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Beyond Size: What Drives Financial Performance in Tier II and Tier III Commercial Banks in Kenya

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Beyond Size: What Drives Financial Performance in Tier II and Tier III Commercial Banks in Kenya

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Abstract

The financial performance of commercial banks remains a subject of considerable interest in both academic and policy circles, particularly in emerging markets where the banking sector constitutes a critical pillar of economic intermediation. This study examines the determinants of financial performance among Tier II and Tier III commercial banks in Kenya, using data extracted from audited financial statements for the fiscal year ending December 2025. The study employs Return on Assets (ROA) as the dependent variable and considers five bank specific explanatory variables: the Non-Performing Loan (NPL) ratio, Loan to Deposit ratio, Capital Adequacy ratio, Net Interest Income to Assets ratio and Operating Income to Assets ratio. Using Ordinary Least Squares (OLS) regression analysis on a sample of 28 banks, the study finds that the model explains approximately 70.83% of the variation in ROA ($R^2 = 0.7083$; Adj. $R^2 = 0.6419$), which is statistically significant at the 1% level ($F(5, 22) = 10.68$; $p < .0001$). The NPL ratio exerts a significant negative effect on performance ($\beta = -0.0408$; $p = 0.006$), while capital adequacy ($\beta = 0.0913$; $p = 0.026$) and operating income efficiency ($\beta = 0.4214$; $p = 0.012$) are significant positive drivers of ROA. The Loan to Deposit ratio and Net Interest Income ratio do not yield statistically significant effects. Diagnostic tests confirm the absence of multicollinearity (Mean VIF = 1.74), homoskedasticity (Breusch-Pagan $p = 0.3153$) and correct model specification (Ramsey RESET $p = 0.8894$). The findings suggest that beyond bank size, credit quality management, capital strength and income diversification are the primary levers of financial performance in Kenya's mid-tier banking segment.

Keywords: Financial performance, ROA, Tier II and III banks, NPL ratio, capital adequacy, OLS regression.

1. INTRODUCTION

The commercial banking sector in Kenya operates within a tiered classification framework established by the Central Bank of Kenya (CBK), which segments institutions by asset base into Tier I (large), Tier II (medium) and Tier III (small) categories. While Tier I banks, dominated by institutions such as KCB Group, Equity Bank and Co-operative Bank, attract the preponderance of academic and regulatory attention, Tier II and Tier III banks collectively serve a significant share of Kenya's small and medium enterprise ecosystem, retail depositors and under-banked populations in suburban and rural areas. The rapid proliferation of agency banking models and financial technology platforms has further broadened the operational footprint of these smaller

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institutions (Mbugua & Omagwa, 2017; Mwenda, 2016), yet their financial performance dynamics remain insufficiently examined relative to their systemic significance.

Despite their systemic importance in supporting financial inclusion, the financial performance of mid-tier and smaller banks remains comparatively understudied. Several of these institutions have faced operational challenges in recent years, including elevated non-performing loan (NPL) ratios, thin net interest margins and constrained capital buffers, all of which have implications for their sustainability and the broader stability of Kenya's banking system. Financial innovations such as mobile banking, internet banking and agency networks have introduced both opportunities for income diversification and new sources of operational risk (Muia & Njuguna, 2017; Okiro & Ndungu, 2013; Mateka, Gogo & Omagwa, 2016). The regulatory environment, shaped by prudential guidelines and CBK oversight, has imposed compliance costs that disproportionately affect smaller banks (Musabi & Mbithi, 2018; Ndolo, 2017).

1.1 Research Problem

Kenya's banking sector has witnessed significant consolidation and regulatory tightening over the past decade. The introduction of deposit protection enhancements, risk-based supervision by the CBK and the enforcement of minimum capital requirements have collectively raised the bar for operational resilience. Despite this environment, several Tier II and Tier III banks continue to report suboptimal financial performance, with ROA figures that fall below regional benchmarks and international best practices.

