STRENGTHENING BANK PERFORMANCE: THE NEXUS BETWEEN CORPORATE GOVERNANCE, CAPITAL STRUCTURE, AND FINANCIAL STABILITY

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Abstract

The study addresses the critical issue of optimizing bank performance through the interplay of corporate governance, capital structure, and financial stability, particularly in the context of Indonesia's emerging market (Yitayaw et al., 2023). The purpose of the research is to investigate how these factors, specifically non-performing loans (NPLs), capital adequacy ratio (CAR), good corporate governance (GCG), and debt-to-assets ratio (DAR), influence the financial performance of Indonesian banks, measured by return on assets (ROA) and return on equity (ROE) (Abdullah & Tursoy, 2023). Utilizing a multiple regression analysis on a sample of 40 banks listed on the Indonesia Stock Exchange (IDX) over the period 2016–2022, the study examines these relationships in depth. Findings indicate that NPLs and CAR negatively impact both ROA and ROE, while GCG positively affects these performance metrics, underscoring the importance of effective governance frameworks (Nurwulandari et al., 2022). Additionally, DAR negatively influences profitability, suggesting that high debt levels may erode financial returns. The study concludes that optimal management of credit risk, capital adequacy, and corporate governance practices is essential for sustaining profitability in Indonesian banks. This paper is relevant for bank managers, policymakers, and regulators, offering insights into balanced financial strategies essential for enhancing stability and profitability in emerging banking markets.

Keywords: Bank Stability, Corporate Governance, Capital Structure, Financial Performance, Indonesia

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1. INTRODUCTION

Banks, as financial institutions, collect and channel public funds, fostering economic development and enhancing life quality (Marsintauli & Pribadi, 2023). They intermediate between savers and businesses, providing essential external funding for economic growth. However, banks face inherent risks, particularly in managing credit and liquidity, impacting financial performance. Non-performing loans (NPLs) significantly reduce profitability, erode retained earnings, and damage public confidence (Collaku & Aliu, 2021). In emerging economies like Indonesia, banks are crucial for maintaining economic stability, as stable banking systems ensure smooth financial intermediation, critical for sustained growth (Yitayaw et al., 2023). Bank stability is influenced by factors such as banking efficiency, capital adequacy ratio (CAR), bad debt levels, and broader macroeconomic conditions (Collaku & Aliu, 2021). Bank stability and health are essential for economic growth and preventing financial crises with extensive economic impacts (Mhaibes et al., 2024; Mashamba & Chikutuma, 2023; Michael et al., 2023). Corporate governance has become crucial for bank performance and stability. Strong governance frameworks ensure transparent, efficient operations benefiting stakeholders (Donnir et al., 2023). Implementing good corporate governance (GCG) in both developed and developing countries improves bank performance by enhancing risk management, reducing conflicts of interest, and boosting investor confidence (Benjakik & Habba, 2024; Malik, 2024; Ledi & Ameza-Xemalordzo, 2023). Ongoing research into corporate governance's effectiveness in mitigating risks and enhancing bank stability is driven by corporate scandals and financial crises (Abebe Zelalem et al., 2022).

This research examines the banking sector due to its crucial role in economic growth and business financing. The banking industry is pivotal for economic development, particularly in emerging markets, serving as the main source of external financing for businesses (Aboagye-Otchere & Boateng, 2023). The Indonesia Stock Exchange (IDX, 2023) report indicates that the banking sector remains highly attractive to investors, with the highest trading value among industries. This is largely due to the sector's stable performance, despite gradual changes over time (Nguyen et al., 2023). Understanding the factors influencing bank stability and performance is essential. Research on the relationship between bank stability, GCG, and capital structure, and their impact on financial performance is compelling due to inconsistencies in previous studies (Abdullah & Tursoy, 2023; Anozie et al., 2023; Boateng, 2018; Collaku & Aliu, 2021; Ferriswara et al., 2022; Nurwulandari et al., 2022; Sriyono & Nabellah, 2022; Suljić Nikolaj et al., 2022; Wijaya et al., 2018). This study is crucial for several reasons. First, the recent pandemic-induced financial instability has raised concerns about the financial sector's stability (Nurwulandari et al., 2022). Second, inconsistent research findings necessitate further investigation into whether capital structure decisions are influenced by financial performance, as existing literature lacks definitive conclusions (Attia et al., 2023). Lastly, despite improvements from 2020 to 2023, Indonesia ranks lowest in corporate governance among Asian countries, highlighting the need for more research on the impact of stability, GCG, and financial performance

in the banking sector. This paper aims to address this gap by examining the influence of bank stability, GCG, and capital structure on the financial performance of banking companies (Hassan Bazhair, 2022).

This research focuses on the banking sector because it dominates the economic growth system and contributes to financing the business world (Abdullah & Tursoy, 2023). According to the IDX (2023) report, banking is one sector that attracts investors. The most considerable total trading value shows this compared to all other industries (Table 2). Besides that, banking sector companies usually have stable performance, even though changes occur slowly over a relatively long period (Anisa & Suryandari, 2021). This research aims to determine the influence of bank stability, GCG, and capital structure on the financial performance of banking companies listed on the IDX. Based on the focus and objectives of the research above, the research questions of this study are as follows:

RQ1: Does NPL have a negative effect on return on assets (ROA)?

