



Profitability Drivers and Firm Value in Indonesian State-Owned Banks: The Moderating Role of Firm Size

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ABSTRACT

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This study examines the determinants of profitability, the effect of profitability on firm value, and the moderating role of firm size in Indonesian state-owned banks. State-owned banks are strategically important because their financial performance supports intermediation, public confidence, and national economic development. During 2014-2024, these banks faced regulatory change, digitalization, pandemic disruption, credit restructuring, and uneven profitability recovery. This quantitative causal ex-post facto study used secondary data from five state-owned banks listed on the Indonesia Stock Exchange, producing 55 bank-year observations. Panel-data regression and moderated regression analysis were conducted using EViews 13 at a 5% significance level. Liquidity positively affected profitability. Leverage also had a positive effect on profitability. Credit risk significantly reduced profitability and emerged as the most urgent managerial concern. Asset growth positively contributed to profitability. BOPO significantly reduced profitability, confirming the importance of operating efficiency. Profitability significantly increased firm value, while firm size strengthened this relationship as a quasi moderator. These findings emphasize integrated liquidity, funding, credit-risk, growth, and efficiency management. They also provide guidance for managers, regulators, and investors in strengthening sustainable performance and market valuation.

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INTRODUCTION

State-owned banks occupy a strategic position in Indonesia because they combine commercial objectives with responsibility for financing households, corporations, government programs, and national development. Their performance is therefore socially important, not merely financially relevant. When state-owned banks generate stable profits, they can expand credit, support

productive investment, strengthen public confidence, and contribute to financial-system resilience. Conversely, declining profitability may restrict lending, weaken capital accumulation, and raise concerns about the sustainability of public financial institutions. Profitability thus indicates whether banks can transform deposits and other funding sources into productive assets while absorbing risk. Return on assets is especially relevant because banking income depends largely on efficient financial-asset management. Evidence from previous studies confirms that overall profitability reflects the combined influence of revenue generation, risk exposure, asset utilization, and cost control rather than income growth alone (Arhinful et al., 2025; Gupta, 2026).

The importance of this issue became more visible during 2014-2024, when Indonesian state-owned banks faced regulatory strengthening, accelerated digitalization, the COVID-19 shock, large-scale credit restructuring, and economic recovery. These developments affected borrowers, depositors, investors, employees, and public institutions because banking conditions influence access to finance and confidence in the economy. The observed banks recorded a sharp decline in return on assets in 2020, followed by an uneven recovery. This pattern indicates that stronger post-pandemic earnings did not emerge automatically or uniformly. They depended on how each bank managed liquidity, funding, credit quality, asset expansion, and operating costs. Examining the financial drivers of profitability is therefore important for society because it identifies the conditions under which public banks can remain resilient, sustain intermediation, and preserve market trust. Ultimately, the issue concerns the continuity and quality of financial services supporting economic activity.

The general problem is that state-owned banks must simultaneously maintain liquidity, expand lending, control credit risk, manage leverage, grow assets, and preserve operating efficiency. These objectives can conflict. Excessive liquidity may reduce earnings through idle funds, while inadequate liquidity can threaten payment capacity. Leverage can support profitability because deposits and other liabilities finance earning assets, yet excessive external funding increases liquidity, solvency, and agency risks. Trade-off reasoning therefore suggests that leverage is beneficial only when returns from productive assets exceed funding and risk costs (Akhtar et al., 2022; Rodriguez, 2024; Saif-Alyousfi et al., 2025). Asset growth may improve income, but expansion can reduce asset quality when credit screening, monitoring, and organizational capacity fail to keep pace. The societal problem is thus not simply whether banks grow, but whether growth, funding, and intermediation are balanced to produce sustainable profitability without creating financial vulnerability.