The reasons for this nonperformance are multifaceted. Prior studies on Kenyan banks have documented the adverse effects of high NPL ratios on profitability (Ndege, Nyamau & Odhiambo, 2020; Nyarige, 2019), the role of board composition in governance quality (Ongore, K'Obonyo, Ogutu & Bosire, 2022) and the influence of capital structure on firm value (Mwangangi, Kinyua & Wanyoike, 2023). Furthermore, studies by Kurgat and Tibbs (2018) and Muriuki (2020) highlight that the adoption of financial innovations has had a mixed impact on performance in Kenyan commercial banks, with benefits accruing unevenly across bank tiers. Studies on the effect of government regulations also point to compliance burdens that constrain profitability in smaller banks (Mwongeli, 2016; Osano & Gekara, 2018). However, these studies either focus on the entire

banking sector or on listed entities, and few have isolated the performance dynamics specific to Tier II and III institutions. This gap is the problem the present study addresses: the determinants of financial performance in Kenya's mid-tier and small bank segment remain empirically unresolved, even as the segment carries growing systemic weight.

1.2 Research Objectives

The general objective of this study is to identify the bank-specific determinants of financial performance among Tier II and Tier III commercial banks in Kenya for the fiscal year 2025. The specific objectives are to establish the effect of the Non-Performing Loan ratio on Return on Assets, to determine the effect of the Loan to Deposit ratio on Return on Assets, to assess the effect of the Capital Adequacy ratio on Return on Assets, to examine the effect of the Net Interest Income to Assets ratio on Return on Assets and to evaluate the effect of the Operating Income to Assets ratio on Return on Assets. The corresponding research question is: What are the principal bank-specific determinants of financial performance among Tier II and Tier III commercial banks in Kenya, as of the fiscal year 2025? Answering this question has direct implications for bank managers, regulators and investors seeking to understand the structural drivers of performance in this segment.

1.3 Theoretical Framework

This study draws on three complementary theoretical perspectives. The Structure Conduct-Performance (SCP) hypothesis posits that market structure determines firm behavior, which in turn determines financial performance. In the banking context, institutions that hold greater market power, often proxied by market share, are expected to earn superior rents. However, this study challenges the exclusive centrality of size by examining whether bank-specific operational variables exert independent explanatory power.

The Efficient Structure hypothesis argues that performance differentials across banks reflect differences in operational efficiency rather than market power. Under this view, banks with lower cost structures and superior asset utilization outperform peers regardless of size. This is consistent with the inclusion of the Operating Income to Assets ratio as an explanatory variable in this study.

Agency theory provides a lens for understanding how information asymmetries and incentive misalignments between shareholders, managers and depositors influence risk taking behavior, loan quality and ultimately profitability (Jensen & Meckling, 1976). The NPL ratio serves as an indirect indicator of credit risk management discipline, which is itself a governance-related outcome.

1.4 Empirical Literature

The empirical literature on bank financial performance in Kenya is rich and growing. Ndege, Nyamano and Odhiambo (2020) found that board size was significantly associated with financial performance in Kenyan banks, suggesting that governance structures matter beyond balance sheet variables. Nyarige (2019) documented a positive association between board independence and ROA among Kenyan commercial banks, while Maina and Oluoch (2021) confirmed that corporate governance practices exert a statistically significant effect on the performance of NSE listed commercial banks. Beyond governance, a growing strand of literature has linked financial innovations to improved performance outcomes. Mwawasaa and Ali (2020) established a positive relationship between financial innovation and performance in Kenyan commercial banks, while Ngumi, Njuguna and Waititu (2013) similarly confirmed that bank innovations, including product and process improvements, significantly improved financial performance across commercial banks in Kenya.

On the question of credit risk, elevated NPL ratios have been consistently identified as a drag on profitability. Akenga (2023) demonstrated that audit committee effectiveness moderated the relationship between credit risk and bank performance in Kenya. Similarly, Okiro, Aduda and Omoro (2022) found that audit committee characteristics were positively associated with financial performance across East African firms. These findings collectively suggest that both internal controls and credit quality are binding constraints on performance.

With respect to capital adequacy, Ongore et al. (2022) established that well-capitalized Kenyan banks tend to exhibit lower funding costs and greater risk absorption capacity, contributing positively to ROA. The international evidence from Petria, Capraru and Ihnatov (2015) across EU27 banking systems similarly confirms that capital adequacy is among the most robust predictors of bank profitability. Agency banking has also emerged as a complementary mechanism

for extending financial services and improving efficiency: Mchemebre and Jagongo (2017) and Mimano (2014) found that agency banking operations positively influenced the profitability of commercial banks in Kenya, while Mabeya, Nyakundi and Abuga (2016) confirmed that adherence to CBK prudential guidelines was positively associated with profitability in a sample of banks in Kisii County.

