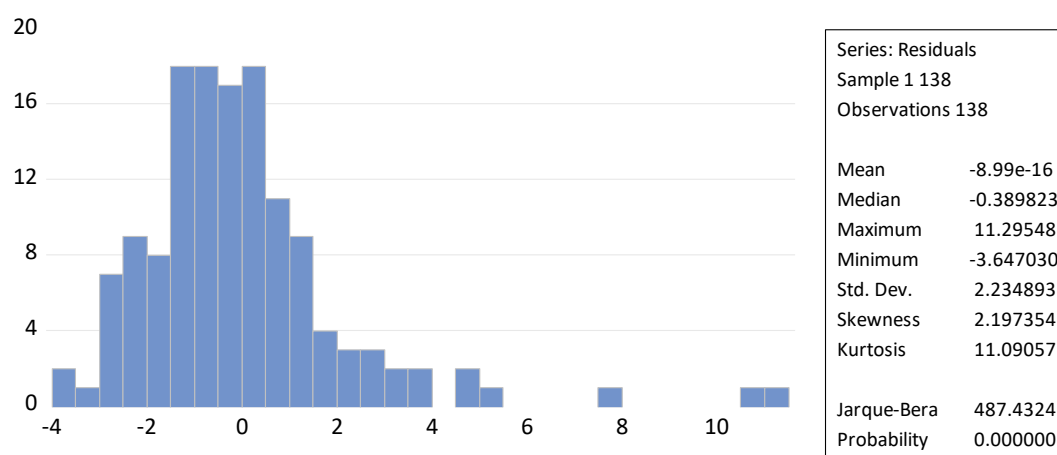
Source: Eviews 13 Software Processing Results

Figure 2. Normality Test with Jarque-Bera Test for the 2020-2022 Period (During the Covid-19 Pandemic)
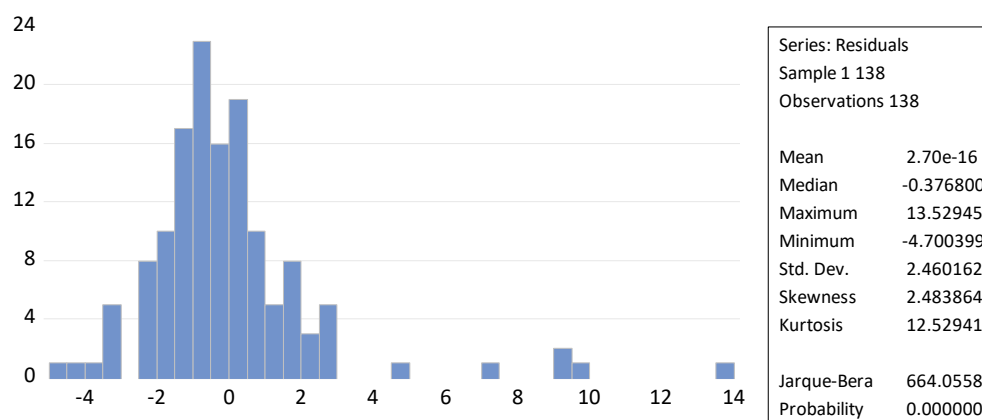
Source: Eviews 13 Software Processing Results

- The Multicollinearity Test was carried out by looking at the Variance Inflation Factor (VIF) value of each independent variable. The test results showed that all independent

variables had a Centered VIF value below 10, which means there were no serious multicollinearity issues in the model. These results are evidenced in Table 1 and Table 2 below:

Table 1. Multicollinearity Test for the 2017-2019 Period (Before the Covid-19 Pandemic)

Variance Inflation Factors
Date: 05/10/24 Time: 21:10
Sample: 1 129
Included observations: 129

Variable	Coefficient Variance	Uncentered VIF	Centered VIF
C	0.710631	54.55774	NA
X1	9.95E-06	8.323375	1.141902
X2	4.87E-05	6.606799	1.449859
X3	3.29E-05	21.21005	1.244481
X4	0.008449	3.391710	1.183421

