








# “Does governance affect non-performing loans? Empirical evidence of Indonesian banks”

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# DOES GOVERNANCE AFFECT NON-PERFORMING LOANS? EMPIRICAL EVIDENCE OF INDONESIAN BANKS

## Abstract

This paper examines how good corporate governance (GCG) affects Indonesian banks' non-performing loans (NPLs) and its relevance to the current banking sector situation in Indonesia. The research findings provide a comprehensive understanding of the effect of bank-specific factors on NPLs, offering timely and important insights for the banking industry. This quantitative study focuses on commercial banks listed on the Indonesian Stock Exchange in 2021. The observation period spans four years (2018–2021), utilizing 216-unit panel data from 54 banks for analysis. Documentation was used for data collection, and panel data multiple regression analysis was employed as the data analysis technique. The findings indicate that increased board of directors' meetings are associated with higher NPLs, while having independent board commissioners correlates with lower NPLs. The p-value of the board of director meetings is 0.027, and the coefficient is 0.005037. The p-value of the board of independent board commissioners is 0.017, and the coefficient is  $-0.00109$ . Effective GCG implementation is crucial in maintaining credit quality and reducing NPL levels. The p-value of the GCG score is 0.043, and the coefficient is  $-0.42985$ . However, the frequency of Board of Commissioners' meetings does not significantly affect NPLs. The study also shows that the Loan Deposit Ratio (LDR) and bank size negatively and significantly impact NPLs. In contrast, Return on Equity (ROE) and leverage do not significantly affect NPL levels in Indonesian banks. This study provides empirical evidence that underscores the importance of robust GCG, especially during the challenging business conditions triggered by the pandemic.

## Keywords

risk, loans, directors, commissioners, governance, profitability, assets, size

## JEL Classification

G21, G34, M41

## INTRODUCTION

Banking is a crucial component of a country's economy, with its performance driving sustainable economic growth. Banking Law No. 7 of 1992 and Law No. 10 of 1998 are banking regulations in Indonesia. They state that banks serving various segments of society and the economy consist of commercial banks, Islamic banks, and rural credit banks. The risk of bad debts remains a major challenge for banks in Indonesia, especially in an uncertain economic situation. Commercial banks in Indonesia play a vital role in the economy, both in terms of financial intermediation and economic and social stability.

Non-performing loans (NPLs) are loans the borrower fails to pay according to the schedule specified in the credit agreement. They are very important to monitor because they directly affect the profitability and sustainability of bank operations. An increase in NPLs can also

indicate problems in a country's economy, especially in the financial sector. Internal and external factors can cause high NPLs. The impact of NPLs on banks includes financial losses, decreased liquidity, and increased systemic risk.

The NPLs ratio of banks in Indonesia had increased during the pandemic. Financial authorities in Indonesia have taken policy measures such as credit restructuring and have significantly reduced the spike in NPLs. The potential for NPLs, especially from restructured credit, remains a challenge that banks must consider even after the pandemic. The banking sector needs to strengthen risk management and adaptation to uncertain global macroeconomic conditions to maintain NPLs stability in the future.

## 1. LITERATURE REVIEW

An efficient and healthy banking system is one of the main pillars of a country's economic development. Overall, the role of banks is very important in supporting economic growth, maintaining financial stability, and improving public welfare. Therefore, banks should be able to maintain their performance well, including managing financing with high risks. The banking sector is a crucial financial intermediation pillar for economic growth and development (Akhter, 2023). One key indicator of banking performance is the NPL ratio, which is essential for assessing potential problematic financing. NPLs represent a significant credit risk in the banking industry (Kepli et al., 2021). NPLs have become a significant issue for banks, exacerbated by the COVID-19 pandemic (Apergis, 2022). NPLs are a critical issue, as they can lead to banking crises (C. Nwafor & O. Nwafor, 2023). The magnitude of NPLs is crucial for banking stability, as a high NPL ratio can deteriorate asset quality and impair a bank's capacity to lend to the real economy (Pirgaip & Uysal, 2023). NPL is a problematic credit that no longer produces principal or interest payments on schedule. The elevated level of NPLs is particularly alarming, drawing on lessons from the previous financial crisis and highlighting the necessity for well-planned, long-term policies to restore the financial sector (Shala et al., 2022). In addition, high or rising levels of non-performing loans in the banking sector pose a risk to financial stability, hinder the flow of funds from savers to borrowers, and could potentially decrease investment and long-term economic growth (Staehr & Uusküla, 2021).

