

THE EFFECT OF CAPITAL ADEQUACY RATIO AND CORPORATE GOVERNANCE ON BANKING FINANCIAL PERFORMANCE WITH OPERATIONAL EFFICIENCY AS A MODERATING VARIABLE**Shindy Mariska¹⁾, Anggita Langgeng Wijaya²⁾, Erma Wulan Sari³⁾**¹Department of Accounting, Faculty of Economics and Business, Universitas PGRI Madiun
email: shindy_2203101014@mhs.unipma.ac.id²Department of Accounting, Faculty of Economics and Business, Universitas PGRI Madiun³Faculty of Economics and Business, Universitas PGRI Madiun***Abstrak***

Penelitian ini mengkaji pengaruh CAR dan Tata Kelola Perusahaan terhadap kinerja keuangan perusahaan perbankan yang terdaftar di Bursa Efek Indonesia (BEI), dengan efisiensi operasional sebagai variabel moderasi. Penelitian ini menggunakan pendekatan kuantitatif dan data sekunder yang diperoleh dari laporan tahunan perusahaan perbankan periode 2020–2025. Metode purposive sampling diterapkan, dan data dianalisis menggunakan Moderated Regression Analysis (MRA). Hasil penelitian menunjukkan bahwa CAR berpengaruh signifikan terhadap kinerja keuangan, sementara mekanisme Tata Kelola Perusahaan yang direpresentasikan oleh Dewan Komisaris, Dewan Direksi, dan Komite Audit memiliki hubungan positif dan signifikan dengan kinerja keuangan. Efisiensi operasional secara signifikan memoderasi hubungan antara CAR dan kinerja keuangan, di mana nilai BOPO yang lebih tinggi memperlemah hubungan tersebut. Namun, efisiensi operasional tidak memoderasi secara signifikan hubungan antara Tata Kelola Perusahaan dan kinerja keuangan. Temuan ini menyoroti pentingnya menjaga kecukupan modal, tata kelola yang efektif, dan pengendalian biaya operasional dalam manajemen perbankan.

Kata Kunci: Capital Adequacy Ratio, Tata Kelola Perusahaan, Kinerja Keuangan, Efisiensi Operasional, BOPO, ROA

Abstract

This study examines the effect of Capital Adequacy Ratio (CAR) and Corporate Governance on the financial performance of banking companies listed on the Indonesia Stock Exchange (IDX), with operational efficiency as a moderating variable. The study uses a quantitative approach and secondary data obtained from annual reports of banking companies for 2020–2025. Purposive sampling was applied, and the data were analyzed using Moderated Regression Analysis (MRA) with SPSS 24. Financial performance is measured by Return on Assets (ROA), CAR by the ratio of bank capital to Risk-Weighted Assets, Corporate Governance through the Board of Commissioners, Board of Directors, and Audit Committee, and operational efficiency through the

Operating Expenses to Operating Income ratio (BOPO). The results show that CAR significantly affects financial performance, while the Corporate Governance mechanisms represented by the Board of Commissioners, Board of Directors, and Audit Committee have a positive and significant relationship with financial performance. Operational efficiency significantly moderates the relationship between CAR and financial performance, with higher BOPO weakening the relationship. However, operational efficiency does not significantly moderate the relationship between Corporate Governance and financial performance. The findings highlight the importance of maintaining adequate capital, effective governance, and operational cost control in banking management.

Keywords: Capital Adequacy Ratio, Corporate Governance, Financial Performance, Operational Efficiency, BOPO, ROA.

A. INTRODUCTION

The banking sector plays a central role in the Indonesian economy because banks function as financial intermediaries that collect funds from the public and redistribute them through credit and other financing services. In addition to their intermediation role, banks provide financial services that support economic activity. As highly regulated institutions, banks are required to maintain sound financial conditions through adequate capital, effective corporate governance, and efficient operations. The study is positioned within this context because banking financial performance fluctuated during 2020–2025, a period that covered the post-pandemic recovery and changes in economic and regulatory conditions. The thesis identifies a sharp decline in banking performance in 2020, recovery during 2021–2023, renewed pressure in 2024, and a relatively more optimistic condition in 2025.

