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The Effect of VAIC, NPL, BOPO, and CAR on Financial Performance: The Moderating Role of Funding Structure (A Study of Conventional Commercial Banks Listed on the IDX for the 2021–2025 Period)

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ABSTRACT

This research is motivated by the phenomenon of profit stagnation in the conventional banking industry, which is partly triggered by the high interest rate trend and operational inefficiency pressures. Based on these problems, this study aims to examine the effect of Intellectual Capital (VAIC), Credit Risk (NPL), Operational Efficiency (BOPO), and Capital Adequacy Ratio (CAR) on Financial Performance (ROA), as well as to examine the moderating role of Funding Structure (DER) on these relationships. The object of this study is conventional banking companies listed on the Indonesia Stock Exchange (IDX) during the observation period of 2021–2025. The sampling technique used was the purposive sampling method based on predetermined criteria. This research approach utilizes quantitative methods, while the data analysis technique applied is Moderated Regression Analysis (MRA) processed using SPSS software. Partial test results show that Operational Efficiency (BOPO) and Capital Adequacy Ratio (CAR) are proven to have a negative and significant effect on Financial Performance (ROA). Conversely, Intellectual Capital (VAIC) and Credit Risk (NPL) are proven to have no significant effect on profit generation. In the moderation effect test, the Funding Structure (DER) is proven capable of moderating by strengthening the effect of credit risk (NPL) on financial performance. However, the Funding Structure (DER) is proven unable to moderate the impact of Intellectual Capital (VAIC), Operational Efficiency (BOPO), and Capital Adequacy Ratio (CAR) on the Financial Performance of conventional commercial banks. In conclusion, banking profitability pressures are dominated by operational inefficiencies and the accumulation of idle funds. Intellectual capital

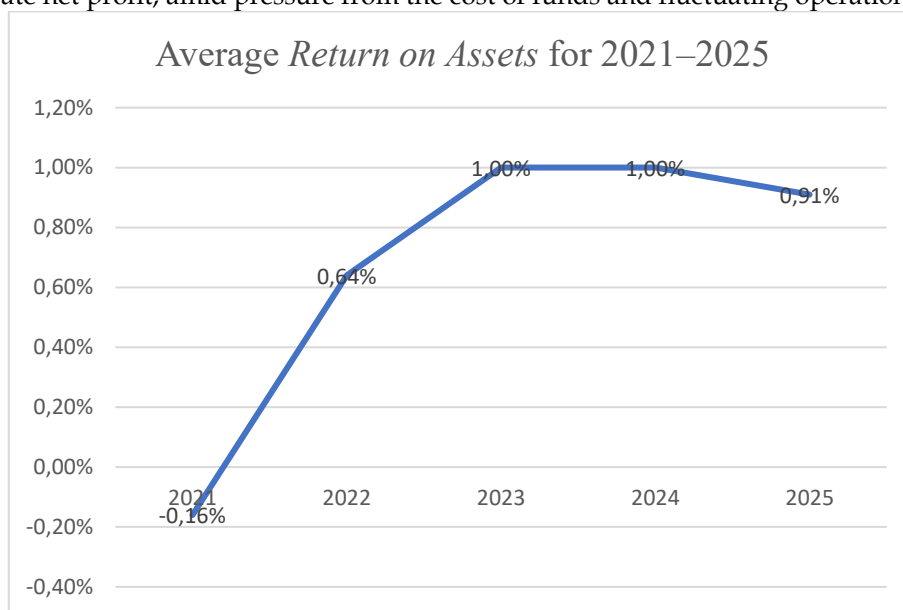
investment, which is still in the transition phase (lag effect), has not had a significant impact on instant profits. Meanwhile, the debt structure merely functions as financial leverage to maximize risky credit margins. Management is advised to prioritize operational efficiency and be more progressive in converting reserve capital into productive assets.