RQ2: Does NPL have a negative effect on return on equity (ROE)?

RQ3: Does CAR have a negative effect on ROA?

RQ4: Does CAR have a negative effect on ROE?

RQ5: Does corporate governance have a positive effect on ROA?

RQ6: Does corporate governance have a positive effect on ROE?

RQ7: Does capital structure have a negative effect on ROA?

RQ8: Does capital structure have a negative effect on ROE?

This paper is structured as follows: Section 2 examines previous research on the impact of bank stability, corporate governance, and capital structure on financial performance, particularly in the emerging market of Indonesia, highlighting key findings and observations. Section 3 outlines the research design, including regression analysis and sample and variable details, using a quantitative research design using secondary data to examine the effects of banking stability, corporate governance, and capital structure on financial performance. Section 4 presents the impact of bank stability, governance, and capital structure on ROA and ROE. Section 5 interprets the findings in the context of the existing literature, offering insights for practitioners, and Section 6 summarizes the main points, acknowledges the limitations of the study, and suggests future research directions.

2. LITERATURE REVIEW

2.1. Agency theory and financial performance

Agency theory, foundational in finance and accounting, addresses conflicts of interest between principals (owners) and agents (managers) within organizations (Jensen & Meckling, 1976). It posits that agents may not always act in principals' best interests, particularly when ownership and control are separated, leading to agency costs from information asymmetry and potential managerial opportunism, such as earnings management or misinvestment (Marsintauli & Pribadi, 2023). While agency theory suggests that chief executive officer (CEO) power might harm financial performance due to conflicts of interest, recent findings align with

stewardship theory, indicating CEO power can enhance the relationship between labor productivity and financial performance by aligning interests (Aliahmadi, 2024). Effective corporate governance, including independent boards and robust auditing systems, mitigates agency conflicts by aligning managers' and shareholders' interests, enhancing financial performance (Aboagye-Otchere & Boateng, 2023; Lukman et al., 2024; Abdullah & Tursoy, 2023). Well-governed banks are more likely to maximize shareholder value, improve financial transparency, and boost operational efficiency, contributing to financial performance measured by ROA and ROE (Munir et al., 2019). ROA measures asset efficiency in generating profit, while ROE assesses management's ability to generate returns on shareholders' equity, with high ratios indicating efficient management and positive outcomes (Achieng et al., 2018; Md, 2019).

2.2. Bank stability and financial performance

Bank stability is crucial for economic development and financial performance, particularly in emerging markets. It signifies a bank's ability to operate without facing financial distress or insolvency, even during economic uncertainty (Yitayaw et al., 2023). A stable banking system maintains financial intermediation, essential for economic growth (Nguyen et al., 2023). NPLs are a key measure of bank stability; high NPL levels indicate poor credit quality and can erode profitability by increasing bad debt provisions and reducing interest income (Diab et al., 2023). Research shows that NPLs negatively affect financial performance. For example, studies in Indonesia link higher NPL ratios to lower ROA and ROE due to increased credit risk (Nurwulandari et al., 2022). Similarly, in Kosovo and the European Union, banks with lower NPLs have greater financial stability and profitability, suggesting that reducing NPLs enhances bank performance (Collaku & Aliu, 2021; Suljić Nikolaj et al., 2022).

Capital adequacy, measured by the CAR, is another key indicator of bank stability, reflecting a bank's capability to absorb losses and protect depositors. A higher CAR indicates better shock absorption but may limit profitability by restricting investment in higher-yielding assets (Tasman, 2020; Obeid, 2023). Zhao et al. (2024) found that financial technology development and factors like CAR and net interest margin significantly influence bank performance, with regional differences in China from 2012 to 2021 affecting overall stability. In emerging markets, excessive capital buffers can reduce profitability by limiting investment opportunities, despite providing a cushion against financial distress (Elbannan, 2021).

Based on the literature, the following hypotheses are proposed:

H1a: NPLs have a negative effect on ROA.
H1b: NPLs have a negative effect on ROE.
H2a: CAR has a negative effect on ROA.
H2b: CAR has a negative effect on ROE.

2.3. Corporate governance and financial performance

Corporate governance plays a vital role in influencing financial performance by establishing a framework for managing the relationships between management, shareholders, and other stakeholders (Lin & Qamruzzaman, 2023). Anginer et al. (2018) find that shareholder-friendly corporate governance is associated with higher stand-alone and systemic risk of banks, especially larger banks and those in countries with substantial financial safety nets, as the latter tend to pass on risk to taxpayers at the cost of financial stability and performance. Strong corporate governance ensures that banks operate transparently, manage risks effectively, and maintain the confidence of investors and regulators. Governance structures, such as independent boards of directors, effective audit committees, and transparent disclosure practices, are essential in reducing agency costs and improving the organisation's overall financial health (Abdullah & Tursoy, 2023). In the banking sector, reforms focusing on board composition, risk governance, remuneration policies, and transparency have been implemented to address weaknesses exposed by the 2008 financial crisis (Patel & Gupta, 2024).