NPLs generate uncertainty and diminish banks' willingness and ability to lend, adversely affecting sector activity. Consequently, analyzing NPLs is es-

sential. NPLs are a warning sign indicating potential threats to a country's economy (Akhter, 2023). After the 2008 financial crisis, NPLs on European banks' balance sheets surged, significantly reducing their lending capacity and slowing economic activity across Europe (Thornton & Di Tommaso, 2021). High NPL levels on a bank's balance sheet can negatively impact the health of the banking system and its ability to lend to the real economy through three primary channels (Huljak et al., 2020). First, high NPLs diminish bank profitability. Second, they carry a higher risk weight, leading to increased capital requirements. Managing large volumes of NPLs can divert crucial managerial resources from core activities and more profitable endeavors.

Many factors can influence bank NPLs, and previous studies have presented mixed empirical evidence. The determinants of NPLs are important to verify because the growth of NPLs will have a negative impact on the entire economic sector (Bukowski & Kosztowniak, 2022). Macroeconomic factors and bank-specific determinants are variables that previous researchers have widely studied, although they show mixed results and are interesting for further study. Several factors significantly influence a bank's NPLs, including specific bank characteristics and macroeconomic conditions (Syed, 2021). Previous studies found that using only macroeconomic or banking industry-specific variables as regressors can lead to incorrect conclusions (Umar & Sun, 2018). Bank-specific factors are more sensitive than macroeconomic factors concerning NPL levels (Alnabulsi et al., 2022). Additionally, the COVID-19 pandemic delayed NPLs due to loan moratoriums, as seen in Bosnia and Herzegovina (Zunić et al., 2021).

This study introduces the impact of corporate governance on NPLs. Strong governance is usually ac-

accompanied by effective risk management. Banks with good GCG implement strict internal policies and better credit risk management procedures to detect credit risks earlier, conduct more thorough credit evaluations before providing loans, and reduce the potential for bad debts. On the other hand, banks with weak governance tend to have less efficient risk management, which causes an increase in NPLs due to errors in assessing creditworthiness. Other researchers have added country governance variables, finding a negative effect on NPLs (Lee et al., 2020). Thus, further research should include GCG to better explain the determinants of NPLs. The previous findings indicate that corporate governance plays a crucial role in the banking sector and is essential for enhancing credit quality (Fiador & Sarpong-Kumankoma, 2021). In developing economies, the governance index is a significant and negative factor in determining NPLs (Büyükoglu et al., 2021). A large board with diverse skills, a high proportion of non-executive members, and the dual role of the CEO as board chair can lead to better loan quality in banks (Kartika et al., 2022). Additionally, when measured by the shares collateralized by directors of lending firms, corporate governance positively impacts NPLs (Lee et al., 2022).

Bank-specific factors can have a significant impact on NPLs. Bank profitability is one of the important indicators that can affect the level of NPLs. Banks with higher levels of profitability tend to have lower NPLs because they have better capacity to absorb losses, manage credit risk, maintain liquidity, and maintain selective lending standards. Conversely, less profitable banks are more vulnerable to increasing NPLs due to limitations in liquidity, risk management, and the tendency to take higher risks in lending. Several empirical studies have shown a negative relationship between profitability and NPLs, namely that more profitable banks tend to have lower NPLs. These studies associate high profitability with better credit risk management, adequate liquidity, and tighter discipline in lending. Bank profitability, measured by ROA, is crucial in sustaining the financial sector's reputation, enhancing the bank's value, and driving transformative improvements (Dao et al., 2020). Previous studies have shown that bank profitability (ROA or ROE) impacts NPLs. ROA and ROE negatively impact the NPL levels (Kjosevski

& Petkovski, 2021). ROE and gross loan growth are specific determinants of total NPLs (Petkovski et al., 2021). ROA is a significant determinant of NPLs, with a positive and significant impact during the pandemic (Apergis, 2022). ROE is a crucial determinant of NPLs. Additionally, ROA is a negative and significant determinant of NPLs (Bayar, 2019). ROE also has a negative impact on NPLs (Gashi 2021), and NPLs are negatively affected by ROA (Ciukaj & Kil, 2020). Other studies also show that a bank's return on assets is a negative and essential factor in determining NPLs (Ferreira, 2022). In Indonesia, ROA also negatively affects NPLs (Stefano & Dewi, 2022). Other studies have even provided evidence to the contrary that ROA has a positive effect (Alnabulsi et al., 2022). ROA and CAR have been shown to significantly and negatively impact NPLs (Küçük, 2022). NPLs were determined by ROA (Tatarici et al., 2020).