Field conditions show that credit quality and operating efficiency were decisive. Higher non-performing loans weakened interest collection, reduced earning-asset productivity, and increased impairment provisions, particularly during severe economic disruption. Previous banking studies identify credit risk as an important determinant of profitability, although its magnitude and statistical significance differ across institutions and periods (Apriani et al., 2023; Mousa et al., 2025; Yударuddin et al., 2024). Meanwhile, operating efficiency remained a persistent concern. This study measures efficiency through BOPO, the ratio of operating expenses to operating income, where a higher value indicates greater inefficiency and is therefore expected to reduce profitability. Digital transformation offered opportunities to lower branch, transaction, and service costs, but those benefits were not automatic. Technology investment improves efficiency only when adoption, productivity, and revenue gains exceed implementation and maintenance expenditures (Diener & Špaček, 2021; Heizer et al., 2023).

Previous research has examined internal determinants of bank profitability, including liquidity, leverage, credit risk, asset growth, and operating efficiency. However, many studies analyze these factors separately or within incomplete models, producing a fragmented understanding of their joint operation. This limitation matters because bank profitability arises from interconnected decisions: liquidity affects lending capacity, leverage shapes funding availability, credit risk influences asset quality, asset growth changes operational scale, and BOPO reflects cost-management discipline. Studies on firm value further show that profitability can function as a market signal because persistent earnings reduce information asymmetry and indicate managerial quality and future prospects (Yasar et al., 2020). Agency theory also emphasizes disciplined management of deposits, assets, and operating resources to protect stakeholder interests (Sukendri et al., 2024). Yet valuation is also affected by governance, dividends, macroeconomic conditions, market sentiment, and firm-specific risk, requiring a broader empirical framework.

The literature remains inconclusive regarding firm size in the profitability-firm value relationship. Larger banks may possess customer networks, diversified revenue streams, stronger funding access, technology, and greater loss-absorption capacity. These characteristics can make profitability appear more credible, persistent, and valuable to investors. Nevertheless, findings are mixed. Some studies indicate that size strengthens performance or valuation relationships, whereas others identify only a direct effect or limited moderation (Abadi & Lutfi, 2025; Ardianti & Lutfi, 2025; Cahyani et al., 2023; Yuliyanti et al., 2022). This inconsistency creates a research gap because the moderation type cannot be assumed from size. The gap is reinforced by limited attention to

Indonesian state-owned banks despite their systemic importance and heterogeneous business models. Consequently, integrated panel-data analysis is required to evaluate profitability drivers, valuation effects, and the interaction between profitability and firm size within one coherent model.

The state of the art of this study lies in integrating five internal profitability drivers, the profitability-firm value pathway, and firm-size moderation within a single panel-data framework. The 2014-2024 observation period captures a complete cycle of pre-pandemic conditions, pandemic disruption, credit restructuring, digital acceleration, and post-pandemic recovery. This design enables the analysis to determine whether liquidity, leverage, credit risk, asset growth, and BOPO affect profitability and which factor demands the greatest managerial attention. The study also advances existing research by identifying the exact role of firm size rather than treating moderation as a general assumption. Its practical importance lies in producing evidence relevant to bank management, regulators, investors, and policymakers. By clarifying the mechanisms behind sustainable profitability and valuation, the study can support better credit-risk control, cost discipline, funding decisions, growth strategies, and market communication in strategically important state-owned banks.

The research problem is whether liquidity, leverage, credit risk, asset growth, and BOPO simultaneously and partially influence profitability, whether profitability affects firm value, and whether firm size strengthens that effect. It argues that profitability emerges from the quality of funding, asset allocation, risk control, growth management, and operational discipline. Liquidity and leverage can support earnings when directed toward productive assets, whereas credit deterioration and inefficient operations are expected to reduce return on assets. Profitability should increase firm value because stronger earnings communicate cash-generating capacity and lower uncertainty. Firm size is expected to reinforce this relationship because larger banks possess networks, resources, diversification, and credibility. The study contributes by identifying credit risk as the most urgent strategic determinant of profitability and demonstrating that firm size functions as a quasi moderator, exerting a direct valuation effect while strengthening the impact of profitability.