Keywords: *Intellectual Capital, Credit Risk, Operational Efficiency, Capital Adequacy, Debt to Equity Ratio, Financial Performance.*

1. INTRODUCTION

The banking sector holds a fundamental and strategic position in supporting the structure of the Indonesian economy. As an institution performing the primary function of intermediation (financial intermediary), banks collect funds from parties with excess liquidity (surplus units) and channel them to parties that need capital (deficit units). This crucial role is reinforced by Law Number 10 of 1998 concerning Banking, which mandates that the operation of national banking be directed toward promoting equitable development and stimulating economic activity as a whole. Given this central role, the banking industry is highly vulnerable to systemic risk. The failure of a single bank can trigger a domino effect that endangers the country's monetary stability. Therefore, maintaining the soundness and financial fundamentals of banks is an absolute obligation for management, investors, and regulators alike.

In facing global and domestic macroeconomic dynamics under considerable pressure, a bank's ability to generate profit, or profitability, is the foremost indicator for measuring resilience, operational efficiency, and the success of management governance. High profitability is not merely an instrument for ensuring attractive dividend distributions to shareholders; it also plays a crucial role in strengthening the bank's capital structure (retained earnings) so that it can withstand financial crises in the future. The indicator considered most comprehensive for evaluating banking financial performance is the Return on Assets (ROA) ratio. ROA is chosen because it accurately and comprehensively describes how effectively management converts and turns over all the productive assets it manages to generate net profit, amid pressure from the cost of funds and fluctuating operational risk.



Theoretically, the momentum of economic recovery in the post-pandemic period should have been the main stimulus for the banking sector to keep expanding its performance until it reached the ideal level of profitability set by regulators. However, this theoretical expectation contrasts with the empirical conditions experienced by conventional commercial banks listed on the Indonesia Stock Exchange (IDX) during the 2021–2025 observation period. Instead of delivering persistent profit growth, ROA movements in this industry show sharp fluctuations and worrying signs of stagnation over the last two years. Based on aggregate data, the performance of conventional banks hit a low in 2021 with an average ROA of -0.16%. Internal consolidation efforts began to pay off in 2022 (0.24%), and ROA surged impressively to 1.00% in 2023. However, an anomaly began to emerge after that year. Banking profit growth was held back and stagnated at 1.00% in 2024, and then unexpectedly eroded to 0.91% in 2025.

The decline in performance in 2025 is strongly indicated to be a direct result of macroeconomic pressure, in which the monetary authority adopted a persistently high interest rate policy to curb inflation. This policy sharply increased banks' cost of funds. The situation was further aggravated by bank management being compelled to aggressively increase the Allowance for Impairment Losses (CKPN) to mitigate the risk of surging non-performing loans amid weakening public purchasing power, which ultimately wiped out the companies' potential profit margins. These ratio movements serve as empirical evidence that the fundamental governance of banking remains sub-optimal. The average ROA of conventional banks in this period repeatedly failed to reach the safe profitability threshold set by Bank Indonesia and the Financial Services Authority (OJK), namely a minimum of 1.25% to 1.5%. This failure to maintain a safe ROA level in an era of economic expansion reflects inefficient resource allocation within banks, and therefore calls for an in-depth investigation of the determinant factors behind it.

The restrained pace of banking profitability at this low equilibrium is closely correlated with the demands of adaptation during the digital transition. To ensure sustained competitive advantage, banks are required to transform their business models through large-scale investment in intangible assets, or Intellectual Capital (VAIC). The Value Added Intellectual Coefficient (VAIC) concept measures a bank's efficiency in managing human capital, structural capital, and the physical capital that supports them. In theory, managing competent human resources and a strong information technology system leads to the creation of added value for the company. This is supported by the empirical findings of Zheng et al. (2022) and Asutay & Ubaidillah (2024). In practice, however, a lag effect (time delay) emerges. Large expenditures on developing cybersecurity infrastructure, migrating mobile banking, and training staff often increase the operating expense ratio in the short term before banks are able to convert them into profit efficiency (Angelica Cindiyasari et al., 2022; Nur Fikri & Nelvirita, 2026). This tension between the sacrifice of present cash flows and the expectation of future profits is what makes the contribution of Intellectual Capital to ROA still inconsistent.