Leverage is the ratio of debt to equity a bank uses in its operational activities. High leverage means a bank uses more debt than equity to finance its assets. The previous study has shown that leverage positively impacts NPLs (Lee et al., 2022). Another study found no significant impact (Silitonga et al., 2020). Research conducted in China reveals that the relationship between leverage and systemic risk, including NPLs, is non-linear. In certain cases, maintaining low leverage can help mitigate risks, but when leverage becomes excessive, risks – particularly NPLs – tend to rise sharply, creating a U-shaped relationship (Chaochao, 2023). Banks with high leverage tend to be more vulnerable to financial risk. The higher the debt-to-equity ratio, the greater the pressure on banks to pay their debt obligations, especially during economic downturns or deterioration in credit quality. Financial stress may increase if banks' income is insufficient to meet their debt obligations, which risks driving up NPLs. Under these conditions, banks may be more tempted to take more significant risks in lending in search of higher income, which ultimately increases the likelihood of bad debts.

Loan to Deposit Ratio (LDR) also significantly impacts NPLs. A high LDR indicates increased liquidity risk and aggressiveness in lending, which can lead to increased NPLs, especially if the quality of credit evaluation declines. Conversely, a lower LDR indicates that the bank has healthier

liquidity and tends to be more selective in lending, thus helping to reduce NPLs. Good LDR management is key to maintaining bank financial stability and controlling credit risk. Previous studies indicate various results. LDR in emerging market economies positively influences NPLs (Bayar, 2019). In Indonesia, LDR does not show a significant effect (Stefano & Dewi, 2022). In Southeast Asia, inflation was found to have no significant effect on NPLs (Nor et al., 2021). In Vietnam, leverage, CAR, NPL-1, and credit growth negatively influence NPLs, whereas the Loan-to-Deposit Ratio (LDR) is insignificant (Trung, 2022).

Bank size is also a factor that can affect the level of NPLs. Larger banks tend to have lower NPLs, possibly due to their ability to manage assets more effectively and adhere to prudent risk management practices. Larger banks have a better capacity to diversify risk and are more likely to implement stringent risk management practices. In addition, larger banks usually have better access to adequate market information and have more resources to mitigate credit risk. Previous studies found that bank size negatively relates to NPLs in Greek banks, especially in the business loan portfolio (Louzis et al., 2012). The larger banks have significantly lower NPLs than smaller banks (Abid et al., 2014). NPL is not proven to be significantly affected by size (Dao et al., 2020).

The COVID-19 pandemic has caused significant pressure on the Indonesian economy, directly impacting increasing NPLs. The decline in people's purchasing power and the weakening of the business sector have caused many companies to experience financial difficulties. The condition of NPL reflects the quality of credit provided by the banking sector and the resilience of the national economy. Various factors, including economic conditions, monetary policy, and the banking sector's stability, can influence the movement of the NPL ratio. GCG and bank-specific determinants have been proven to be significant in determining the level of bank NPLs. Banks that have good GCG quality can certainly manage the NPL level better. The resources owned by the bank, such as the level of profitability, assets, and others, can also encourage banks to be able to manage NPLs better.

Previous studies show the various findings of the relationship between bank-specific determinants

on the NPLs of banks. On the other hand, governance can play an important role in maintaining the ratio of NPLs. Governance is the mechanism by which banks reduce NPL if the board and commissioner take responsibility. This study emphasizes the varying findings of previous research on the relationship between bank-specific characteristics and NPLs. It introduces GCG as a variable to assess its impact on NPLs in Indonesia. This analysis is very important to inform the development of strategic banking policies to maintain low NPL levels and enhance financial performance. This study measured GCG with board and commissioner structure and the quality of GCG. This study measured bank-specific determinants: ROE, leverage, LDR, and bank size. The novelty of this study lies in its examination of data from pre-pandemic, pandemic periods, and post-pandemic periods, as well as in utilizing panel data analysis to determine the most appropriate model and provide a more accurate analysis of banking conditions in Indonesia.

This study aims to highlight the evidence that GCG affects the NPLs of Indonesian Banks and analyze the impact of bank-specific determinants on these NPLs. Based on this explanation, the hypotheses developed are as follows.

*H1: Good corporate governance significantly impacts the NPLs of Indonesian banks.*

*H2: Bank-specific determinants significantly impact the NPLs of Indonesian banks.*

## 2. METHOD

This quantitative research focuses on banks listed on the Indonesian stock exchange. The study aims to explain the impact of GCG and bank-specific determinants on NPLs. 216-unit panel data were collected over four years of observations, from 2018 to 2021. According to IDX data, as of December 31, 2021, there were 54 registered banks. The list of the banks is shown in Table A1 (see Appendix A).