GCG is particularly important in the banking sector because of the complex nature of banking operations and the potential for systemic risks. Effective governance can mitigate conflicts of interest between managers and shareholders and ensure that banks operate in the best interests of all stakeholders (Sehen Issa & Abbaszadeh, 2023). Research conducted in various countries, including Indonesia and Ghana, shows a positive relationship between GCG and bank profitability, with better-governed banks achieving higher ROA and ROE (Dongol & Shrestha, 2024; Sarpong-Danquah et al., 2022; Wijaya et al., 2018).

Studies have found that governance structures in the banking sector improve decision-making efficiency and reduce operational costs, ultimately enhancing profitability (Sarpong-Danquah et al., 2022). In Indonesia, corporate governance reforms have been linked to improved financial performance, particularly in banks that adopt more stringent governance practices (Ferriswara et al., 2022). These findings suggest that corporate governance is a key driver of financial performance, particularly in emerging markets.

Based on the literature, the following hypotheses are proposed:

H3a: GCG has a positive effect on ROA.
H3b: GCG has a positive effect on ROE.

2.4. Capital structure and financial performance

Capital structure theory examines the link between a firm's financing choices and its financial performance, with various studies yielding mixed results supporting different theories (Ali et al., 2024; Olasehinde & Yusuff, 2023; Banabo & Aganaba, 2024; Rajamani, 2021; Xu, 2024; Ghardallou, 2022; Abdur Rouf, 2015). In the pharmaceutical industry, research and development (R&D) investment correlates negatively with debt financing and positively with equity financing, influenced by firm size (Ali et al., 2024). In Nigeria's agro-allied sector, equity finance boosts returns on investment and assets, while leverage impacts earnings per share (Olasehinde & Yusuff, 2023). Studies on debt ratios and firm performance report mixed results: some find a negative relationship (Abdur Rouf, 2015; Ghardallou, 2022), while others note a positive but insignificant link (Banabo & Aganaba, 2024). These inconsistencies likely arise from economic, industry-specific, and methodological variations. Thus, the capital structure-performance relationship is

complex and context-dependent, underscoring the need for tailored financing strategies to suit industry and market conditions (Ghardallou, 2022; Rajamani, 2021; Xu, 2024).

Modigliani and Miller's (1958) capital structure theory posits that a company's capital structure does not impact its financial performance. Empirical research offers varied support for this theory. Some studies, like Jacob and Ajina (2020) on Indian pharmaceutical companies, found no significant link between capital structure and financial performance. A meta-analysis of 66 studies over 57 years in the banking sector also concluded that capital structure does not affect performance, consistent with Modigliani and Miller's (1958) findings (Benmabrouk & Benabdessalem, 2022). These results imply capital structure might be irrelevant to financial performance in certain contexts. Conversely, other studies challenge Modigliani and Miller's (1958) theory, indicating a positive relationship between capital structure and performance. Stoiljković and Tomić (2021) found that higher debt could enhance firm performance, though excessive debt could be harmful. Mohammad et al. (2019) reported that long-term debt positively correlated with ROE in Malaysian construction firms, while short-term debt had a negative correlation. Asif et al. (2021) discovered that leverage negatively impacted firm value in Pakistani non-financial firms. Thus, the mixed evidence for Modigliani and Miller's (1958) theory varies by industry, economic context, and market type, highlighting the need for further research to resolve the "capital structure puzzle" in corporate finance (Benmabrouk & Benabdessalem, 2022).

The relationship between capital structure and financial performance is complex and varies across industries, countries, and time periods. Studies support the pecking order theory, the trade-off theory, both, or neither, influenced by performance measures and capital structure indicators. For example, US firms show trade-off theory factors affect debt issuance under pecking order assumptions, while pecking order factors influence adjustment rates under trade-off theory assumptions (Cotei & Farhat, 2009). In Spanish small and medium-sized enterprises (SMEs), both theories explain capital structure decisions (Sogorb-Mira & Lopez-Gracia, 2003). Contrarily, Indonesian company studies support the trade-off theory but not the pecking order theory (Culata & Gunarsih, 2012),

whereas Ghanaian SMEs back the pecking order theory (Agyei et al., 2020). Greek firms during the debt crisis found the trade-off theory more applicable at times, while both theories applied at others (Chatzinas & Papadopoulos, 2018). Empirical evidence suggests capital structure decisions are intricate and not fully explained by a single theory, varying with firm characteristics, economic conditions, and location. Researchers suggest integrating both theories for a better explanation of capital structure choices (Lemmon & Zender, 2018; Lindblom et al., 2011).

Empirical studies in the Middle East and North Africa (MENA), and other emerging markets indicate that higher debt levels in a bank's capital structure can reduce profitability due to increased default risk and interest expenses (Ben Hamouda et al., 2023). Conversely, research in developed markets underscores the importance of a balanced capital structure, where a mix of debt and equity optimizes profitability and minimizes risks (Kahya et al., 2020). In Ghana, banks with sustainable capital structures showed better financial performance by balancing debt benefits with financial flexibility (Kong et al., 2023). Although debt can enhance returns, excessive debt may decrease profitability, especially during economic downturns. The relationship between capital structure and financial performance, particularly in banking, remains crucial for financial risk management (Ahmed et al., 2023).