Beyond the demands of technological disruption, profit stability depends critically on a bank's ability to mitigate its main business risk, namely default risk, which is proxied by Non-Performing Loans (NPL). By nature, an increase in non-performing loans forces banks to set aside part of their income to build reserves, which definitively erodes net profit (Arhinful et al., 2025). However, an anomalous finding was presented by Juniarti et al. (2025), who found that NPL has a positive effect on banks' financial performance. This contradictory finding gives rise to an assumption grounded in the high risk, high return paradigm, in which banks that dare to expand into low-quality credit segments generally set much higher base lending rates (large margins) to compensate for the probability of default.

The next fundamental factor that continues to be debated is the efficiency of routine expenses, measured by the ratio of Operating Expenses to Operating Income (BOPO). Most contemporary studies unanimously state that a soaring BOPO is a manifestation of inefficiency that damages profit performance (Aji & Putri, 2025; Tri Haryanto & Muchlis, 2023). Ironically, a study by Rachmawati & Ambarwati (2024) challenges this convention by finding a positive effect. This unusual condition indicates that rising expenses do not always reflect cash leakage; they may instead result from an aggressive strategy of opening new market share that ultimately triggers a surge in revenue in the following quarters (high cost, higher return).

Furthermore, the capital determinant, represented by the Capital Adequacy Ratio (CAR), has also drawn controversial findings. As a high-risk institution, a bank is required to maintain a capital adequacy ratio. Conventionally, a high CAR is believed to strengthen a bank's foundation and increase public trust (Ningtyas & Pratama, 2022). However, in response to the economic uncertainty of 2021–2025, many bank managements fell into an over-conservative stance. They excessively held back fund disbursement in order to inflate the CAR ratio. The adverse consequence is that this capital-retention strategy leads to an accumulation of idle funds. When customer funds are not turned into productive assets, the bank must still pay deposit interest expenses without receiving income flows, creating a significant opportunity cost. This argument is reinforced by the empirical findings of Andre Setiyono et al. (2022), which prove that an excessively large capital portion in fact suppresses ROA.

The variety of research gaps regarding the effect of VAIC, NPL, BOPO, and CAR on ROA reinforces the postulate that banking performance is highly complex and cannot be evaluated linearly. The inconsistent direction of these relationships calls for an external variable that is believed to interact as a catalyst. On this basis, this study offers novelty by introducing Funding Structure, or the Debt to Equity Ratio (DER), as a moderating variable. Management's strategic decision to raise funds from third parties (debt) is suspected to be a determining factor that will strengthen or weaken the function of these fundamental internal variables.

Based on this background, the problem formulation to be examined in this study is organized into eight research questions:

1. Is Intellectual Capital (VAIC) proven to affect Financial Performance in Conventional Commercial Banks listed on the IDX for the 2021–2025 period?
2. Is Credit Risk (NPL) proven to affect Financial Performance in Conventional Commercial Banks listed on the IDX for the 2021–2025 period?
3. Is Operational Efficiency (BOPO) proven to affect Financial Performance in Conventional Commercial Banks listed on the IDX for the 2021–2025 period?
4. Is Capital Adequacy (CAR) proven to affect Financial Performance in Conventional Commercial Banks listed on the IDX for the 2021–2025 period?
5. Is Funding Structure (DER) able to significantly moderate the effect of Intellectual Capital on Financial Performance?
6. Is Funding Structure (DER) able to significantly moderate the effect of Credit Risk on Financial Performance?
7. Is Funding Structure (DER) able to significantly moderate the effect of Operational Efficiency on Financial Performance?
8. Is Funding Structure (DER) able to significantly moderate the effect of Capital Adequacy Ratio on Financial Performance?