The dependent variable in this study is NPLs, measured by gross NPLs. The independent variables are GCG and a bank's specific characteristics. The

number of meetings of the board of directors, the number of meetings and composition of independent commissioners, and GCG self-assessment scores are used as measurements of the GCG variable. Return on equity, leverage, loan-to-deposit ratio, and bank total assets indicate the bank's specific characteristics.

The documentation was used for the data collection method, with data sourced from financial and annual reports accessed through various channels, including the Indonesian Stock Exchange website (IDX, n.d.), bank websites, and other sources. The panel data regression analysis was used for data analysis. The panel data analysis aims to identify the best model from several alternatives, such as ordinary least squares, fixed effects, or random effects. This study's analytical approach differs from previous research in determining the optimal regression model before further analysis. The study utilizes the random or fixed effects method and performs the Breusch-Pagan Lagrangian Multiplier test for regression model analysis. Classical assumption tests, including autocorrelation and heteroscedasticity, are also conducted. The analysis is performed using STATA version 17.0.

### 3. RESULTS

#### 3.1. Description of variables

Figure 1 illustrates the fluctuations in Indonesian banking NPLs from 2018 to 2021, before and during the COVID-19 pandemic. NPLs are measured by gross NPLs. A significant surge in NPLs was observed at the onset of the COVID-19 pandemic.

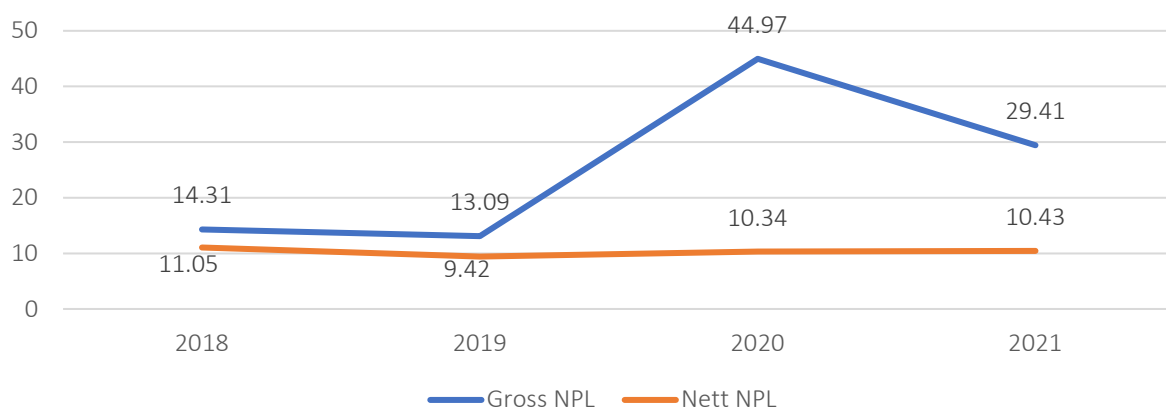
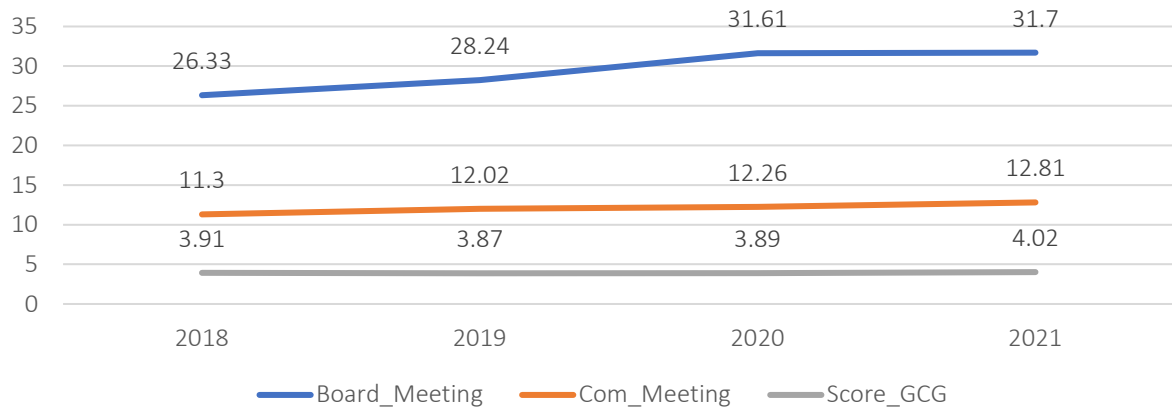