RESEARCH METHODS

The study used a quantitative causal ex-post facto design. The design is appropriate because the financial events had occurred and were publicly reported before the analysis; no treatment or manipulation was applied to the observed banks. Causal language in this article refers to theoretically specified

and temporally ordered statistical relationships rather than experimental causality (Nurhikmayati et al., 2024; Rohwer, 2022).

The population comprised state-owned banks listed on the Indonesia Stock Exchange. Purposive sampling required continuous listing, complete audited annual reports, and consistent availability of all variables during 2014-2024. Five banks met the criteria: Bank Rakyat Indonesia (BRI), Bank Mandiri, Bank Negara Indonesia (BNI), Bank Tabungan Negara (BTN), and Bank Syariah Indonesia (BSI). Eleven annual observations for each bank produced a balanced panel of 55 bank-year observations. Secondary data were collected through documentary analysis of audited annual reports, official company publications, and market information. The variables were calculated consistently across banks and years.

Table 1. Operationalization of Variables

Construct	Proxy	Measurement
Liquidity	LDR	Total loans / third-party funds
Leverage	DAR	Total liabilities / total assets
Credit risk	NPL	Non-performing loans / total loans
Asset growth	AG	$(Assets_t - Assets_{t-1}) / Assets_{t-1}$
Operational inefficiency	BOPO	Operating expenses / operating income
Profitability	ROA	Net income / total assets
Firm value	PBV	Market price per share / book value per share
Firm size	SIZE	Natural logarithm of total assets

Panel-model selection followed the Chow, Hausman, and Lagrange Multiplier procedures. Model 1 and Model 3 were estimated with the Common Effect Model, while Model 2 used the Fixed Effect Model. Normality, multicollinearity, heteroskedasticity, and autocorrelation diagnostics were assessed before hypothesis testing. The 5% significance level was used throughout, and EViews 13 supported the estimations (Gujarati, 2021).

$$ROA_{it} = \alpha + \beta_1 LDR_{it} + \beta_2 DAR_{it} + \beta_3 NPL_{it} + \beta_4 AG_{it} + \beta_5 BOPO_{it} + \varepsilon_{it}$$

$$PBV_{it} = \alpha + \beta_1 ROA_{it} + \mu_i + \varepsilon_{it}$$

$$PBV_{it} = \alpha + \beta_1 ROA_{it} + \beta_2 SIZE_{it} + \beta_3 (ROA \times SIZE)_{it} + \varepsilon_{it}$$

RESULTS AND DISCUSSION

Descriptive Results

The descriptive results show meaningful differences in financial structure and performance across the five banks. Average liquidity was 0.83, indicating active intermediation across the sample. Average leverage was 0.72, consistent with the liability-intensive structure of banking. Average credit risk was 2.59%, while average BOPO was 78.45%. Average ROA was 1.60%, average PBV was

1.69, and average firm size was 20.05 in natural-log terms. The averages conceal important temporal dynamics: credit risk and BOPO rose during the pandemic, ROA reached its lowest average in 2020, and profitability recovered during 2021-2023.

The descriptive evidence also clarifies the direction of the variables. A higher BOPO does not represent better efficiency; it indicates that a larger share of operating income is absorbed by operating expenses. Likewise, asset growth must be distinguished from the absolute increase in assets. A large bank may add substantial nominal assets while recording a modest growth rate, whereas a smaller bank may show a high growth rate from a lower base. These distinctions are essential for interpreting the regression results accurately.

Table 2. Overall Descriptive Profile, 2014-2024

Variable	Overall Mean (%)	Interpretive Reading	Primary Managerial Meaning
LDR	0.83	Active but fluctuating intermediation	Balance credit expansion and liquidity buffers
DAR	0.72	Liability-intensive banking structure	Control funding cost, capital, and liquidity risk
NPL	2.59	Credit quality remained controlled but cyclical	Prioritize early warning, provisioning, and resolution
Asset growth	0.19	Expansion differed substantially across banks	Direct growth toward productive and high-quality assets
BOPO	78.45	Efficiency weakened when the ratio increased	Reduce operating-cost absorption and expand service income
ROA	1.60	Profitability weakened in 2020 and recovered afterward	Protect sustainable operating earnings
PBV	1.69	Market valuation varied across banks and years	Strengthen earnings quality, governance, and disclosure
SIZE	20.05	Bank scale increased consistently	Convert scale into productivity and market credibility