In line with the problem formulation above, the operational objectives of this empirical study are:

1. To empirically determine and prove the significance of the partial effect of Intellectual Capital (VAIC) on the Financial Performance of conventional banks.
2. To empirically determine and prove the significance of the partial effect of Credit Risk (NPL) on the Financial Performance of conventional banks.
3. To empirically determine and prove the significance of the partial effect of the level of Operational Efficiency (BOPO) on the Financial Performance of conventional banks.
4. To empirically determine and prove the significance of the partial effect of the Capital Adequacy Ratio (CAR) on the Financial Performance of conventional banks.
5. To detect and evaluate the role of Funding Structure in moderating the effect of Intellectual Capital on the profitability level of Financial Performance.
6. To detect and evaluate the role of Funding Structure in moderating the effect of Credit Risk on the profitability level of Financial Performance.
7. To detect and evaluate the role of Funding Structure in moderating the effect of Operational Efficiency on the profitability level of Financial Performance.
8. To detect and evaluate the role of Funding Structure in moderating the effect of Capital Adequacy on the profitability level of Financial Performance.

The empirical findings and formulations offered in this study are believed to make positive contributions, both theoretically and practically:

1. Theoretical Benefits:

This study is projected to enrich the body of knowledge in strategic Financial Management literature, particularly in the commercial banking industry. It provides up-to-date empirical evidence on the manifestation of the lag effect of intangible assets and validates the capability of debt-based Funding Structure as a moderating mechanism (leverage) between internal resource competence and profit creation.

2. Practical Benefits:

2.1 For Bank Management

These analytical outputs are expected to serve as a navigation instrument for decision-makers, namely directors and bank managers, particularly in orchestrating the composition of the debt structure so that it remains proportional. Management can use this reference to mitigate the danger of idle funds, boost the productivity of the CAR ratio, and sustain information technology funding consistently to avoid erosion of profitability.

2.2 For Investors

This study offers additional, highly comprehensive analytical insight for prospective investors in the Indonesian capital market. Investors are no longer encouraged to rely solely on asset ratios to evaluate corporate fundamentals, but to be more attentive in gauging a company's BOPO efficiency and to assess its

debt profile not merely from the perspective of bankruptcy risk but also in terms of its potential for revenue leverage.

2.3 For Regulatory Authorities (OJK & BI)

The empirical data for the 2021–2025 period are believed to be convertible into a reference for regulators in refining the design of supervisory policy. Specifically, this study is relevant for reviewing the standardization of the maximum leverage ratio threshold and the core capital retention requirements, in order to safeguard the stability of the national banking industry in navigating the threat of volatility in the global economic cycle.

2. LITERATURE REVIEW

2.1 Resource-Based View (RBV) Theory

This theory was proposed by Barney (1991). This view is an antithesis of classical industrial organization theory, asserting that sustained competitive advantage and profitability are determined not by market structure but by the uniqueness of a company's portfolio of internal resources. For resources to create superior profit margins, they must meet the VRIN criteria: Valuable, Rare, Inimitable (difficult for competitors to imitate), and Non-substitutable. In the context of banking problems, RBV theory projects a crucial role for Intellectual Capital (VAIC). Luxurious branch facilities are no longer the determinant of advantage. The comprehensive expertise of bank credit analysts (Human Capital element), the sophistication of customer credit scoring databases (Structural Capital element), and institutional networks are assets that meet the VRIN criteria. Optimizing these VAIC elements is, in theory, what enables banks to operate more efficiently than their competitors and achieve a more dominant ROA.

2.2 Trade-Off Theory

This theory was developed by Myers (1984) from the classical theorem of Modigliani & Miller (1958). It explains a rational approach to managing the architecture of capital. The theory assumes that a company will seek to maximize its valuation by balancing the amount of debt and equity. The use of debt is believed to provide benefits in the form of tax savings (tax shield) that can increase shareholders' real earnings. However, the proportion of debt cannot be expanded indefinitely, because an escalating debt ratio is directly proportional to a higher probability of bankruptcy and financial distress costs. This theory is highly applicable to dissecting the rationale behind Funding Structure (DER) and Capital Adequacy (CAR). Banks are required to strike a very precise balance (trade-off): they must be willing to expand debt by raising depositors' funds in order to multiply credit disbursement (maximizing profit through the leverage effect), while at the same time retaining part of their capital as a buffer (CAR) so that they do not fall into default when bad loans (NPL) occur. Failure to navigate this equilibrium will result in a large accumulation of idle funds that burdens financial performance.