Figure 1. NPLs of Indonesian banks in 2018–2021

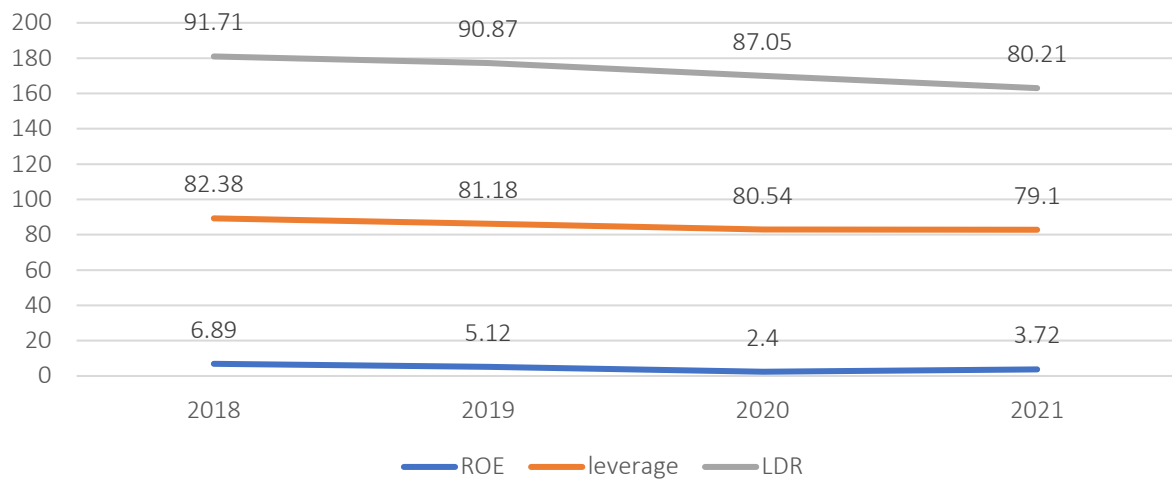
The banking sector in Indonesia faced severe disruptions that impacted financing activities, and the overall economy experienced a sharp decline. NPLs in Indonesian banks peaked in 2020 due to the uncontrolled pandemic. However, in 2021, as the government and authorities began to manage the pandemic more effectively, the banking sector regained control over NPLs, and economic activity gradually recovered. Despite these improvements, NPL levels in 2021 remained significantly higher than pre-pandemic levels, with gross NPLs at 29.41% in 2021 and 13.09% in 2019.

The following describes the GCG indicators (Figure 2) and bank-specific determinants of Indonesian banking from 2018 to 2021 (Figures 3 and 4). GCG indicators, which reflect the quality of GCG implementation, show notable improvements, though not substantial. The number of board of directors' meetings, board of commissioners' meetings, and GCG scores experienced significant enhancements from 2018 to 2021, indicating the banks' efforts to improve performance. However, the return on equity (ROE) saw a significant decline, with banking ROE dropping from 6.89% in 2018 to just 3.72% in 2021. The impact of the COVID-19 pandemic was evident in Indonesian banking performance. The LDR and leverage declined from 2018 to 2021. Despite these declines, the assets of Indonesian banks continued to experience significant growth during the same period.

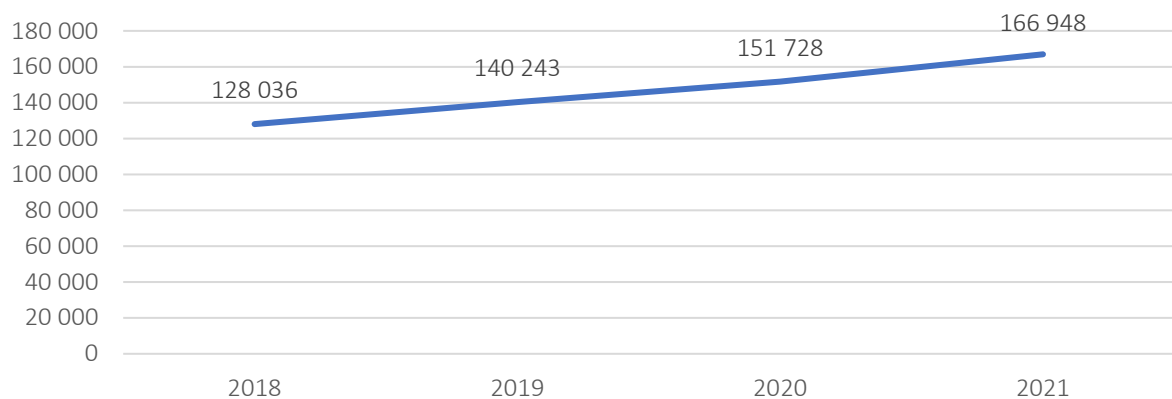
Table 1 provides the descriptive statistics for the research variables. The average gross NPL level before and during the pandemic was 25.44%, substantially increasing over this period. The GCG in Indonesian banks did not see significant changes