Source: Eviews 13 Software Processing Results

Table 2. Multicollinearity Test for the 2020-2022 Period (During the Covid-19 Pandemic)

Variance Inflation Factors
Date: 05/10/24 Time: 21:14
Sample: 1 120
Included observations: 120

Variable	Coefficient Variance	Uncentered VIF	Centered VIF
C	0.589229	42.70195	NA
X1	1.03E-05	6.983889	1.246381
X2	4.42E-05	7.602232	1.305493
X3	2.66E-05	14.86804	1.098411
X4	0.012983	2.745466	1.107271

Source: Eviews 13 Software Processing Results

▪ The autocorrelation test was carried out using the Durbin-Watson test. The test results showed that the Durbin-Watson value was between 1.5 and 2.5, which means that there was no autocorrelation in the regression model. The results of the autocorrelation test data processing are shown in Tables 3 and 4 below:

Table 3. Autocorrelation Test with Durbin-Watson Test for the Period 2017 – 2019 (Before the Covid-19 Pandemic)

		Hannan-Quinn	
Log likelihood	-170.6918	criter.	2.790450
		Durbin-Watson	
F-statistic	19.15678	**Stat**	**2.358164**
Prob(F-statistic)	0.000000		

Source: Eviews 13 Software Processing Results

Table 4. Autocorrelation Test with Durbin-Watson Test for the 2020-2022 Period
(During the Covid-19 Pandemic)

		Hannan-Quinn	
Log likelihood	-158.1897	criter.	2.842681
		Durbin-Watson	
F-statistic	31.61580	**Stat**	**1.959681**
Prob(F-statistic)	0.000000		

Source: Eviews 13 Software Processing Results

▪ The heteroscedasticity test was carried out using the White test. The results refer to table 4 and table 5, indicating the absence of heteroscedasticity, characterized by a probability value greater than 0.05.

Table 5. Heteroscedasticity Test for the 2017-2019 Period (Before the Covid-19 Pandemic)

Heteroskedasticity Test: White
Null hypothesis: Homoskedasticity

F-statistic	1.434157	Prob. F(14,114)	0.1487
		Prob. Chi	
Obs*R-squared	19.31774	**Square(14)**	**0.1532**
		Prob. Chi-	
Scaled explained SS	21.98716	Square(14)	0.0789

Source: Eviews 13 Software Processing Results

Table 6. Heteroscedasticity Test for the 2020-2022 Period (During the Covid-19 Pandemic)

Heteroskedasticity Test: White
Null hypothesis: Homoskedasticity

F-statistic	0.944843	Prob. F(14,105)	0.5144
		Prob. Chi-	
Obs*R-squared	13.42609	**Square(14)**	**0.4933**
		Prob. Chi-	
Scaled explained SS	11.06769	Square(14)	0.6807

Source: Eviews 13 Software Processing Results

Hypothesis Test on

To determine the most appropriate panel data regression model, several tests are carried out as follows:

▪ Chow Test: This test determines if the Fixed Effect model is better than the Common Effect model. The test results based on Table 6 and Table 7 show that the Fixed Effect model is more suitable for use.

Table 7. Chow Test for the 2017-2019 Period (Before the Covid-19 Pandemic)

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

Effects Test	Statistics	D.F.	Prob.
Cross-section F	15.445812	(42,82)	0.0000
Cross-section Chi-square	282.163855	42	0.0000

Source: Eviews 13 Software Processing Results

Table 8. Chow Test for the 2020-2022 Period (During the Covid-19 Pandemic)

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

Effects Test	Statistics	D.F.	Prob.
Cross-section F	8.298930	(39,76)	0.0000
Cross-section Chi-square	199.185177	39	0.0000

Source: Eviews 13 Software Processing Results

- Hausman Test: This test is performed to choose between the Fixed Effect and Random Effect models. The results of the Hausman test in Table 8 and Table 9 show that the Fixed Effect model is more appropriate for this study.