2.3 Agency Theory

This theory comes from Jensen & Meckling (1976). It dissects the conflictual relationship that arises from the separation of ownership and control in the modern corporation. The gap of information asymmetry gives managers (agents) the opportunity to act opportunistically, prioritizing short-term personal bonuses over the long-term prosperity of shareholders (principals). In this study, agency theory offers a way to identify the root causes of the decline in operational performance. A swelling Operational Efficiency (BOPO) ratio and soaring Credit Risk (NPL) are theoretically viewed as direct manifestations of managerial moral hazard. Management with weak oversight tends to pursue lending targets recklessly without prudential procedures (triggering bad debt), or to waste administrative costs to maintain managerial facilities. Therefore, a high debt burden (DER) in this theory is also positioned as a disciplining mechanism. The obligation to pay periodic installments and interest on debt reduces the free cash flow in the hands of directors, forcing them to operate in a highly strict and measured manner and to minimize NPL in order to avoid regulatory liquidation sanctions.

The hypotheses proposed in this study are as follows:

- H1 : Intellectual Capital affects Financial Performance.
- H2 : Credit Risk affects Financial Performance.
- H3 : Operational Efficiency affects Financial Performance.
- H4 : Capital Adequacy Ratio affects Financial Performance.

- H5 : Funding Structure can moderate the effect of Intellectual Capital on Financial Performance.
- H6 : Funding Structure can moderate the effect of Credit Risk on Financial Performance.
- H7 : Funding Structure can moderate the effect of Operational Efficiency on Financial Performance.
- H8 : Funding Structure can moderate the effect of Capital Adequacy Ratio on Financial Performance.

3. RESEARCH METHOD

This study uses a quantitative approach of the causal associative type. The study population comprises 47 Conventional Commercial Bank companies listed on the Indonesia Stock Exchange (IDX) for the 2021–2025 period. The sample was selected using purposive sampling with the following criteria: listed consecutively throughout the observation period, not a sharia-based bank or a Regional Development Bank (BPD), and publishing complete financial statements. Based on these criteria, 39 banks were selected, with an initial total of 195 observations of secondary data collected through documentation from the official IDX portal. The variables measured include Financial Performance (ROA) as the dependent variable; Intellectual Capital (VAIC), Credit Risk (NPL), Operational Efficiency (BOPO), and Capital Adequacy (CAR) as independent variables; and Funding Structure (DER) as the moderating variable.

The data were analyzed using Moderated Regression Analysis (MRA) with SPSS version 22. Before hypothesis testing, the model was evaluated through classical assumption tests. In the initial testing, the sample data (N = 195) were found to violate the assumptions of normality and autocorrelation. Remedial measures were taken by eliminating 30 outliers, leaving 165 observations, followed by a Rank Cases Normal Scores (Blom) transformation. To resolve the serial correlation problem thoroughly, this study applied the Cochrane-Orcutt transformation. This lag-based conversion procedure reduces the earliest observation, yielding a final sample (N) of 164 observations that qualify as the Best Linear Unbiased Estimator (BLUE) and are valid for use in the regression analysis of model feasibility.

4. RESULTS AND DISCUSSION

4.1 Results of Moderated Regression Analysis (MRA)

Based on the classical assumption prerequisite tests, the regression model with 164 observations was declared valid (BLUE). Hypothesis testing was then carried out using Moderated Regression Analysis (MRA) to examine both direct effects and moderating effects. The test results are presented in the following table.