Table 2 indicate that the observed state-owned banks maintained active but relatively fluctuating intermediation, as reflected in an average LDR of 0.83, requiring a careful balance between credit expansion and liquidity reserves. The average DAR of 0.72 shows a liability-intensive banking structure, emphasizing the need to control funding costs, capital adequacy, and liquidity risk. Credit quality remained generally manageable, with an average NPL of 2.59%, although its cyclical movement highlights the importance of early-warning systems, adequate provisioning, and effective loan resolution. Average asset growth of 0.19 indicates uneven expansion across banks, suggesting that growth should be

directed toward productive and high-quality assets. Meanwhile, the average BOPO of 78.45% confirms that higher operating-cost absorption weakens efficiency. An average ROA of 1.60% reflects profitability pressure during 2020 followed by recovery, while a PBV of 1.69 shows varying market assessments. The average SIZE of 20.05 indicates continuous scale expansion that should be converted into productivity, stronger governance, and greater market credibility.

Financial Determinants of Profitability

Model 1 was jointly significant, with an F-statistic of 75.29603 and a probability of 0.0000. The adjusted R-squared of 0.873085 indicates that liquidity, leverage, credit risk, asset growth, and BOPO explained 87.31% of the variation in profitability, leaving 12.69% to factors outside the model. Potential omitted determinants include net interest margin, capital adequacy, fee-based income, macroeconomic conditions, governance quality, and monetary policy.

Table 3. Panel Regression Results for Profitability (Model 1)

Variable	Coefficient	Std. Error	t-Statistic	Probability
Constant	2.109833	0.400109	5.273140	0.0000
Liquidity (LDR)	0.021775	0.004212	5.169877	0.0000
Leverage (DAR)	0.250239	0.025624	9.765842	0.0000
Credit risk (NPL)	-0.353100	0.038397	-9.195963	0.0000
Asset growth	0.057557	0.007208	7.985710	0.0000
BOPO	-0.040518	0.004056	-9.989983	0.0000

* $F = 75.29603$; $Prob(F) = 0.0000$; $Adjusted R^2 = 0.873085$.

Table 3 shows that liquidity had a positive coefficient of 0.021775. This result indicates that, within the observed range, stronger intermediation and more productive use of deposits were associated with higher profitability. The finding suggests that liquidity should be managed at an optimal level rather than merely maximized. Insufficient liquidity may limit a bank's ability to meet its obligations, while excessive liquidity may cause funds to remain idle and reduce income-generating opportunities. Therefore, effective liquidity management requires banks to maintain adequate liquidity buffers while ensuring that available funds are allocated to productive assets capable of generating sustainable returns.

Leverage had a positive coefficient of 0.250239. In the banking context, this result does not imply that increasing debt will always improve profitability. Instead, it reflects the role of deposits and other liabilities as funding sources for earning assets. When funding costs are controlled and asset quality is maintained, leverage can increase the bank's capacity to generate income. However, the positive contribution of leverage depends on disciplined funding

management, adequate capital support, and effective risk control. If financing costs rise or funded assets generate insufficient returns, the beneficial effect of leverage may decline or become negative.

Credit risk had a negative coefficient of -0.353100 and was statistically significant. This result shows that an increase in credit risk reduced bank profitability. Among the variables included in Model 1, credit risk represents the most urgent managerial concern because deteriorating loan quality affects profitability through several channels simultaneously. Higher non-performing loans reduce interest income, increase impairment allowances, and decrease the proportion of productive assets. The statistically significant result confirms that credit-quality management is essential for protecting earnings. Banks must therefore strengthen credit screening, monitoring, early-warning systems, provisioning, and loan-resolution mechanisms to prevent credit deterioration from weakening profitability.