Financial performance is an important indicator of a bank's success in managing its resources effectively and efficiently. In this study, financial performance is proxied by Return on Assets (ROA), which reflects the ability of management to generate profit from total assets. One important internal factor is the Capital Adequacy Ratio (CAR), which indicates the ability of a bank to provide capital to absorb risks arising from its assets. Strong capital can support banking operations, absorb potential losses, and provide room for productive business expansion. Another important factor is Corporate Governance. Corporate Governance regulates relationships among

shareholders, management, the board of commissioners, and other stakeholders and is intended to reduce agency conflicts, improve oversight, and support sound decision-making. This study measures Corporate Governance through the Board of Commissioners, Board of Directors, and Audit Committee. Operational efficiency is measured using BOPO, the ratio of operating expenses to operating income. A lower BOPO indicates better efficiency because the bank is able to control operating costs relative to operating income.

Previous studies have reported inconsistent findings concerning CAR and Corporate Governance. Some studies find that CAR significantly improves ROA, whereas others report no significant effect. Similar inconsistencies appear in studies of Corporate Governance and financial performance. Research on BOPO as a moderating variable is also mixed: some studies indicate that efficiency strengthens the usefulness of capital and governance, while others find no moderating effect. These differences constitute the research gap addressed by this study. Based on the research gap, this study aims to examine: (1) the effect of CAR on banking financial performance; (2) the effect of Corporate Governance on banking financial performance; (3) whether operational efficiency moderates the effect of CAR on financial performance; and (4) whether operational efficiency moderates the effect of Corporate Governance on financial performance. The study is expected to provide practical information for banking management and investors and contribute empirical evidence to the literature on banking performance.

The study is primarily supported by Agency Theory and Stakeholder Theory. Agency Theory explains the relationship between principals and agents and emphasizes the risk of information asymmetry and conflicting interests. Effective Corporate Governance can reduce these problems through monitoring, accountability, and better control. Stakeholder Theory views the company as an entity that must create value for a broad group of stakeholders, including shareholders, creditors, customers, employees, regulators, and society. In banking, adequate capital and sound governance can strengthen stakeholder confidence and financial stability. The conceptual framework assumes that CAR and Corporate Governance affect financial performance, while operational efficiency may strengthen or weaken these relationships. CAR reflects the

bank's capacity to absorb risk, Corporate Governance reflects the quality of monitoring and decision-making, and BOPO reflects the effectiveness of operating cost management. Financial performance is represented by ROA.

H1: Capital Adequacy Ratio has a significant effect on banking financial performance.

H2: Corporate Governance has a positive and significant effect on banking financial performance.

H3: Operational efficiency moderates the effect of Capital Adequacy Ratio on banking financial performance.

H4: Operational efficiency moderates the effect of Corporate Governance on banking financial performance.

B. METHOD

This research uses a quantitative design. The population consists of banking companies listed on the Indonesia Stock Exchange during 2020–2025. Secondary data were obtained from annual reports and financial statements published by the IDX, OJK, and the respective company websites. The 2020–2025 period was selected because it represents a period of post-pandemic adjustment and economic recovery in which banking financial conditions experienced substantial changes. The sampling technique is purposive sampling. The thesis identifies 47 listed banking companies in each research year. Companies were excluded when they were delisted, did not publish complete financial reports, or did not provide complete data for CAR, Corporate Governance, financial performance, and operational efficiency. The resulting sample consisted of 43 banking companies per year. After data screening and availability of complete observations for the variables used in the statistical model, 136 observations were analyzed.

Variables and Measurement

Table 1. Variables and Measurement

Variable	Measurement / Proxy
Financial Performance (Y)	Return on Assets (ROA), representing profit generated from total assets.
Capital Adequacy Ratio (X1)	Bank capital divided by Risk-Weighted Assets (RWA/ATMR).
Corporate Governance (X2)	Board of Commissioners, Board of Directors, and Audit Committee.
Operational Efficiency (Z)	Operating Expenses to Operating Income (BOPO); a lower ratio indicates higher efficiency.

The analysis was performed using SPSS version 24. Descriptive statistics were used to summarize the data. Classical assumption tests included the Kolmogorov–Smirnov normality test, multicollinearity test using tolerance and VIF, heteroscedasticity testing, and the Durbin–Watson autocorrelation test. Multiple linear regression and t-tests were then used to examine the direct effects. Moderated Regression Analysis (MRA) was applied to assess whether BOPO moderated the relationships between the independent variables and financial performance.