Concerning income structure, Kapaya and Raphael (2016) observed that banks in Tanzania with more diversified income streams, combining net interest income with fee-based revenues, demonstrated more stable profitability. This aligns with the inclusion of both the Net Interest Income ratio and the Operating Income ratio in the current model. Nzyuko, Jagongo and Husborn (2017) further demonstrated that financial inclusion innovations positively influenced the financial performance of commercial banks in Kenya, while Mohamud and Mungai (2019) found a significant positive relationship between financial innovation and performance in banks in Garissa County, reinforcing the view that income diversification driven by technology adoption carries measurable profitability benefits. The regulatory dimension also matters: Momanyi (2018) and Okioga (2013) observed that financial regulation and oversight by the CBK influenced market performance outcomes, particularly for smaller and mid-tier institutions operating under tighter resource constraints.

2. METHODOLOGY

2.1 Research Design

The study adopts a quantitative, cross-sectional research design, drawing on secondary data from the published financial statements of commercial banks for the fiscal year ending December 2025. A cross-sectional approach is appropriate given that the study seeks to establish relationships across a defined population at a specific point in time, consistent with the correlation research design employed in related banking studies (Mwangangi, Kinyua & Wanyoike, 2023; Sekaran & Bougie, 2016).

2.2 Population and Sample

The study population comprises all commercial banks licensed by the Central Bank of Kenya as at December 2025, excluding Tier I institutions and any banks under statutory management or

receivership. The final usable sample consists of 28 banks, representing a census of Tier II and Tier III institutions for which complete financial statement data was available. The data was imported and processed in Stata 17.

2.3 Variables and Measurement

The dependent variable is Return on Assets (ROA), calculated as profit after tax divided by total assets. This metric is widely employed in banking performance research as it captures asset utilization efficiency (Muritala, 2017; Abor, 2005). Table 1 summarizes the operationalization of all study variables and their expected signs.

Table 1. Variable Operationalization and Measurement

Variable	Measurement	Expected Sign
ROA (Dependent)	Profit After Tax / Total Assets	N/A
NPL Ratio	Gross NPLs / Gross Loans	Negative
Loan to Deposit Ratio	Net Loans / Total Deposits	Positive
Capital Adequacy Ratio	Core Capital / Total Assets	Positive
NII / Assets Ratio	Net Interest Income / Total Assets	Positive
Operating Income / Assets	Operating Income / Total Assets	Positive

2.4 Analytical Model

The study employs the following OLS regression model:

$$ROA = \beta_0 + \beta_1(NPL) + \beta_2(LDR) + \beta_3(CAR) + \beta_4(NII) + \beta_5(OIA) + \varepsilon$$

Where ROA is Return on Assets; NPL is the Non-Performing Loan ratio; LDR is the Loan to Deposit ratio; CAR is the Capital Adequacy ratio; NII is the Net Interest Income to Assets ratio; OIA is the Operating Income to Assets ratio; β_0 is the constant term; and ε is the stochastic error term.

3. RESULTS

3.1 Descriptive Statistics

Table 2 presents the descriptive statistics for all study variables based on 28 bank-year observations for the fiscal year 2025.

Table 2. Descriptive Statistics of Study Variables (FY2025, n = 28)

Variable	N	Mean	Std. Dev.	Min	Max
ROA	28	0.0128	0.0206	−0.0439	0.0521
NPL Ratio	28	0.2402	0.2111	0.0012	1.0139
Loan to Deposit Ratio	28	0.5517	0.2242	0.1482	0.9581
Capital Adequacy Ratio	28	0.1278	0.0704	−0.0280	0.3113
NII / Assets Ratio	28	0.0218	0.0211	0.0047	0.1129
Operating Income / Assets	28	0.0688	0.0247	0.0223	0.1430

The mean ROA across sampled institutions is 1.28%, with a standard deviation of 2.06%, reflecting relatively modest but variable profitability within the Tier II and III segments. The negative minimum ROA of 4.39% indicates that a subset of banks recorded losses during the period, consistent with the challenges faced by smaller institutions in maintaining sustainable income streams. The NPL ratio records a mean of 24.02%, considerably above the CBK's regulatory benchmark, signaling elevated credit risk in this tier. The wide standard deviation (21.11%) confirms significant heterogeneity in credit quality across sampled banks. The mean Capital Adequacy ratio of 12.78% suggests that most banks satisfy the CBK's minimum core capital requirements, though the negative minimum (−2.80%) indicates that at least one institution was technically undercapitalized during the review period.