**Figure 2.** Corporate governance indicators of Indonesian banks in 2018–2021



**Figure 3.** Bank-specific determinant indicators of Indonesian banks in 2018–2021



**Figure 4.** Growth of assets of Indonesian banks in 2018–2021

from 2018 to 2021, with GCG quality, as measured by self-assessment scores, remaining in a good category. Profitability, as indicated by ROE, decreased significantly, with an average ROE of 4.53%. ROE dropped from 6% before the pandemic to 3.06% during the pandemic. Both leverage and LDR also experienced notable declines. In contrast, the CAR significantly increased. The size of banks, as measured by asset levels, grew both before and during the pandemic.

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**Table 1.** Research variable descriptive statistics

No.	Research variables	Means	Std. Dev.	Min	Max
1	Board_Meeting	29.47222	31.54265	2	282
2	Com_Meeting	4.634259	2.214231	1	14
3	Gross NPLs	25.44468	185.637	0	2227
4	Com_Percent	43.40119	14.35788	0	80
5	Score_GCG	3.921296	0.4708332	2	5
6	ROE	4.530343	18.56197	-95.44	84.61
7	leverage	80.79968	10.5957	16.42	99.9
8	LDR	87.45902	26.75165	12.35	241.98
9	LnAsset	1.47e+08	3.22e+08	664673	1.73e+09

### 3.2. Results of the analysis of the impact of GCG and bank characteristics on NPLs

Table 2 displays the correlation coefficients between the research variables, with the highest correlation being 0.4627 between the com\_meeting and lnaset variables. Overall, the correlation scores among the variables are below 0.8, indicating no significant correlation in the research model. This finding is further supported by Table 3, which shows that the average Variance Inflation Factor (VIF) score is below 5, confirming the absence of multicollinearity between the variables.

The Wooldridge test results indicated no autocorrelation in the research model, with a probability value greater than F of 0.0348. The Modified Wald test, used to analyze heteroscedasticity, showed its absence, with a probability value of 0.0000.

Panel data multiple regression analysis involved testing different models: Ordinary Least Squares (OLS), Fixed Effects (FE), and Random Effects (RE). The Breusch-Pagan Lagrange Multiplier test (Table 4) suggests that the FE model is more accurate than the OLS model, with a Prob value >  $\chi^2$  of 0.0000. Additionally, the Hausman test results in Table 6 confirm that the FE model is more precise than the RE model, with a Prob value >  $\chi^2$  of 0.0002.

**Table 2.** Matrix correlation

Variables	1	2	3	4	5	6	7	8	9
1 lnGross_NPL	1	-	-	-	-	-	-	-	-
2 board_meeting	0.0124	1	-	-	-	-	-	-	-
3 com_meeting	0.0367	0.4494	1	-	-	-	-	-	-
4 score_GCG	-0.3903	0.1361	0.1588	1	-	-	-	-	-
5 comind_perct	-0.0507	0.0081	0.1302	-0.0064	1	-	-	-	-
6 ROE	-0.3698	-0.0152	-0.0164	0.2649	0.0144	1	-	-	-
7 leverage	0.1036	0.143	0.2104	-0.0844	0.0414	0.0812	1	-	-
8 LDR	-0.1388	-0.0234	0.026	-0.0653	-0.0104	0.0276	-0.4443	1	-
9 lnaset	-0.1064	0.3709	0.4627	0.4444	0.0878	0.3091	0.3504	-0.1322	1

**Table 3.** Correlation test results

Variables	VIF	1/VIF
lnaset	2.02	-0.493847
leverage	1.58	0.632767
com_meeting	1.53	0.655542
Score_GCG	1.43	0.700154
board_meeting	1.32	0.754821
LDR	1.32	0.759273
ROE	1.20	0.835944
Comind_percentage	1.03	0.975514
VIF means	1.43	



**Table 4.** Model fit test result

Type of test	Stat. Value	Prob. Value	Description
Chow test	F = 15.32	0.0000	Significant
Hausman test	Chi-sq = 30.17	0.0002	Significant
BP LM test	Both = 141.71	0.0000	Significant