Table 9. Hausman Test Period 2017-2019 (Before the Covid-19 Pandemic)

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

Test Summary	Chi-Sq. Statistics	Chi-Sq. D.F.	Prob.
Cross-section random	5.462062	4	0.2431

Source: Eviews 13 Software Processing Results

Table 10. Hausman Test for the 2020-2022 Period (During the Covid-19 Pandemic)

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

Test Summary	Chi-Sq. Statistics	Chi-Sq. D.F.	Prob.
Cross-section random	5.357039	4	0.2526

Source: Eviews 13 Software Processing Results

- Lagrange Multiplier (LM) test: This test is used to determine if the Random Effect model is better than the Common Effect model. The LM test results shown in Table 10 and Table 11 support the use of the Random Effect model, but because the Hausman test indicates that the Fixed Effect model is more suitable, the Fixed Efficacy model is used.

Table 11. Lagrange Multiplier Period 2017-2019 (Before the Covid-19 Pandemic)

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	83.75557	1.293576	85.04914
	(0.0000)	(0.2554)	(0.0000)

Source: Eviews 13 Software Processing Results

Table 12. Lagrange Multiplier for the 2020-2022 Period (During the Covid-19 Pandemic)

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	55.79280	1.495253	57.28805
	(0.0000)	(0.2214)	(0.0000)

Source: Eviews 13 Software Processing Results

The hypothesis test was carried out after the classical assumption test was fulfilled and the results of the hypothesis test of this study based on the model are as follows:

Table 13. Hypothesis Test on Model Period 2017-2019 (Before the Covid-19 Pandemic)

Dependent Variable: Y
Method: Panel EGLS (Cross-section random effects)
Date: 05/10/24 Time: 22:10
Sample: 2017 2019
Periods included: 3
Cross-sections included: 43
Total panel (balanced) observations: 129
Swamy and Arora estimator of component variances

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	6.596807	0.590490	11.17176	0.0000
X1	0.000920	0.002254	0.408200	0.6838
X2	0.002997	0.007792	0.384674	0.7011
X3	-0.019980	0.003476	-5.747555	0.0000
X4	0.021960	0.054359	0.403982	0.6869

Effects Specification			
		S.D.	Rho
Cross-section random		1.215397	0.8382
Idiosyncratic random		0.533977	0.1618

Weighted Statistics			
R-squared	0.225336	Mean dependent var	1.244763
Adjusted R-squared	0.200347	S.D. dependent var	0.600644
S.E. of regression	0.537116	Sum squared resid	35.77322
F-statistic	9.017368	Durbin-Watson stat	1.384429
Prob(F-statistic)	0.000002		

Source: Eviews 13 Software Processing Results

Table 14. Hypothesis Test on Model Period 2017-2019 (Before the Covid-19 Pandemic)

Dependent Variable: Y
Method: Panel EGLS (Cross-section random effects)
Date: 05/10/24 Time: 22:14
Sample: 2020 2022
Periods included: 3
Cross-sections included: 40
Total panel (balanced) observations: 120
Swamy and Arora estimator of component variances

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	4.394597	0.743188	5.913167	0.0000
X1	0.008781	0.003682	2.384469	0.0187
X2	0.009541	0.008825	1.081138	0.2819
X3	-0.009179	0.003790	-2.422067	0.0170
X4	-0.323928	0.104798	-3.090961	0.0025

Effects Specification				
			S.D.	Rho
Cross-section random			1.120192	0.7248
Idiosyncratic random			0.690261	0.2752

Weighted Statistics			
R-squared	0.170167	Mean dependent var	1.469107
Adjusted R-squared	0.141303	S.D. dependent var	0.749274
S.E. of regression	0.694322	Sum squared resid	55.43952
F-statistic	5.895506	Durbin-Watson stat	1.465654
Prob(F-statistic)	0.000237		

Source: Eviews 13 Software Processing Results

Based on Table 4 above, the following things can be known:

- Credit Disbursement Ratio: The test results show that the Credit Disbursement Ratio did not significantly affect Net Interest Margin (NIM) in the 2017-2019 period but had a significant effect in the 2020-2022 period.
- Low Fund Ratio: The test results show that the Low Fund Ratio does not significantly affect NIM in the 2017-2019 period and in the 2020-2022 period.
- Efficiency Ratio: The test results show that the Efficiency Ratio significantly affected NIM from 2017 to 2019 and from 2020 to 2022.
- Credit Quality: The test results show that Credit Quality did not significantly affect NIM in the 2017-2019 period but had a significant effect on the 2020-2022 period.