The Operating Income to Assets ratio, with a mean of 6.88%, reflects the combined contribution of interest and non-interest income streams. Its relatively narrow standard deviation (2.47%)

compared to the NPL ratio suggests that income generation is more homogeneous than credit quality across this bank tier.

3.2 Correlation Analysis

Table 3 presents the Pearson pairwise correlation matrix for all study variables. The correlations provide preliminary evidence on the direction and strength of bivariate relationships prior to multivariate estimation and complement the VIF diagnostics reported in Table 5.

Table 3. Pearson Pairwise Correlation Matrix (n = 28). Note. * $p < .05$; ** $p < .01$.

Variable	(1)	(2)	(3)	(4)	(5)	(6)
(1) ROA	1.000					
(2) NPL Ratio	-0.6326**	1.000				
(3) Loan to Deposit	-0.0407	0.3348	1.000			
(4) Capital Adequacy	0.5865**	-0.4091*	-0.1532	1.000		
(5) NII / Assets	0.3527	-0.2136	0.0230	0.0764	1.000	
(6) Op. Income / Assets	0.6278**	-0.3473	-0.0480	0.2800	0.7374**	1.000

The correlation matrix confirms the direction of key relationships anticipated by theory. ROA is most strongly and negatively correlated with the NPL ratio ($r = -0.6326$, $p < .01$), indicating that higher levels of non-performing loans are associated with lower profitability. ROA is also positively and significantly correlated with Operating Income to Assets ($r = 0.6278$, $p < .01$) and the Capital Adequacy Ratio ($r = 0.5865$, $p < .01$). In addition, ROA exhibits a positive but statistically insignificant relationship with NII to Assets ($r = 0.3527$, $p > .05$). Among the explanatory variables, the strongest positive correlation is observed between NII to Assets and Operating Income to Assets ($r = 0.7374$, $p < .01$). Overall, the inter-variable correlations are moderate and remain below the commonly accepted threshold of 0.80, suggesting that

multicollinearity is unlikely to be a serious concern. These findings are consistent with the VIF diagnostics reported in Table 5.

3.3 Regression Results

The OLS regression results are presented in Table 4. The overall model is statistically significant ($F(5, 22) = 10.68$; $p < .0001$), with an R-squared value of 0.7083 and an adjusted R-squared of 0.6419. This indicates that the five bank-specific variables collectively explain approximately 70.83% of the cross-sectional variation in ROA, a substantially higher explanatory power than models estimated on the full NSE-listed banking sector (cf. Mwangangi, Kinyua & Wanyoike, 2023), suggesting that these determinants are particularly pertinent within the Tier II and III context.

Table 4. OLS Regression Results: Dependent Variable = ROA ($n = 28$; $R^2 = 0.7083$; Adj. $R^2 = 0.6419$; $F(5, 22) = 10.68$; $p < .0001$)

Variable	Coefficient	Std. Err.	t	P> t	[95% CI Lower]	[95% CI Upper]
NPL Ratio	-0.0408	0.0135	-3.03	0.006	-0.0687	-0.0128
Loan to Deposit Ratio	0.0160	0.0113	1.42	0.171	-0.0074	0.0394
Capital Adequacy Ratio	0.0913	0.0382	2.39	0.026	0.0121	0.1704
NII / Assets Ratio	-0.1330	0.1704	-0.78	0.443	-0.4864	0.2203
Operating Income / Assets	0.4214	0.1535	2.75	0.012	0.1031	0.7398
Constant	-0.0239	0.0116	-2.07	0.051	-0.0480	0.0001

The results show that the NPL ratio has a negative and statistically significant coefficient ($\beta = -0.0408$; $p = 0.006$). The Capital Adequacy ratio ($\beta = 0.0913$; $p = 0.026$) and the Operating Income to Assets ratio ($\beta = 0.4214$; $p = 0.012$) carry positive and statistically significant coefficients. The

Loan to Deposit ratio ($\beta = 0.0160$; $p = 0.171$) and the Net Interest Income to Assets ratio ($\beta = -0.1330$; $p = 0.443$) do not attain statistical significance at conventional levels.