Table 1. Results of the Moderated Regression Analysis (MRA) Test

Coefficients ^a					
Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
1 (Constant)	-.001	.040		-.025	.980
VAIC	-.089	.051	-.088	-1.750	.082
NPL	.065	.048	.063	1.363	.175
BOPO	-.934	.051	-.937	-18.296	.000
CAR	-.162	.052	-.165	-3.138	.002
DER	-.004	.055	-.004	-.080	.936
VAIC_DER	.044	.047	.043	.937	.350
NPL_DER	.174	.047	.178	3.700	.000
BOPO_DER	.035	.046	.035	.768	.444
CAR_DER	-.031	.046	-.030	-.658	.512

a. Dependent Variable: ROA

Based on the regression analysis results, the following regression equation is obtained:

$$\hat{Y} = \alpha + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 (X_1 \cdot Z) + \beta_6 (X_2 \cdot Z) + \beta_7 (X_3 \cdot Z) + \beta_8 (X_4 \cdot Z) + \epsilon$$

$$\hat{Y} = -0.001 - 0.089 + 0.065 - 0.934 - 0.162 + 0.044 + 0.174 + 0.035 - 0.031 + \epsilon$$

Based on the regression equation, the following can be explained:

- 1) The constant (α) of -0.001 indicates that if all independent variables (VAIC, NPL, BOPO, CAR), the moderating variable (DER), and their interaction variables are assumed to be 0 (zero), the Return on Assets (ROA) of banks is estimated to be -0.001.
- 2) The regression coefficient of VAIC is -0.089, which indicates that for every 1-point increase in the Value Added Intellectual Coefficient (VAIC), banks' Return on Assets (ROA) will decrease by 0.089, assuming other variables remain constant.
- 3) The regression coefficient of NPL is 0.065, which indicates that for every 1-unit increase in the Non-Performing Loan (NPL) ratio, banks' Return on Assets (ROA) will increase by 0.065, assuming other variables remain constant.
- 4) The regression coefficient of BOPO is -0.934, which indicates that for every 1-unit increase in the ratio of Operating Expenses to Operating Income (BOPO), banks' Return on Assets (ROA) will decrease significantly by 0.934, assuming other variables remain constant.
- 5) The regression coefficient of CAR is -0.162, which indicates that for every 1-unit increase in the Capital Adequacy Ratio (CAR), banks' Return on Assets (ROA) will decrease by 0.162, assuming other variables remain constant.
- 6) The regression coefficient of DER is -0.004, which indicates that for every 1-unit increase in the Debt to Equity Ratio (DER), banks' Return on Assets (ROA) will decrease by 0.004, assuming other variables remain constant.
- 7) The regression coefficient of the VAIC_DER interaction is 0.044, which indicates that for every 1-point increase in the interaction between intellectual capital and funding structure, banks' Return on Assets (ROA) will increase by 0.044, assuming other variables remain constant.
- 8) The regression coefficient of the NPL_DER interaction is 0.174, which indicates that for every 1-point increase in the interaction between credit risk and funding structure, banks' Return on Assets (ROA) will increase by 0.174, assuming other variables remain constant.
- 9) The regression coefficient of the BOPO_DER interaction is 0.035, which indicates that for every 1-point increase in the interaction between operational efficiency and funding structure, banks' Return on Assets (ROA) will increase by 0.035, assuming other variables remain constant.
- 10) The regression coefficient of the CAR_DER interaction is -0.031, which indicates that for every 1-point increase in the interaction between capital adequacy and funding structure, banks' Return on Assets (ROA) will decrease by 0.031, assuming other variables remain constant.

4.2 Discussion

4.2.1 The Effect of Intellectual Capital on Financial Performance

Based on the partial statistical test (t-test) results, the Value Added Intellectual Coefficient (VAIC) variable has a calculated t-value of -1.750 with a significance level of 0.082 (> 0.05). Because the significance value is above the 0.05 tolerance limit, this result proves that the first hypothesis (H1) is rejected, which indicates that Intellectual Capital has no significant effect on Return on Assets (ROA) in conventional banking for the 2021–2025 period. The empirical meaning of this finding is that fluctuations in intellectual capital efficiency have not yet become a main factor capable of directly dictating the rise and fall of a company's net profit.