Discussions

This study aims to analyze the influence of Credit Disbursement Ratio, Low-cost Fund Ratio, Efficiency Ratio, and Credit Quality on Net Interest Margin (NIM) in the conventional banking industry in Indonesia, both before and during the COVID-19 pandemic. In the context of agency theory, bank management, as an agent, is responsible for maximizing NIM as one of the main financial performance indicators while maintaining credit quality and operational efficiency. The following is a discussion adjusted to the formulation of the problem proposed.

Effect of Credit Disbursement Ratio on Net Interest Margin before and during the COVID-19 pandemic

- Before the COVID-19 Pandemic (2017-2019)

   The study's results show that the Credit Disbursement Ratio did not significantly affect NIM in the pre-pandemic period. This is related to previous research conducted by Wahyuni et al. (2023). This may be due to economic stability, meaning banks do not need to adjust their credit policies aggressively. In stable economic conditions, management tends to be more cautious in distributing credit, so even though the credit disbursement ratio is high, the impact on NIM is insignificant (Sitepu et al., 2023).

- During the COVID-19 Pandemic (2020-2022)

   However, during the pandemic, the credit disbursement ratio significantly influenced NIM (Putri et al., 2022). The pandemic caused drastic changes in economic conditions, increasing credit risk and forcing banks to be more selective in distributing credit. In such conditions, the increase in the Loan Disbursement Ratio is carried out with higher interest rates to compensate for the increased risk, thus positively impacting NIM. This phenomenon supports the agency theory, where management needs to make riskier decisions to maintain profitability in crisis conditions. This finding is interesting because banks should carefully distribute financing during the pandemic. There are several reasons why banking credit distribution has had a significant influence on Net Interest Margin (NIM) during the pandemic period, including:

   1. Interest Rate Reduction: During the pandemic, Bank Indonesia and the Financial Services Authority (OJK) lowered the benchmark interest rate as an economic stimulus (Subagyo et al., 2024). This interest rate reduction encourages economic growth by lowering interest loans for entrepreneurs and the general public (Alfiyan et al., 2023). Although this reduction in the benchmark interest rate may cause a decrease in interest income from loans provided by banks, an increase in the volume of loans disbursed can compensate for the decrease. However, since NIM is calculated as the difference between the interest income received from the loan and the interest charge paid on the funds earned, a decrease in interest rates can significantly depress NIM if the bank cannot maintain an adequate profit margin from the credit disbursed.

   2. Relaxation of Credit Quality Determination: The government, through the OJK, provides relaxation related to credit quality determination, which allows banks not to immediately classify non-performing loans during the pandemic. This relaxation causes reserves for non-performing loans to be relatively lower than normal. With lower reserves, banks have more capital to channel as credit, which can increase credit volumes. However, this lower credit quality also poses a long-term risk to the bank's financial health, which, if not managed properly, could lower NIM in the future.

   3. Increased Credit Volume: To support entrepreneurs and prevent mass bankruptcies, banks are encouraged to increase credit disbursement despite the depressed economic conditions. This increase in credit volume can potentially increase bank interest income, directly affecting NIM. However, aggressive credit increases without adequate credit risk can lead to an increase in non-performing loans in the future, which can ultimately lower NIM.

   4. Credit Risk and Its Management: During the pandemic, credit risk increased due to economic uncertainty and decreased debtors' solvency. Despite efforts to support debtors through credit restructuring policies and relaxation of reserves, banks still face the risk of deterioration in credit quality that could affect NIM. If many non-

performing loans arise after the pandemic period ends, banks may have to increase future reserves, which could put pressure on NIM.