3.4 Diagnostic Tests

Post-estimation diagnostic tests were conducted to validate the robustness of the regression results. The results are summarized in Table 5.

Table 5. Post-Estimation Diagnostic Tests

Test	Test Statistic	Conclusion
Shapiro-Wilk (Normality)	$W = 0.8598$; $V = 4.234$; $z = 2.971$; $p = 0.00148$	Residuals non-normal; robust standard errors advised; causal inference limited at $n = 28$
Breusch-Pagan / Cook-Weisberg (Heteroskedasticity)	$\chi^2(1) = 1.01$; $p = 0.3153$	Homoskedasticity not rejected
Ramsey RESET (Omitted Variables)	$F(3, 19) = 0.21$; $p = 0.8894$	No omitted variable bias detected
Mean VIF (Multicollinearity)	1.74 (Max: 2.55 for OIA)	No multicollinearity concern

The Breusch-Pagan test confirms constant error variance (homoskedasticity), satisfying a key OLS assumption. The Ramsey RESET test provides confidence that no major explanatory variable has been omitted from the model, supporting its functional specification. Multicollinearity is not a concern, with a mean VIF of 1.74, well below the conventional threshold of 10. The Shapiro-Wilk test indicates a departure from normality in residuals ($p = 0.00148$); however, given the small sample size of 28 observations, this finding should be interpreted with caution. The central limit theorem provides limited protection at this sample size and future replication with larger panels is recommended.

4. DISCUSSION

4.1 Interpretation of Findings

The NPL ratio exhibits a negative and statistically significant effect on ROA ($\beta = -0.0408$; $p = 0.006$), confirming that credit quality deterioration is among the most consequential drivers of poor

financial performance in Kenya's mid-tier banks. A one-percentage-point increase in the NPL ratio is associated with a reduction in ROA of approximately 4.08 basis points, *ceteris paribus*. This finding aligns with Akenga (2023) and Ndege et al. (2020), who documented similar adverse credit risk effects on Kenyan bank performance. It further reflects the reality that high NPL ratios erode interest income, necessitate loan loss provisioning and increase the cost of funds, compounding their impact on net profitability.

The Capital Adequacy ratio is positively and significantly associated with ROA ($\beta = 0.0913$; $p = 0.026$). This result is consistent with the prediction of agency theory: better capitalized banks face lower agency costs, signal creditworthiness to counterparties and can take on lending opportunities that undercapitalized peers must forgo. A one-unit increase in the capital adequacy ratio is associated with an estimated improvement of 9.13 percentage points in ROA, underscoring the return premium associated with maintaining strong capital buffers. This is also consistent with the international evidence presented by Petria et al. (2015) and the domestic evidence in Maina and Oluoch (2021).

Operating Income to Assets is the variable with the largest coefficient in the model ($\beta = 0.4214$; $p = 0.012$), implying that income efficiency is the single most potent positive predictor of ROA in this bank tier. Banks that generate higher operating income relative to their asset base, whether through interest earnings, fee income or other revenue streams, demonstrate substantially superior profitability. This is consistent with findings by Mwawasaa and Ali (2020) and Muriuki (2020), who linked financial innovations and diversified income generation to improved performance outcomes in Kenyan commercial banks. This finding reinforces the Efficient Structure hypothesis: operational effectiveness, not merely asset size, is what distinguishes profitable from underperforming mid-tier banks in Kenya.

The Loan to Deposit ratio ($\beta = 0.0160$; $p = 0.171$) does not attain statistical significance, suggesting that the proportion of deposits deployed as loans does not independently explain variation in ROA across this sample. This could reflect the constrained lending environment for smaller banks, where regulatory requirements and credit risk considerations limit loan growth irrespective of deposit base. The Net Interest Income to Assets ratio similarly fails to reach significance ($\beta =$

-0.1330; $p = 0.443$), perhaps because NII is a component already captured more comprehensively within the Operating Income variable.