**Table 5.** Results of regression analysis with fixed model effects

InGross_NPL	Coef.	Robust Std. Err.	t	P > t	[95% Conf. interval]
board_meeting	0.005037	0.002222	2.27	0.027	0.000581 0.009493
com_meeting	0.003327	0.00861	0.39	0.701	-0.01394 0.020597
score_GCG	-0.42985	0.207363	-2.07	0.043	-0.84576 -0.01393
comind_percent	-0.00109	0.000441	-2.46	0.017	-0.00197 -0.0002
ROE	2.28E-05	0.005903	0	0.997	-0.01182 0.011862
leverage	0.005059	0.010051	0.5	0.617	-0.0151 0.025219
LDR	-0.00366	0.002123	-1.72	0.091	-0.00792 0.000601
lnaset	-0.39508	0.125885	-3.14	0.003	-0.64757 -0.14258
_ cons	9.495629	2.845608	3.34	0.002	3.788063 15.2032

Table 5 presents the results of the fixed effects regression analysis. The board\_meeting variable has a probability value of 0.027, less than 0.05, and a coefficient of 0.005037. This indicates that the number of board of directors' meetings significantly and positively impacted banking NPLs in Indonesia before and during the pandemic. The score\_GCG and comind\_percent variables also show significant and negative effects on NPLs, with probability values of 0.043 and 0.017 and coefficients of -0.42985 and -0.00109, respectively. This suggests that the quality of GCG implementation and the composition of the independent board of commissioners significantly reduce NPLs.

Similar results are observed for the LDR and lnaset variables, with probability values below 0.05 and coefficients of -0.00366 and -0.39508, respectively. This indicates that Indonesia's loan-to-deposit ratio (LDR) and bank size can significantly lower NPLs.

## 4. DISCUSSION

The research findings provide intriguing insights into the impact of GCG on NPL levels. Specifically, the board\_meeting variable, a measure of GCG, shows a significant and positive effect on NPL levels, indicating that an increase in the board of directors' meetings correlates with higher NPLs. This finding contrasts slightly

with prior research that suggests GCG generally enhances credit quality and reduces NPL levels. However, the results align with studies highlighting the importance of effective corporate governance in the banking sector for improving credit quality (Fiador & Sarpong-Kumankoma, 2021). Factors such as a large, skilled board, a significant proportion of non-executive members, and CEO-board chair duality can enhance loan quality (Kartika et al., 2022).

The score\_GCG, representing the bank's self-assessed GCG quality, also reveals that higher scores reflect better GCG quality and can lower NPL levels. This supports previous findings that a higher governance index is a negative and significant determinant of NPLs in developing economies (Büyükoglu et al., 2021). Strong corporate governance is usually accompanied by effective risk management. Banks with good GCG have strict internal policies and better credit risk management procedures, so they can detect credit risks earlier, conduct more comprehensive credit evaluations before lending, and reduce the potential for non-performing loans. Conversely, banks with weak governance tend to have less efficient risk management, which leads to increased NPLs due to errors in creditworthiness evaluations.

The role of independent commissioners is also highlighted, but it has a negative effect on NPL

levels. A higher proportion of independent commissioners tends to reduce NPLs, as they are crucial in overseeing and controlling bank management. Their presence ensures that bank operations are conducted prudently, which helps manage NPLs levels effectively. Banks with good governance are more likely to comply with the rules and regulations set by supervisory authorities, such as OJK and Bank Indonesia. This compliance includes the application of loss reserves (provisioning) and transparent reporting of non-performing loans. Good compliance contributes to the decline in NPLs because banks comply with credit limits and regulations that protect the quality of their portfolios, and they have clear mechanisms for dealing with non-performing loans.

Bank-specific characteristics, such as the LDR, also negatively affect NPL levels in Indonesia. A higher LDR might lead to increased NPLs due to higher financing volumes and potential bad debts. However, the study suggests higher LDR correlates with lower NPLs in Indonesia. This could be attributed to prudent risk management practices by bank management, which helps control NPLs levels. Previous research presents mixed results regarding LDR and NPLs, with some studies finding a positive effect (Bayar, 2019), while others, including those in Indonesia (Stefano & Dewi, 2022) and Vietnam (Trung, 2022), found no significant effect.

Leverage has no significant impact on NPLs. This study aligns with the previous study (Silitonga

et al., 2020). A survey conducted in Indonesian banks found that despite the increase in leverage, its effect on NPLs was not always statistically significant. However, some indications of increasing leverage can potentially increase NPLs, although not with strong statistical consistency in some cases. This suggests that leverage plays a role but is not a dominant factor outside other variables, such as macroeconomic conditions and bank liquidity. Research in China indicates a non-linear relationship between leverage and systemic risk, including NPLs. In some contexts, low leverage can suppress risk, but if leverage is too high, risk (including NPLs) increases, forming a U-shaped pattern (Chaochao, 2023).