Based on the literature, the following hypotheses are proposed:

H4a: Capital structure has a negative effect on ROA.

H4b: Capital structure has a negative effect on ROE.

3. RESEARCH METHODOLOGY

3.1. Data sources

Law No. 10 of 1998 states that banks are financial institutions tasked with collecting public savings and redistributing these funds through loans or other mechanisms. Their primary goal is to aid national development by promoting equality, fostering economic growth, and maintaining financial stability, thereby enhancing societal well-being (Nurwulandari et al., 2022).

Table 1. Capitalization January–December 2022

No.	Banks	Market capitalization		Trading value	
		IDR	%	IDR	Rank
1	Bank Central Asia (BBCA)	1,043,461,661	10.98%	217,930,568	1
2	Bank Rakyat Indonesia (BBRI)	741,214,453	7.80%	201,845,915	2
3	Byan Resources (BYAN)	700,000,035	7.37%	3,076,919	158
4	Bank Mandiri (BMRI)	458,535,000	4,83%	145,037,259	4
5	Telkom Indonesia (TLKM)	371,483,312	3,91%	156,198,253	3

Source: Authors' own work.

The companies selected for this study meet the established sample criteria (Table 1). The research population consists of banking companies listed on the IDX from 2016 to 2022. The sample for this study was chosen using a purposive sampling method, with the selection criteria outlined in Table 2 below.

Table 2. Research sample criteria

Sample criteria	Number of companies
Banking companies listed on the IDX from 2016 to 2022	47
Complete financial reports from 2016 to 2022 are not available	7
Complete financial reports from 2016 to 2022 are available	40
Research sample	40

Source: Authors' work.

Based on the sample criteria outlined above, a total of 47 banking companies were identified as being listed on the IDX. However, seven companies did not meet the required criteria, leaving 40 companies that qualified for the study. These 40 banks, which satisfied the variable measurement standards, were used as the research sample, resulting in a total of 280 data observations. The study covers the period from 2016 to 2022.

This study employs a quantitative research design using secondary data to examine the effects of bank stability, corporate governance, and capital structure on financial performance. The research population includes all banks listed on the IDX between 2016 and 2022, comprising a total of 47 banks. A purposive sampling technique was applied to select the sample based on the following criteria:

1. Banks listed on the IDX during the 2016–2022 period.

2. Banks that issued audited annual financial reports for the same period.

3. Banks with complete published data for the variables under investigation during the 2016–2022 period.

3.2. Variable measurement

The variables in this study are categorized into independent and dependent variables (Table 3). The independent variables include *bank stability, good corporate governance*, and *capital structure*, while *financial performance* is the dependent variable. Bank stability refers to a bank's ability to operate sustainably in a fluctuating economic environment without relying on external funding (Yitayaw et al., 2023). Bank stability is measured using the *NPL* ratio and the *CAR* (Nguyen et al., 2023). GCG is assessed using a self-assessment composite score, where a score of 1 indicates a very good composite rating and a score of 5 reflects poor governance (Nurwulandari et al., 2022).

Additionally, capital structure is evaluated using the debt-to-assets ratio (*DAR*), while financial performance is measured through *ROA* and *ROE* (Amin & Cek, 2023; Ferriswara et al., 2022; Kong et al., 2023).

Table 3. Variable measurement

No	Variable	Indicator	Measurement indicator		Source
1	*Bank stability*	*NPL*	$NPL = \dfrac{Total\ Bad\ Debt}{Total\ Outstanding\ Debt}$	(1)	Nguyen et al. (2023)
		CAR	$CAR = \dfrac{Equity\ Capital}{Total\ Risk\ Assets}$	(2)	Nguyen et al. (2023)
2	*Good corporate governance*	*Self assessment GCG bank*	Composite self assessment from Bank Indonesia Circular Letter No. 15/15/DPNP dated April, 29, 2013 (Financial Services Authority, 2013)		Marsintauli and Pribadi (2023)
3	*Capital structure*	*DAR*	$DAR = \dfrac{Total\ Debt}{Total\ Assets}$	(3)	Ahmed et al. (2023)
4	*Financial performance*	*ROA*	$ROA = \dfrac{Earning\ After\ Tax}{Total\ Assets} \times 100\%$	(4)	Ferriswara et al. (2022)
		ROE	$ROE = \dfrac{Earning\ After\ Tax}{Total\ Equity} \times 100\%$	(5)	Ferriswara et al. (2022)

Source: Authors' work.

3.3. Model specification

Before testing the hypotheses with multiple regression, we tested whether the research data was free from classical assumptions. Data testing uses the normality test, heteroscedasticity test, multicollinearity test, and autocorrelation test. The test results show that the data is free from the assumptions of normality (Figure 1), heteroscedasticity (Figure 2), and multicollinearity (Table 5), but there is still autocorrelation. For the weakness of the autocorrelation test, researchers used the Cochrane-Orcutt procedure by carrying out transformations on all variables used in the regression (Subhi & Al Azkiya, 2022).