The moderation model was specified as follows: $Y = \beta_0 + \beta_1X_1 + \beta_2X_2 + \beta_3Z + \beta_4(X_1 \times Z) + \beta_5(X_2 \times Z) + \varepsilon$, where Y is financial performance, X1 is CAR, X2 is Corporate Governance, Z is operational efficiency, and the interaction terms represent moderation effects.

C. RESULTS AND DISCUSSIONS

Descriptive Statistics

Table 2. Descriptive Statistics

Variable	N	Minimum	Maximum	Mean	Std. Deviation
CAR	136	0.10	0.54	0.2748	0.10105
Board of Commissioners	136	0.25	0.75	0.5569	0.10588
Board of Directors	136	4.00	12.00	6.8971	2.40764

Audit Committee	136	2.00	5.00	3.5294	0.78826
Financial Performance (ROA)	136	0.00	0.03	0.0097	0.00685
Operational Efficiency (BOPO)	136	0.43	1.26	0.8620	0.15423

The descriptive statistics show 136 valid observations. CAR ranges from 0.10 to 0.54, with a mean of 0.2748. The Board of Commissioners has a mean of 0.5569, while the average number of directors is 6.8971 and the average number of audit committee members is 3.5294. ROA ranges from 0.00 to 0.03 with a mean of 0.0097, while BOPO ranges from 0.43 to 1.26 with a mean of 0.8620. These figures indicate variation in capital adequacy, governance structures, profitability, and operational efficiency across the sampled banks.

Classical Assumption Tests

Table 3. Classical Assumption Test Results

Test	Result	Decision
Normality (Kolmogorov–Smirnov)	Asymp. Sig. = 0.200	Normal residuals
Multicollinearity	Tolerance 0.605–0.934; VIF 1.071–1.654	No multicollinearity
Heteroscedasticity (Glejser)	Sig. = 0.058–0.576	No heteroscedasticity
Autocorrelation (Durbin–Watson)	DW = 2.035; dU = 1.783	No autocorrelation

The classical assumption tests indicate that the regression model meets the required assumptions. The Kolmogorov–Smirnov test produced a significance value of 0.200, which is above 0.05. All tolerance values were above 0.10 and all VIF values were below 10, indicating no multicollinearity. The Glejser significance values were above 0.05, indicating no heteroscedasticity. The Durbin–Watson value of 2.035 was between the relevant upper-bound criteria, indicating no autocorrelation.

Hypothesis Testing and Moderation Results

Table 4. Hypothesis and Moderation Test Results

Relationship	Coefficient Interaction /	Sig.	Decision
CAR → Financial Performance	-0.009 (direct regression); t = -2.261	0.025	H1 supported
Board of Commissioners → Financial Performance	0.008	0.028	Significant
Board of Directors → Financial Performance	0.001	0.000	Significant
Audit Committee → Financial Performance	0.001	0.038	Significant
CAR × Operational Efficiency → Financial Performance	0.080	0.002	H3 supported; weakens relationship
Board of Commissioners × Operational Efficiency	-0.045	0.082	Not significant
Board of Directors × Operational Efficiency	-0.001	0.432	Not significant
Audit Committee × Operational Efficiency	0.001	0.736	Not significant

The hypothesis tests show that CAR has a statistically significant relationship with financial performance, with a significance value of 0.025. Corporate Governance, represented by the Board of Commissioners, Board of Directors, and Audit Committee, also shows significant relationships with financial performance, with significance values of 0.028, 0.000, and 0.038, respectively. The interaction between CAR and operational efficiency is significant at 0.002, indicating that BOPO moderates the CAR–financial performance relationship. In contrast, none of the interactions between the Corporate Governance proxies and BOPO are significant.

Discussion

Effect of Capital Adequacy Ratio on Financial Performance

The findings indicate that CAR significantly affects banking financial performance. CAR represents the bank's ability to provide capital to absorb risks associated with credit, investment, securities, and other risk-weighted assets. Adequate capital gives banks greater capacity to maintain operational stability, absorb potential losses, and support productive activities. The finding is consistent with studies cited in the thesis that identify CAR as an important determinant of banking profitability and financial stability, although previous empirical findings have not been fully consistent. From a Stakeholder Theory perspective, adequate capital is relevant to investors, creditors, regulators, depositors, and other stakeholders because it signals the bank's capacity to withstand risk and maintain financial stability. The finding therefore suggests that capital adequacy is not merely a regulatory requirement but also a strategic resource. Banks with sufficient capital have greater flexibility to support credit distribution and business development while maintaining resilience against potential losses.