4.2 How the Results Inform the Value of the Study

The central thesis of this study is that bank size alone does not explain financial performance in Kenya's Tier II and Tier III banking segment, and the results substantiate this thesis directly. The study was proposed on the premise that the segment is systemically important yet empirically neglected, and that isolating its performance drivers would yield actionable knowledge for managers, regulators and investors. The findings validate that premise in three ways. The model explains 70.83% of the variation in ROA using only bank-specific operational variables, without any size proxy, demonstrating that within-tier performance differentials are driven by what banks do rather than how large they are. The identification of credit quality, capital strength and income efficiency as the three significant levers converts the study's proposed value into concrete, prioritized intervention points that were not previously documented for this segment in isolation. The substantially higher explanatory power obtained here, relative to models estimated on the full or listed banking sector, confirms the study's original contention that segmented analysis is methodologically superior for understanding non-Tier I banks. The results therefore transform the anticipated value of the study, filling an empirical gap, into demonstrated value: a validated, tier-specific performance model that regulators and practitioners can apply.

4.3 Summary and Conclusions

This study investigated the bank-specific determinants of financial performance among Tier II and Tier III commercial banks in Kenya, using a cross-sectional OLS regression framework on 2025 financial data. The findings reveal that credit quality as measured by the NPL ratio, capital adequacy and operating income efficiency are the principal drivers of ROA variation in this bank segment. These three factors collectively dominate the explanatory power of a model that accounts for 70.83% of performance variation, a remarkably high figure for cross-sectional banking research.

The findings carry clear practical implications. For bank managers in the Tier II and III segment, the priority should be strengthening credit appraisal frameworks to contain NPL growth, maintaining capital buffers above regulatory minimums to unlock performance premiums and

diversifying income sources to enhance operating income relative to assets. For regulators, the elevated mean NPL ratio of 24.02% in this tier merits supervisory attention, as it represents both an institution level and systemic concern.

These results extend the existing literature by demonstrating that the determinants of financial performance are not uniform across bank tiers. The much higher R^2 observed in this study, compared to studies conducted on the full sector, suggests that the Tier II and III segment is more homogeneous in its performance driving dynamics, a finding that has implications for how segmented analysis should be incorporated into future banking research in Kenya and comparable emerging markets.

4.4 Recommendations

Based on the empirical findings, the following recommendations are advanced. Tier II and III commercial banks should invest in robust credit risk management systems, including enhanced due diligence processes, collateral monitoring and early warning indicators for loan delinquency. The mean NPL ratio of 24% in this tier is unsustainably high and materially constrains profitability. Banks in this segment should proactively manage their capital adequacy ratios above the regulatory minimum to derive the performance premium associated with strong capital positions. Recapitalization strategies, including retained earnings plough back and strategic equity injection, should be prioritized.

There is a clear case for income diversification. The strong positive effect of Operating Income to Assets on ROA suggests that banks which broaden their revenue base through bancassurance, trade finance, digital banking fees and advisory services stand to gain significantly in profitability. The Central Bank of Kenya and the Kenya Deposit Insurance Corporation (KDIC) should consider providing targeted supervisory guidance and capacity building for smaller banks in credit portfolio management, given the outsized role that NPL ratios play in this tier's performance outcomes.

4.5 Limitations and Directions for Future Research

This study is subject to several limitations that should be considered when interpreting its findings. The cross-sectional design limits causal inference and panel data analysis spanning multiple years

would provide stronger evidence on the direction and persistence of the identified relationships. The sample of 28 banks, while representing a census of the accessible Tier II and III institutions with complete data, is modest in absolute terms, which may affect the stability of coefficient estimates. The residual non-normality flagged by the Shapiro-Wilk test warrants attention in future work and robust standard errors should be considered when replicating this analysis.

Macroeconomic variables such as GDP growth, the interest rate environment and inflation, which may confound or moderate the relationships observed, were not included in the current model and represent an important avenue for future research. Future studies should adopt a panel data design spanning a minimum of five years to permit the use of fixed-effects or random-effects estimators, which would control for unobserved bank-specific heterogeneity and substantially strengthen causal inference. The application of robust standard errors (e.g., heteroskedasticity-consistent HC3 estimators) is recommended in replication work to address the residual non-normality documented here. Expanding the model to incorporate macroprudential indicators, ownership structure and bank governance variables would further enrich the explanatory framework and allow for more elaborate policy recommendations.

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