The study explores the relationship between bank stability, GCG, capital structure, and financial performance of banks listed on the IDX from 2016 to 2022. The financial performance of banks is measured through two key indicators: ROA and ROE. Multiple regression models are specified to examine how these independent variables influence bank performance. The models are specified as follows:

The first model investigates the impact of bank stability, corporate governance, and capital structure on ROA.

Model 1: Impact on ROA

$$ROA_{it} = \alpha_0 + \beta_1 NPL_{it} + \beta_2 CAR_{it} + \beta_3 GCG_{it} + \beta_4 DAR_{it} + \varepsilon_{it} \tag{6}$$

where,

• ROA_{it} is the return on assets for bank *i*, measuring how efficiently the bank utilizes its assets to generate profits;

• NPL_{it} represents the non-performing loan ratio for bank *i*, reflecting credit quality;

• CAR_{it} is the capital adequacy ratio for bank *iii*, indicating the bank's capital buffer to absorb losses;

• GCG_{it} refers to the good corporate governance score for bank *iii*, measured through a composite self-assessment;

• DAR_{it} represents the debt-to-asset ratio, indicating the proportion of the bank's assets financed through debt;

• α_0 is the intercept, β_1, β_2, β_3, and β_4 are the coefficients of the independent variables, and ε_{it} is the error term.

The second model analyzes the influence of bank stability, corporate governance, and capital structure on ROE:

Model 2: Impact on ROE

$$ROE_{it} = \alpha_0 + \beta_1 NPL_{it} + \beta_2 CAR_{it} + \beta_3 GCG_{it} + \beta_4 DAR_{it} + \varepsilon_{it} \qquad (7)$$

where,

• ROE_{it} is the return on equity for bank *i*, indicating how effectively the bank uses shareholders' equity to generate profits.

The independent variables NPL_{it}, CAR_{it}, GCG_{it}, DAR_{it} are consistent with Model 1.

4. RESULTS

4.1. Descriptive statistics

The descriptive analysis in this study provides an overview of the key variables, including bank stability, GCG, capital structure, and financial performance, as measured by ROA and ROE. Table 4 shows the descriptive statistics, such as the minimum, maximum, mean, and standard deviation, calculated to summarize the data from the 40 banking companies listed on the IDX from 2016 to 2022. These statistics offer insights into the central tendencies and variability of the variables under study, providing a foundational understanding of the dataset.

Table 4. Descriptive statistics results

Variables	N	Min	Max	Mean	Std. dev.
NPL	280	0	9.92	1.657	1.358
CAR	280	9.01	390.5	34.445	39.504
GCG	280	2	5	3.91	0.485
DAR	280	5.54	93.21	77.955	16.117
ROA	280	-15.89	13.58	0.815	3.484
ROE	280	-95.44	36.5	2.44	18.175

Source: Authors' calculations.

The analysis reveals significant variability in key financial and governance indicators among the sampled banks. *NPL*, a critical measure of credit risk, ranges from a minimum of 0 to a maximum of 9.92, with a mean of 1.657 and a standard deviation of 1.358. The relatively high maximum NPL ratio points to a significant credit risk for certain banks during the period under study, suggesting varying degrees of loan portfolio quality across the sample. The *CAR*, a measure of a bank's capital strength relative to its risk-weighted assets, shows considerable variation. CAR values range from 9.01 to 390.5, with an average of 34.445 and a standard deviation of 39.504. This wide range suggests that while some banks maintain high capital buffers to absorb potential losses, others operate closer to the regulatory minimum. This variability in CAR reflects differences in risk management strategies among the banks.

GCG, as measured by a self-assessment composite score, ranges from 2 to 5, with an average score of 3.91 and a standard deviation of 0.485. This indicates that most banks exhibit moderate governance practices, with some maintaining higher governance standards while others lag behind. The relatively narrow standard deviation suggests that the majority of banks have similar corporate governance practices, but there are still outliers with either very strong or weaker governance structures. The *DAR*, which indicates the extent to which a bank's assets are financed through debt, ranges from 5.54 to 93.21. The mean value is 77.955 with a standard deviation of 16.117. This wide range signifies that some banks rely heavily on debt financing, while others maintain more conservative capital structures. The high average DAR implies that, on the whole, banks in the sample tend to use a significant amount of debt in their operations. *ROA*, which measures profitability relative to total assets, ranges from -15.89 to 13.58, with an average of 0.815 and a standard deviation of 3.484. The negative minimum value suggests that some banks experienced substantial losses during the period, while the positive maximum indicates strong profitability for others. The relatively low mean ROA indicates that, on average, banks generate modest returns from their assets. *ROE*, a measure of the profitability generated from shareholders' equity, exhibits significant variation. ROE ranges from -95.44 to 36.5, with a mean of 2.44 and a standard deviation of 18.175. This wide range highlights the substantial differences in profitability across the sample, with some banks experiencing large losses and others generating strong returns for their shareholders. The relatively high standard deviation indicates that profitability levels vary greatly among banks. These variations underscore the heterogeneous nature of the banks' performance, risk profiles, and governance practices.

4.2. Data normality analysis

The data normality analysis was conducted using graphical representations, including normality test figures and scatter plots. The results of the normality test for both Model 1 and Model 2 are illustrated in Figure 1a and Figure 1b. These figures confirm that the data for both models are normally distributed.