The Effect of the Low-cost Fund Ratio on Net Interest Margin before and during the COVID-19 pandemic

- Before the COVID-19 Pandemic (2017-2019)

    The study's results in the pre-pandemic period showed that the low-cost Funds Ratio did not significantly affect NIM, where the findings of this study are also in line with the findings of previous research conducted by Thinh et al. (2022), which states that low-cost funds can indirectly affect NIM through its relationship with other banking key financial indicators. One of the potential causes is the tight competition in the banking industry, resulting in the profit margin from low-cost funds being insufficient to significantly increase NIM (Mateev et al., 2021).

- During the COVID-19 Pandemic (2020-2022)

    During the pandemic, the low-cost Funds Ratio did not significantly influence NIM where the findings in this study are in line with Kirkwood (2010), which states that Banks' efforts to increase the proportion of low-cost funds to reduce funding costs in conditions of economic uncertainty and increasing risk of default during the crisis (Covid-19 pandemic) were not effective in increasing NIM. While banks may try to increase the portion of low-cost funds to reduce funding costs, economic uncertainty and increased risk of default reduce the effectiveness of this strategy in increasing NIM. This shows that other factors, such as credit risk and operational efficiency, dominate in determining NIM in crisis conditions (Adelopo et al., 2018).

Effect of Efficiency Ratio on Net Interest Margin before and during the COVID-19 pandemic

- Before the COVID-19 Pandemic (2017-2019)

    The Efficiency Ratio has been proven to significantly influence NIM in the pre-pandemic period, where the results of this study are in line with Setiawan & Wisna (2021), which state that better operational efficiency allows banks to reduce operational costs and the impact can increase NIM. This shows that operational efficiency is a key factor in stable economic conditions that allow banks to maximize profitability.

- During the COVID-19 Pandemic (2020-2022)

    Following data processing results during the pandemic, the effect of the Efficiency Ratio on NIM remained significant and these results are in line with research conducted by Galazova & Магомаева (2019), and Sugihyanto & Jansen Arsjah, (2023) which states that currently banks are required to utilize digital banking and transformation to improve services for customers and improve banking efficiency in order to maintain their financial performance. However, the effect has decreased slightly compared to the pre-pandemic period. This may be due to additional pressure on operational efficiency due to increased costs related to credit risk and economic uncertainty. Nonetheless, efficiency remains an important factor in maintaining NIM amid a crisis.

The Effect of Credit Quality on Net Interest Margin before and during the COVID-19 pandemic

- Before the COVID-19 Pandemic (2017-2019)

    Credit quality did not significantly influence NIM in the pre-pandemic period. This study's findings are in line with statements from previous researchers Espinoza and Prasad (2010), who stated that stable economic conditions make credit risk relatively

low, so variations in credit quality do not significantly affect NIM.
▪ During the COVID-19 Pandemic (2020-2022)

However, this research found during the pandemic, Credit Quality significantly influenced NIM. The high number of Non-Performing Loans (NPLs) due to the increased risk of default makes banks more aggressive in setting higher interest rates to compensate for potential losses. This shows that credit quality is a very important factor in determining NIM in crisis conditions, supporting the research findings by Adelopo et al. (2018), which emphasize the importance of credit risk management.

CONCLUSION

This study aims to analyze the influence of Credit Disbursement Ratio, Low-cost Fund Ratio, Efficiency Ratio, and Credit Quality on Net Interest Margin (NIM) in the conventional banking industry in Indonesia before and during the COVID-19 pandemic. Based on the results of the study, it can be concluded that:
▪ The Credit Disbursement Ratio significantly influenced NIM only during the COVID-19 pandemic. This shows that in crisis conditions, an increase in the ratio of credit disbursement with higher interest rates can increase NIM as compensation for higher risks.
▪ The Low cost Fund Ratio did not significantly influence NIM either before or during the pandemic. This indicates that in both stable and crisis economic conditions, the ratio of low-cost funds is not strong enough to significantly affect NIM.
▪ The Efficiency Ratio significantly influenced NIM in both periods, before and during the pandemic. Good operational efficiency remains a key factor supporting the increase in NIM, demonstrating the importance of effective cost management in the banking industry.
▪ Credit Quality only significantly influenced NIM during the pandemic, where high credit risk impacted the setting of higher interest rates to compensate for such risks, thus contributing to an increase in NIM.

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