Finally, the size of the bank, as measured by total assets, shows a negative and significant effect on NPL levels. Larger banks tend to have lower NPLs, possibly due to their ability to manage assets more effectively and adhere to prudent risk management practices. Bank size negatively relates to NPLs in Greek banks, especially in business credit portfolios (Louzis et al., 2012). Larger banks, with better management and higher capacity to assess credit risk, tend to have lower levels of NPLs. Another study found that larger banks had significantly lower NPLs than smaller banks (Abid et al., 2014). Larger banks have better capacity to diversify risks and are more likely to implement more stringent risk management practices. In addition, larger banks usually have better access to adequate market information and have more resources to mitigate credit risk.

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## CONCLUSION

This study examines how governance affects the level of non-performing loans (NPL) in Indonesian banks. The study also aims to analyze the effect of specific bank determinants on the NPLs of Indonesian banks. Through fixed-effect panel data regression analysis, the study demonstrates that GCG can significantly impact NPLs in Indonesian banks. In particular, the frequency of board of directors' meetings is found to have a positive effect on NPLs. In contrast, an independent board of commissioners has a negative effect. The GCG score indicates that the quality of GCG implementation is crucial in preserving credit quality and reducing NPL levels. However, the number of Board of Commissioners meetings does not significantly impact NPLs. Other studies highlight a significant effect of LDR on NPLs, while factors such as ROE and leverage do not show a substantial impact. Additionally, bank size (total assets) significantly affects NPL levels in Indonesia.

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## APPENDIX A

**Table A1.** List of the banks

No.	Bank name	No.	Bank name	No.	Bank name
1.	PT BNI (Persero) Tbk	2.	PT BRI (Persero) Tbk	3.	PT Bank Raya Indonesia Tbk
4.	PT Bank IBK Indonesia Tbk	5.	PT Bank Amar Indonesia Tbk	6.	PT Bank Jago Tbk
7.	PT Bank MNC International Tbk	8.	PT Bank Capital Indonesia Tbk	9.	PT BCA Tbk
10.	PT KB Bukopin Tbk	11.	PT Bank Mestika Dharma Tbk	12.	PT Krom Bank Indonesia Tbk (PT Bank Bisnis International)
13.	PT Bank Tabungan Negara (Persero) Tbk	14.	PT Bank Neo Commerce Tbk	15.	PT Bank Jtrust Indonesia Tbk
16.	PT Bank Commonwealth	17.	PT Bank Danamon Indonesia Tbk	18.	Indonesia Eximbank
19.	PT Bank Ganesha Tbk	20.	PT Maybank Indonesia Finance	21.	PT Bank Ina Perdana Tbk
22.	PT Bank QNB Indonesia Tbk	23.	PT Bank Maspion Indonesia Tbk	24.	PT Bank Mandiri (Persero) Tbk
25.	PT Bank Bumi Arta Tbk	26.	PT Bank CIMB Niaga Tbk	27.	PT Bank Maybank Indonesia Tbk
28.	Bank Permata Tbk	29.	Bank Sinarmas Tbk	30.	Bank of India Indonesia Tbk
31.	PT Bank BTPN Tbk	32.	PT Bank Victoria International Tbk	33.	PT Bank Oke Indonesia Tbk
34.	PT Bank Artha Graha International Tbk	35.	PT Bank KEB Hana Indonesia Tbk	36.	PT Bank Multiarta Sentosa Tbk
37.	PT Bank Mayapada International Tbk	38.	PT Bank China Construction Bank Indonesia Tbk	39.	PT Bank Mega Tbk
40.	PT Bank OCBC NISP Tbk	41.	PT Bank Nationalnobu Tbk	42.	PT Bank Pan Indonesia Tbk
43.	PT Bank Woori Saudara Indonesia Tbk	44.	PT Allo Bank Indonesia Tbk	45.	PT Bank UOB Indonesia Tbk
46.	PT Bank Mandiri Taspen	47.	PT BPD Nusa Tenggara Timur	48.	PT BPD Banten Tbk
49.	PT Bank BPD Jawa Barat dan Banten Tbk	50.	PT Bank BPD Jawa Tengah Tbk	51.	PT BPD Jawa Timur Tbk
52.	PT Bank BPD Maluku	53.	PT Bank BPD Sulawesi Utara dan Gorontalo	54.	PT BPD Sumatera Utara