Asset growth had a positive coefficient of 0.057557 . This finding indicates that asset expansion contributed positively to profitability when additional assets were allocated to productive activities, including lending, securities, interbank placements, digital infrastructure, and other income-generating investments. However, asset growth should not be interpreted as beneficial solely because it increases institutional scale. Its contribution to profitability depends on the quality, productivity, and risk profile of the acquired assets. Rapid expansion without adequate screening, monitoring, and risk management may weaken asset quality and create future credit losses. Therefore, banks should prioritize sustainable and selective asset growth rather than pursuing expansion based only on volume.

BOPO had a negative coefficient of -0.040518 . This result indicates that an increase in BOPO, which reflects worsening operational inefficiency, reduced profitability. Conversely, a decline in BOPO indicates that operating expenses absorb a smaller proportion of operating income and therefore supports stronger earnings. Banks can improve efficiency through digitalization, branch rationalization, higher employee productivity, simplified operational processes, and increased fee-based income. Nevertheless, efficiency improvements depend on whether these initiatives generate measurable cost savings or additional revenue. Technology investment that does not improve customer adoption, transaction volume, or income may only alter the composition of operating costs without producing a meaningful improvement in profitability.

Profitability and Firm Value

Model 2 confirmed that profitability had a positive and statistically significant effect on firm value. The estimated coefficient was 0.592477 , with a t-statistic of 10.35866 and a probability value of 0.0000 . These results indicate that

an increase in profitability was associated with an increase in firm value. The adjusted R-squared value of 0.778852 shows that profitability explained 77.89% of the variation in firm value, while the remaining variation was attributable to other factors outside the model. The lower explanatory power compared with Model 1 is reasonable because firm value is influenced by a broader range of factors, including governance quality, dividend policy, interest rates, investor sentiment, and market risk. Overall, the findings demonstrate that stronger profitability reflects more productive asset utilization, greater earnings capacity, and more favourable business prospects, which are positively assessed by the market.

Table 4. Profitability Effect on Firm Value (Model 2)

Variable	Coefficient	Std. Error	t-Statistic	Probability
Constant	0.071404	0.148745	0.480046	0.6333
Profitability	0.592477	0.057196	10.35866	0.0000

*Adjusted $R^2 = 0.778852$.

Table 4 shows that profitability has a positive and statistically significant effect on firm value. The profitability coefficient of 0.592477 indicates that every one-unit increase in profitability is associated with an increase of 0.592477 units in firm value, assuming other conditions remain unchanged. This relationship is supported by a t-statistic of 10.35866 and a probability value of 0.0000, which is below the 5% significance level. Therefore, the hypothesis that profitability affects firm value is accepted. Meanwhile, the constant coefficient of 0.071404 is not statistically significant, as indicated by its probability value of 0.6333. The adjusted R-squared value of 0.778852 shows that profitability explains 77.89% of the variation in firm value, while the remaining 22.11% is explained by other factors outside the model.

Moderating Role of Firm Size

Model 3 tested the interaction between profitability and firm size. The interaction coefficient was positive at 0.511441, with a t-statistic of 7.328299 and a probability of 0.0000. The model's adjusted R-squared increased to 0.902849. Because the direct firm-size term and the interaction term were both significant, firm size is classified as a quasi moderator. The inferential focus is the interaction coefficient: larger scale strengthened the positive market effect of profitability. The negative conditional main coefficients in the uncentered interaction equation are not interpreted as unconditional adverse effects because they represent effects when the interacting variable equals zero, a value outside the observed firm-size range.

Table 5. Moderated Regression Analysis (Model 3)

Variable	Coefficient	Std. Error	t-Statistic	Probability
Constant	37.35997	6.010789	6.215485	0.0000
Profitability	-17.13773	2.421843	-7.076319	0.0000
Firm size	-1.075127	0.173508	-6.196414	0.0000
Profitability × firm size	0.511441	0.069790	7.328299	0.0000

*Adjusted $R^2 = 0.902849$; moderation type = quasi moderator.