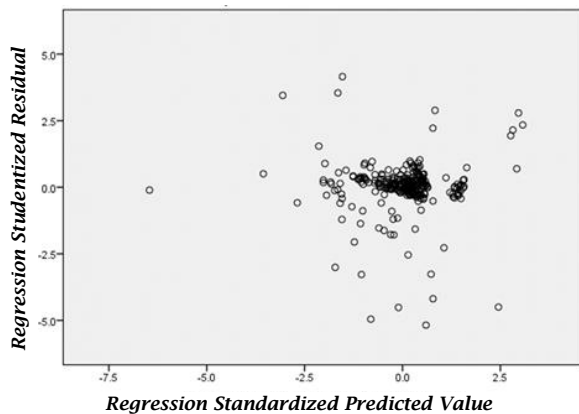**Figure 1a.** Nornal P-P plot of regression standardized residual: Model 1 normality test
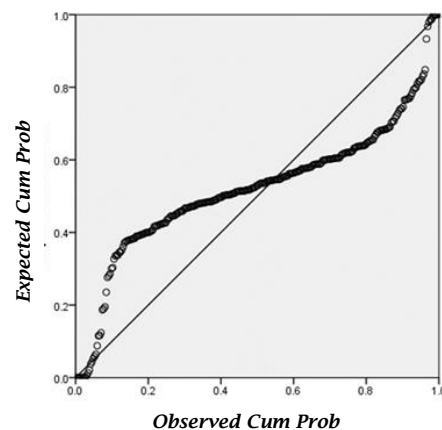
Note: Dependent variable: ROA.

Figure 1b. Nornal P-P plot of regression standardized residual: Model 2 normality test
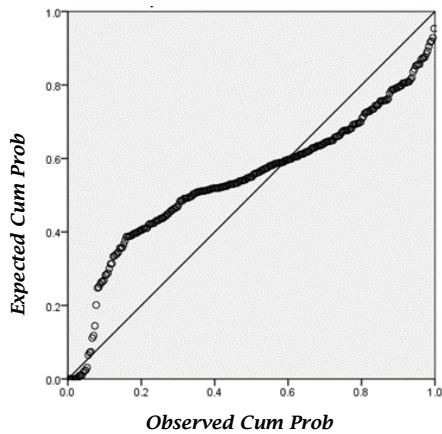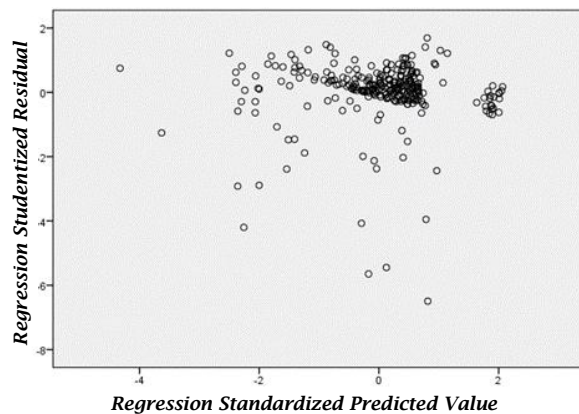

Note: Dependent variable: ROE.

Figure 2a. Hetero test of Model 1

Note: Dependent variable: ROA.

Figure 2b. Hetero test of Model 2

Note: Dependent variable: ROE.

In addition to the normality test, a heteroscedasticity test was performed using the scatter plot method. As depicted in Figure 2a and Figure 2b, the scatter plot results indicate that the regression models do not exhibit heteroscedasticity for both Model 1 and Model 2. This suggests that the assumption of constant variance is met, further supporting the validity of the regression models.

4.3. Regression analysis

Endogeneity is a problem that can influence research results, including in structural models. Endogeneity is a crucial problem in empirical research with structural models, whereas this research does not use structural models, only uses regression and only involves testing classical assumptions which include: normality test, multicollinearity test, autocorrelation test.

Hypotheses testing in this study was conducted using linear regression analysis techniques. Data analysis was performed utilizing SPSS software. The results of the multicollinearity test, which assesses the presence of multicollinearity among the independent variables, are presented as follows:

Table 5. Multicollinearity test results

Variable	Tolerance		VIF	
	Y = ROA	Y = ROE	Y = ROA	Y = ROE
NPL	0.814	0.814	1.228	1.228
CAR	0.532	0.532	1.88	1.88
GCG	0.859	0.859	1.165	1.165
DAR	0.532	0.532	1.88	1.88

Source: Authors' calculations.

The multicollinearity test results, shown in Table 6, indicate that multicollinearity is not a concern in this study. The tolerance values for all variables in both the ROA and ROE models are greater than 0.10, while the variance inflation factor (VIF) values are all below 10. Specifically, the VIF values for *NPL, CAR, GCG,* and *DAR* range between 1.165 and 1.88, which are well within acceptable limits. These results suggest that there is no significant multicollinearity among the independent variables, ensuring the robustness of the regression analysis.