Theoretically, this phenomenon can be explained comprehensively from the perspective of the Resource-Based View (RBV). Referring to Ghozali (2020:157), RBV theory emphasizes that company performance is determined by how unique and strategic its internal resources are. However, intellectual capital is a strategic resource that serves more as a foundation of organizational capability (enabling) than as a directly profit-generating instrument. Especially during the post-pandemic recovery period, investment in human capital and information technology systems is strategically important, but its financial benefits are often medium- to long-term. Empirically, the results of this study are consistent with the

findings of Nur Fikri & Nelvirita (2026), which confirm that the efficiency of intellectual capital-based value creation has not yet been translated directly into an instant increase in bank profitability.

4.2.2 The Effect of Credit Risk on Financial Performance

Based on the partial statistical test (t-test) results, the Non-Performing Loan (NPL) variable has a calculated t-value of 1.716 with a significance level of 0.088 (> 0.05). Because the significance value is above the 0.05 error tolerance standard, it can be concluded that the second hypothesis (H2) is rejected. This indicates that credit risk has a positive direction of relationship but does not partially have a significant effect on ROA.

Theoretically, this finding can be fully explained through Agency Theory. In line with the postulate of Jensen & Meckling (1976), the insignificance of this test result is in fact a positive indicator that bank management (the agent) has successfully performed highly effective monitoring and risk mitigation functions to protect the wealth of shareholders (the principal). The extra profit from the high interest rates on high-risk loans is not allowed to inflate profits indiscriminately but is promptly allocated by management to strengthen the Allowance for Impairment Losses (CKPN). This result is supported by the study of Fanesha et al. (2021), which shows that strong reserve buffers allow banks to absorb shocks from credit risk fluctuations.

4.2.3 The Effect of Operational Efficiency on Financial Performance

Based on the partial statistical test (t-test) results, the ratio of Operating Expenses to Operating Income (BOPO) has a calculated t-value of -17.616 with a significance level of 0.000 (< 0.05). This result proves that the third hypothesis (H3) is accepted, which indicates that operational efficiency has a negative and highly significant effect on ROA. The negative coefficient direction shows that the higher the BOPO ratio (the less efficient the bank), the more drastically profitability will decline.

Theoretically, this finding is highly consistent with Agency Theory. High operating expenses (BOPO) are a tangible proxy for swelling agency costs. Management's inability to curb routine costs reflects the agent's failure to align its actions with the shareholders' agenda. Empirically, the results of this study receive solid support from prior literature, such as the studies of Aji & Putri (2025) and Tri Haryanto & Muchlis (2023), which affirm that operational risk, through a high BOPO, directly reflects inefficiency that absolutely reduces banks' net profit.

4.2.4 The Effect of Capital Adequacy Ratio on Financial Performance

Based on the partial statistical test (t-test) results, the Capital Adequacy Ratio (CAR) variable has a calculated t-value of -3.339 with a significance level of 0.001 (< 0.05). This result proves that the fourth hypothesis (H4) is accepted. However, the negative regression coefficient shows that, partially, an increase in the CAR ratio actually reduces the level of profitability.

Theoretically, this finding can be analyzed using the Trade-Off Theory framework. A CAR that is too high indicates that bank management applies an overly conservative policy. The bank's reluctance to channel that capital into productive assets creates a very large opportunity cost, in which the retained capital (idle funds) loses its primary potential to generate interest income. This empirical result is in line with the findings of Khalifaturofi'ah & Nasution (2016), which prove a negative and significant effect of CAR on ROA due to inefficient capital allocation.