The moderation results presented in Table 5 do not indicate that larger banks automatically achieve higher firm value. Instead, firm size strengthens the value relevance of profitability only when bank assets are managed productively, credit risk remains under control, operational efficiency is maintained, and reported earnings are perceived as credible. Larger banks may benefit from broader diversification, wider market coverage, stronger access to funding, and greater public visibility. However, these advantages may be offset by higher organizational complexity, greater operating burdens, and increased scrutiny related to systemic risk. Therefore, firm size does not replace the role of financial performance in determining firm value. Its contribution lies in reinforcing investor confidence in profitable performance, particularly when profitability reflects sustainable earnings, sound asset management, effective risk control, and efficient operations.

Taken together, the findings connect operational determinants, accounting profitability, and market valuation within an integrated framework of state-owned banking performance. The results show that profitability is generated through a balanced combination of intermediation effectiveness, funding management, credit discipline, productive asset growth, and operating-cost control. Profitability subsequently conveys a positive signal to the market by indicating the bank's ability to generate sustainable returns and manage financial resources effectively. Firm size determines the strength of this signal by increasing the credibility and visibility of profitable performance. Thus, the findings provide a more precise explanation of firm value formation than approaches that examine individual financial ratios separately or position firm size only as a control variable.

Discussion

The findings demonstrate that profitability in Indonesian state-owned banks is produced by an interconnected configuration of liquidity, leverage, credit quality, asset expansion, and operating efficiency rather than by any isolated ratio. Model 1's high explanatory power supports this integrated interpretation and reflects variation created by the pandemic and recovery cycle.

The decline in ROA during 2020 is consistent with evidence that banking uncertainty suppresses interest income and profitability, especially among institutions carrying greater credit and default risk (Dang & Nguyen, 2022). It also accords with Alkhazali et al. (2024), who show that banks entering COVID-19 with stronger capital, liquidity, and credit positions preserved profitability more effectively. However, the subsequent recovery indicates that the pandemic shock was not permanent. Theoretically, these results reinforce a contingent resource-management view: financial resources generate returns only when funding, risk, and operating decisions remain strategically aligned.

Liquidity positively affected profitability, indicating that the observed LDR range represented productive intermediation rather than excessive liquidity exposure. This agrees with Haris et al. (2024), who report a positive relationship between liquidity risk and ROA during COVID-19, but differs from studies showing that liquidity hoarding depresses profitability under normal uncertainty. Niu (2024) explains this difference by demonstrating that liquidity's effect is conditional: hoarding reduces profit under low policy uncertainty but can protect earnings when uncertainty is high. The positive leverage coefficient reflects banking's funding model, in which deposits and liabilities finance earning assets. Nevertheless, leverage should not be interpreted as universally beneficial. Its contribution depends on funding costs, maturity matching, capital support, and asset quality. Practically, managers should optimize LDR and liability composition jointly, using stress testing and liquidity buffers while preventing expensive funding from financing low-yield or deteriorating assets.

Credit risk produced a negative effect on profitability and represents the most urgent determinant in the model. This is consistent with Haris et al. (2024), who find that credit risk significantly reduces ROA, ROE, and net interest margins, and with Salas et al. (2024), whose evidence shows that nonperforming loans weaken performance, credit growth, and financial resilience. Indonesian evidence concerning FinTech and bank stability indicates that information processing and financial innovation can reduce risk, although effects vary by bank size and listing status (Yudaruddin et al., 2023). The present result extends that literature by establishing credit risk's importance within a simultaneous profitability architecture. The theoretical implication is that credit risk operates through income erosion, provisioning, and productive-asset impairment concurrently. Practically, banks require sector-sensitive underwriting, borrower monitoring, forward-looking provisioning, restructuring discipline, and specialized recovery units rather than relying on collateral coverage.