Table 6. Multicollinearity test results

Variables	NPL	CAR	GCG	DAR	ROA	ROE
NPL	1					
CAR	-0.210**	1				
GCG	-0.360**	-0.033	1			
DAR	0.209**	-0.680**	0.023	1		
ROA	-0.237**	-0.148*	0.271**	-0.065	1	
ROE	-0.333**	-0.088	0.393**	0.015	0.765**	1

*Note: * and ** indicate significance at < 5% and < 1% levels, respectively.*

Table 7 shows the numbers in each cell to see the strength and direction of the correlation. Positive numbers indicate positive correlation, while negative numbers indicate negative correlation. The closer the number is to 1 (or -1), the stronger the correlation. The number 0 means there is no correlation between the two variables. The calculation results in Table 7 also show that there is a weak correlation (less than 0.5) for each independent variable, and there is even a negative correlation (Sekaran & Bougie, 2019).

Table 7. Regression test results

Variable	Model 1 Y = ROA		Model 2 Y = ROE	
	B	p-value	B	p-value
(Constant)	1.85	0.408	-28.598	0.012
NPL	-0.456	0.003***	-3.245	0.000***
CAR	-0.033	0.000***	-0.079	0.020**
GCG	1.463	0.001***	11.266	0.000***
DAR	-0.062	0.000***	-0.063	0.442
F count	14.384		18.861	
Adj. R2	0.161		0.204	
Durbin Watson	1.332		1.481	

*Note: ** and *** indicate significance at the 5%, and 1% levels, respectively.*
Source: Authors' calculations.

4.3.1. Model 1: ROA

In Model 1, which examines the effect of the independent variables on *ROA*, the constant is 1.85, indicating a positive baseline level of *ROA* when all other variables are held constant. *NPL* has a significant negative effect on *ROA*, with a coefficient of -0.456 (significant at the 1% level), suggesting that higher levels of *NPL* reduce profitability. *CAR* also negatively affects *ROA*, with a coefficient of -0.033 (significant at the 1% level), indicating that higher *CAR* are associated with lower returns on assets. *GCG*, on the other hand, has a strong positive effect on *ROA*, with a coefficient of 1.463 (significant at the 1% level), reflecting the positive impact of good governance practices on profitability. *DAR* has a small but significant negative impact on *ROA*, with a coefficient of -0.062 (significant at the 1% level), suggesting that a higher proportion of debt financing reduces profitability. The F-statistic for Model 1 is 14.384, which is highly significant (at the 1% level), indicating that the model as a whole is statistically significant. The adjusted R-squared value is 0.161, suggesting that the independent variables explain approximately 16.1% of the variation in *ROA*. The Durbin-Watson (DW) statistic of 1.332 indicates that there is no strong evidence of autocorrelation in the residuals. Therefore, the researchers then carried out the Cochrane-Orcutt procedure to recalculate the DW value after the transformations on all variables in the linear regression equation were carried out. The test results using the Cochrane-Orcutt procedure show that the DW value in the regression equation with the *ROA* variable is 1.962, while the test results for the *ROE* variable are 1.994, so it is free from autocorrelation assumptions.

4.3.1. Model 2: ROE

In Model 2, which assesses the effect of the same independent variables on *ROE*, the constant is -28.598, suggesting a negative baseline level of *ROE*. Similar to Model 1, *NPL* has a significant negative impact on *ROE*, with a coefficient of -3.245 (significant at the 1% level), indicating that higher *NPL* ratios lead to a decrease in equity returns. *CAR* also negatively affects *ROE*, with a coefficient of -0.079 (significant at the 5% level), though the effect is weaker than in Model 1. *GCG* again has a positive and significant impact on *ROE*, with a coefficient of 11.266 (significant at the 1% level), highlighting the substantial benefits of *GCG* in enhancing equity returns. In contrast, *DAR* has a small, statistically insignificant impact on *ROE* (coefficient of -0.063, p-value of 0.442), which diverges from its significant impact in Model 1 on *ROA*. The F-statistic for Model 2 is 18.861, which is also highly significant (at the 1% level), indicating that the model is a good fit for the data. The adjusted R-squared value for Model 2 is 0.204, suggesting that approximately 20.4% of the variation in *ROE* is explained by the independent variables. The DW statistic of 1.481 indicates no serious autocorrelation issues in this model.

Both models demonstrate that *NPL, CAR,* and *GCG* significantly impact financial performance. *NPL* and *CAR* negatively affect both *ROA* and *ROE*, while *GCG* has a strong positive influence on both measures of performance. The lack of significance for *DAR* in Model 2 highlights its limited role in affecting equity returns directly. These results emphasize the importance of managing credit risk, maintaining optimal capital levels, and enforcing strong corporate governance practices to enhance bank profitability and shareholder returns.

5. DISCUSSION

The findings of this study provide critical insights into the interplay between bank stability, corporate governance, and capital structure in shaping the financial performance of Indonesian banks. Before delving into the detailed implications of these findings, Table 8 summarizes the hypotheses testing results, providing a concise overview of the relationships examined in this study.