4.2.5 Funding Structure in Moderating the Effect of Intellectual Capital on Financial Performance

Based on the MRA test results, the interaction variable between VAIC and the Debt to Equity Ratio (VAIC_DER) has a calculated t-value of 1.141 with a significance level of 0.256 (> 0.05). It can therefore be concluded that the fifth hypothesis (H5) is rejected. Funding structure is unable to moderate the effect of intellectual capital on ROA. The empirical meaning of this finding is that the level of leverage (DER), whether high or low, has no power at all to strengthen or weaken the effectiveness of intellectual capital in generating profit. The absence of a moderating effect is logical because the external debt structure operates on a separate fundamental path and does not directly interact with the quality of a bank's internal IT infrastructure or human resource competence.

4.2.6 Funding Structure in Moderating the Effect of Credit Risk on Financial Performance

Based on the MRA test results, the NPL_DER interaction variable has a calculated t-value of 3.699 with a significance level of 0.000 (< 0.05). This result proves that the sixth hypothesis (H6) is accepted. Funding structure is proven able to moderate and strengthen the effect of credit risk on ROA.

Theoretically, this positive finding is a tangible manifestation of the Financial Leverage effect in Trade-Off Theory. Loan portfolios with a high default risk (NPL) generally carry higher interest rates (risk premium). When this risky credit expansion strategy is supported by a high debt funding structure (DER), the debt successfully serves as liquidity leverage that multiplies the volume of high-margin lending, thereby maximizing profit. This finding is in line with Syifa (2018), who proved that an external funding variable can strengthen the interaction of financing risk on profit.

4.2.7 Funding Structure in Moderating the Effect of Operational Efficiency on Financial Performance

Based on the MRA test results, the BOPO_DER interaction variable has a calculated t-value of 0.752 with a significance level of 0.453 (> 0.05). It can be concluded that the seventh hypothesis (H7) is rejected. Funding structure is unable to moderate the effect of operational efficiency on ROA. Control of internal operating costs runs along a governance track that is entirely separate from decisions on the composition of external funding. Therefore, the level of leverage a bank takes on has no theoretical capacity to reduce or worsen the impact of managerial inefficiency on net profit.

4.2.8 Funding Structure in Moderating the Effect of Capital Adequacy Ratio on Financial Performance

Based on the MRA test results, the CAR_DER interaction variable has a calculated t-value of -0.969 with a significance level of 0.334 (> 0.05). This means that the eighth hypothesis (H8) is rejected, which shows that funding structure is unable to moderate the effect of capital adequacy on ROA. The CAR policy reflects the availability of internal core capital reserves, while DER operates purely in the realm of external debt strategy. Because the two are independent, the level of debt burden will not interact to change the tendency of profit to deteriorate due to the growth of idle funds from a high CAR.

5. CONCLUSION AND SUGGESTIONS

5.1 Conclusions

This study concludes that the profitability pressure on conventional banking during the post-pandemic transition period is significantly dominated by operational governance inefficiency (BOPO) and the high retention of buffer capital (CAR), which leads to an accumulation of idle funds. In contrast, Intellectual Capital (VAIC) and Credit Risk (NPL) are proven to have no significant partial effect on profit generation. In the moderation tests, Funding Structure (DER) is proven unable to moderate the effects of VAIC, BOPO, and CAR management on financial performance. Nevertheless, the availability of external funds (DER) is proven to be strongly capable of acting as financial leverage that moderates and strengthens the effect of credit risk on banks' profit achievement.

5.2 Suggestions

In response to these findings, bank management is advised to prioritize accelerating operating expense efficiency through the digitalization of services and to be more progressive in converting reserve capital into productive assets in order to avoid opportunity cost. Management is also urged not to halt investment in intellectual capital, given that this asset is still in a transition phase (lag effect) toward generating long-term efficiency. Capital market investors are advised to begin considering operational efficiency (a low BOPO) as the primary indicator rather than merely the level of capital adequacy, and to view debt (DER) as a prospect for multiplying profit rather than purely as a risk. To enrich the literature, future researchers are expected to expand the scope of objects to include sharia banking, to use macroeconomic control variables, and to extend the observation window (for example, 10 years) in order to fully capture the lag effect of intellectual capital investment.

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