Asset growth influenced profitability, confirming that expansion can create earnings when resources are allocated to productive, risk-adjusted assets. This finding complements Bolívar et al. (2023), who demonstrate that portfolio

composition and business-model configuration explain profitability differences across banks across sizes. However, growth alone is insufficient because rapid lending may increase impaired assets and provisioning requirements. BOPO's negative coefficient provides the result: expansion creates value only when operating expenses do not absorb disproportionate income. Shen et al. (2025) find that digital transformation improves bank cost efficiency through diversification, reduced information asymmetry, fund utilization, and lower risk, although benefits vary by ownership, capitalization, asset structure, and size. The practical implication is to evaluate growth using risk-adjusted returns and marginal cost-to-income effects. Digitalization, branch rationalization, process automation, and fee-income expansion should be assessed through productivity gains, not implementation expenditure or transaction volume alone.

Profitability had a positive effect on PBV, supporting signalling theory's proposition that earnings communicate superior asset utilization, future cash-generating capacity, and lower uncertainty. This result is consistent with Keter et al. (2024), who identify a relationship between financial performance and firm value and show that disclosure strengthens valuation relevance. It confirms Indonesian evidence from Ferriswara et al. (2022), where financial performance significantly affects firm value, although governance and capital structure do not exert direct effects. Investors appear to reward earnings quality rather than scale or financing configuration alone. The finding explains why Model 2 has lower explanatory power than the profitability model: market valuation incorporates dividends, governance, interest rates, sentiment, and systematic risk. Practically, state-owned banks should combine ROA with transparent disclosure concerning asset quality, provisioning, digital investment returns, and earnings composition to convert accounting performance into credible market value.

Firm size strengthened the profitability–firm value relationship while exerting a significant direct effect, establishing quasi moderation. This result refines prior evidence because size is not treated as a control variable or automatic valuation source. Bolívar et al. (2023) show that banks with different scales may share profitable business models, implying that size alone does not determine performance. Conversely, Alkhazali et al. (2024) find that strong capital supports crisis profitability more powerfully in larger banks, consistent with scale enhancing resilience when financial quality is sound. The interaction result reconciles these positions: scale increases profitability's market credibility through diversification, funding access, visibility, and loss absorption, but only when earnings are sustainable. Managers should convert scale into lower unit costs, better data, disciplined risk pricing, and service reach. Expansion

producing complexity, weak controls, or opaque reporting may dilute rather than strengthen valuation benefits.

The study contributes theoretically by integrating trade-off, signalling, and agency mechanisms into one explanation of state-owned bank performance. Funding and liquidity create earning capacity, credit risk and BOPO determine earnings quality, profitability communicates value, and firm size conditions signal credibility. Its empirical novelty is threefold: it evaluates five profitability drivers simultaneously across a pre-pandemic, pandemic, and recovery cycle; identifies credit risk as the most urgent constraint; and establishes firm size as a quasi moderator rather than assuming generic moderation. The practical impact extends to managers, regulators, investors, and shareholders. Banks should align growth targets with risk-adjusted pricing, early-warning indicators, cost-income discipline, and transparent earnings disclosure. Regulators can use the architecture to design differentiated supervision for systemically important banks. Investors gain a framework for distinguishing scale-supported profitability from inefficient expansion. Consequently, the research advances explanation, decision quality, and institutional resilience simultaneously.

CONCLUSION

This study concludes that sustainable profitability in Indonesian state-owned banks depends on the coordinated management of liquidity, funding structure, credit quality, asset growth, and operating efficiency. The principal lesson is that financial expansion generates value only when it is supported by disciplined risk control, productive asset allocation, and efficient operations. Credit risk emerged as a central managerial concern, while profitability significantly increased firm value and firm size strengthened this relationship as a quasi moderator. The study's main scientific contribution lies in integrating the determinants of profitability, the profitability–firm value relationship, and the moderating role of firm size within a single panel-data framework covering the pre-pandemic, pandemic, and recovery periods. Nevertheless, the analysis is limited to five state-owned banks, a specific observation period, selected internal financial variables, and PBV as the sole valuation measure, which restricts generalization and causal interpretation. Future research should include private and regional banks, macroeconomic and governance variables, alternative valuation indicators, centered interaction terms, and dynamic panel or cross-country models to test the robustness of these findings.

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