Effect of Corporate Governance on Financial Performance

Corporate Governance has a positive and significant relationship with financial performance. The Board of Commissioners, Board of Directors, and Audit Committee represent complementary governance functions: oversight, strategic and operational management, and monitoring of financial reporting and internal controls. Effective governance can improve transparency, accountability, decision quality, and control of agency problems. The finding is consistent with Agency Theory because effective governance mechanisms reduce information asymmetry and the potential conflict between principals and agents. Strong oversight can constrain opportunistic managerial behavior, while competent directors can improve strategic decision-making. The audit committee also contributes to the reliability of financial information and internal control. In banking, these mechanisms are particularly important because operational decisions affect depositors, creditors, investors, and regulators.

Moderating Role of Operational Efficiency in the CAR–Financial Performance Relationship

Operational efficiency significantly moderates the relationship between CAR and financial performance. The interaction coefficient reported in the thesis is 0.080, and the discussion

interprets the moderation as weakening when BOPO increases. Because a higher BOPO indicates lower efficiency, the finding means that high operating costs can reduce the benefits obtained from adequate capital. Capital that could otherwise support productive lending, services, and other activities may instead be absorbed by operating expenses. This result emphasizes that strong capitalization alone does not guarantee optimal profitability. Banks need to combine adequate capital with effective cost management. When BOPO is controlled, the available capital can be used more productively and the contribution of capital adequacy to financial performance can be realized more effectively. This finding is consistent with the thesis discussion citing Nursinta et al. (2025) and Lestari and Manda (2021), which emphasize the role of operational efficiency in the productive utilization of banking resources.

Moderating Role of Operational Efficiency in the Corporate Governance–Financial Performance Relationship

Operational efficiency does not significantly moderate the relationship between Corporate Governance and financial performance. The interaction terms for the Board of Commissioners, Board of Directors, and Audit Committee are -0.045 ($p = 0.082$), -0.001 ($p = 0.432$), and 0.001 ($p = 0.736$), respectively. Since all significance values exceed 0.05, BOPO does not significantly strengthen or weaken the effects of these governance mechanisms. The result suggests that Corporate Governance and operational efficiency may operate as relatively separate mechanisms in influencing banking financial performance. Governance mechanisms can improve oversight, accountability, and decision quality regardless of the bank's BOPO level. The finding is consistent with the study cited in the thesis by Bowi and Rita (2020), which also reported that operational efficiency did not significantly strengthen the relationship between Corporate Governance and financial performance.

D. CONCLUSIONS

This study concludes that Capital Adequacy Ratio significantly affects the financial performance of banking companies listed on the Indonesia Stock Exchange during 2020–2025. Corporate

Governance, represented by the Board of Commissioners, Board of Directors, and Audit Committee, also has a significant positive relationship with financial performance. Operational efficiency, measured by BOPO, significantly moderates the relationship between CAR and financial performance; higher operating costs weaken the benefit of capital adequacy. However, operational efficiency does not significantly moderate the relationship between Corporate Governance and financial performance. The study is limited by its use of secondary data, its focus on listed banking companies, and the variables included in the model. The results should therefore be interpreted within the 2020–2025 banking context. Future studies may broaden the observation period, include other banking or industry sectors, and introduce additional variables such as Non-Performing Loan (NPL), Loan to Deposit Ratio (LDR), Net Interest Margin (NIM), firm size, or macroeconomic indicators.

E. SUGGESTIONS

Banking companies should maintain adequate capital in accordance with applicable requirements while ensuring that capital is used productively. Banks should also strengthen the effectiveness of independent commissioners, directors, and audit committees to improve transparency, accountability, and decision quality. At the same time, operating expenses should be controlled so that BOPO remains at an efficient level and capital can generate greater economic benefits.

Investors should evaluate not only profitability but also capital adequacy, Corporate Governance quality, and operational efficiency when assessing banking companies. Future researchers are encouraged to extend the observation period, broaden the sample, and incorporate additional financial and macroeconomic variables to obtain a more comprehensive explanation of banking financial performance.

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