Table 8. Hypotheses testing results

Hypothesis	Sub-hypothesis	Result
H1: NPL has a significant negative impact on financial performance.	*H1a: NPL has a negative effect on ROA.*	Supported
	H1b: NPL has a negative effect on ROE.	Supported
H2: CAR negatively impacts financial performance.	*H2a: CAR has a negative effect on ROA.*	Supported
	H2b: CAR has a negative effect on ROE.	Partially supported
H3: GCG positively influences financial performance.	*H3a: GCG has a positive effect on ROA.*	Supported
	H3b: GCG has a positive effect on ROE.	Supported
H4: DAR negatively impacts financial performance.	*H4a: DAR has a negative effect on ROA.*	Supported
	H4b: DAR has a negative effect on ROE.	Not supported

Source: Authors' work.

The hypotheses results, as summarized in Table 8, provide valuable insights into the factors influencing financial performance in the banking sector, corroborating previous research findings. NPLs were found to have a significant negative impact on both ROA and ROE, aligning with studies by Collaku and Aliu (2021) and Ferriswara et al. (2022), which emphasize that higher levels of bad debt significantly reduce profitability by eroding the bank's earning potential. This substantiates that effective credit risk management is essential for maintaining bank profitability, as corroborated by Luqman (2014), who demonstrated that inadequate credit risk management adversely impacts bank profitability and asset quality, potentially resulting in increased loan losses and NPLs. This research strengthens the theory from previous research conducted which states a higher NPL ratio with lower ROA and ROE due to increased credit risk (Nurwulandari et al., 2022). Likewise in Kosovo and the European Union, banks with lower NPLs have greater financial stability and profitability, indicating that reducing NPLs will improve bank performance (Collaku & Aliu, 2021; Suljić Nikolaj et al., 2022).

Similarly, the CAR also demonstrated a significant negative effect on ROA and ROE, suggesting that while higher capital buffers protect banks from financial distress, they limit profitability by reducing the funds available for lending or investment (Utomo & Anggono, 2020). This is consistent with research by Cappelletti et al. (2019), which highlighted that excessive capital buffer can lead to a short-term reduction in credit supply to certain sectors, potentially impacting profitability. However, the impact of CAR on ROE was weaker, indicating that while capital adequacy is vital for risk management, its effect on shareholder returns is less pronounced. This research also strengthens the results that state a higher CAR indicates better shock absorption but can limit profitability by limiting investment in assets with higher returns (Tasman, 2020; Obeid, 2023). Zhao et al. (2024) found that financial technology development and factors such as CAR and net interest margin significantly influence bank performance.

GCG exhibited a positive and significant influence on both ROA and ROE, reinforcing the idea that well-governed banks with transparent and efficient practices tend to perform better financially. This finding aligns with research by Azmy et al. (2019), Gholy and Nadya (2020), and Ani Asmara et al. (2022), who found that corporate governance positively impacts profitability by reducing agency costs and enhancing operational efficiency. The negative impact of the DAR on both ROA and ROE supports studies by Ahmed et al. (2023) and Kong et al. (2023), which suggest that higher debt levels increase financial burden and reduce profitability. These results collectively highlight the importance of managing leverage and other financial indicators to ensure sustainable growth and optimal financial performance in the banking sector.

6. CONCLUSION

This study examined the impact of bank stability, corporate governance, and capital structure on the financial performance of Indonesian banks listed on the IDX from 2016 to 2022. The findings reveal that NPLs and CAR negatively affect both ROA and ROE, highlighting the importance of effective credit risk management and maintaining appropriate capital levels for profitability. In contrast, GCG significantly enhances financial performance, emphasizing the role of governance in improving bank outcomes. The DAR also negatively impacts profitability, indicating the risks of excessive leverage.

These results underscore the need for banks to balance their strategies. Reducing NPLs through stronger credit risk management and maintaining optimal CAR levels without excessive buffers are crucial for profitability. The positive effect of GCG reinforces the importance of governance reforms in the banking sector, while the negative impact of DAR suggests that banks should manage debt prudently to avoid harming financial performance.

To enhance profitability, banks should improve credit risk frameworks to reduce NPLs and maintain balanced CAR levels to optimize risk and returns (Abdullah & Tursoy, 2023). Strengthening governance practices, including transparency and oversight, is crucial for boosting performance (Amin & Cek, 2023). Effective debt management through balanced debt-to-equity financing is essential for sustainable growth.

This research has several limitations related to the number of observations, so it is recommended to increase the number of observations with alternative analysis tools, namely structural equation models, to be free from assumptions of autocorrelation and normality of data (Hair et al., 2019). Apart from that, the limitation of this research is using ordinary regression, which only uses classical assumptions, so it cannot properly display endogeneity problems, so that in future research we can use structural models. Future research could also explore the impact of macroeconomics, regulatory changes, and fintech adoption (Diab et al., 2023), as well as the role of governance in moderating the effects of stability and profitability. Expanding sample sizes and using advanced methods, such as structural equation modeling, will also increase robustness (Hair et al., 2019). Finally, further research can develop other indicators when measuring stability, for example, credit & insolvency risk (Diab et al., 2023), GCG, for example, transparency and shareholder rights (Abdullah & Tursoy, 2023), capital structure, for example, debt to equity and capitalization ratio (Amin & Cek, 2023), and bank performance, for example, Tobin's Q (Attia et al., 2023).

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