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The Effects of Liquidity Financing Quality and Operating Efficiency on Profitability: A Study of Conventional Commercial Banks Listed on the Indonesia Stock Exchange from 2021 to 2024

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ABSTRACT

Profitability is a primary benchmark for assessing a bank's ability to generate earnings through efficient asset management. This study aims to analyze the effects of liquidity (LDR), financing quality (NPL), and operating efficiency (BOPO) on profitability (ROA) among conventional commercial banks listed on the Indonesia Stock Exchange during 2021–2024. Purposive sampling was employed, covering 20 banks and 80 observations. Data were analyzed using multiple linear regression. The findings indicate that LDR has a positive and significant effect on ROA, whereas NPL has no effect. Conversely, BOPO has a clear negative effect on bank profitability. The coefficient of determination of 99.7% indicates that the independent variables have very strong explanatory power for changes in bank profitability.

Keywords: Brand Loyalty; Brand Reputation; Perceived Quality; Brand Experience

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INTRODUCTION

Indonesia's banking industry entered a crucial phase during 2021–2024 as it faced the gradual and uncertain process of economic recovery following the COVID-19 pandemic. The pandemic had significantly affected national economic activity, weakening the real sector, reducing purchasing power, and disrupting business operations. These conditions directly affected banking activities because banks play a strategic intermediary role connecting sectors with surplus funds to those experiencing funding deficits. An important aspect of bank financial performance is the ability to manage public deposits and allocate them optimally without undermining financial stability. Bank profitability is generally influenced by various internal factors. This ability reflects bank liquidity, which is important for maintaining public trust and smooth operations. Suboptimal liquidity management creates the risk that banks cannot meet their obligations, while excessive liquidity can result in unproductive funds. Liquidity is included as a research variable because it reflects the balance between security and optimal fund utilization in banking activities and helps explain profitability. Bank financial performance is also strongly influenced by the quality of lending to

households and businesses. Financing quality reflects the level of risk arising from fund allocation; poor management can reduce profitability. According to Dendawijaya (2019:120–121), "increased financing risk can reduce bank income and disrupt overall financial stability." The researcher selected financing quality because it describes the level of credit risk banks face in performing their intermediary function.

Another important aspect of bank financial performance is operating efficiency, which indicates management's ability to control operating costs in relation to profitability. Low efficiency may increase operating expenses and ultimately reduce profits. According to Sartono (2021:124–125), "companies with good operating efficiency have more stable financial performance." Operating efficiency is included because it reflects management's effectiveness in conducting operations economically and sustainably. This study uses the loan-to-deposit ratio (LDR) as the liquidity indicator, reflecting the balance between funds raised and funds lent. Non-performing loans (NPL) measure financing quality and describe credit risk that directly affects banking operations. The operating expenses to operating income ratio (BOPO) measures operating efficiency and indicates how effectively management controls expenditure relative to income. Return on assets (ROA) serves as a proxy for profitability, indicating a bank's ability to generate profits using all its assets. These three variables are interrelated and represent major aspects of banking management. They are expected to provide a comprehensive empirical picture of the factors affecting bank financial performance before the empirical data are presented in the following table. Conditions in the banking industry during the economic recovery period require detailed empirical investigation to provide a more comprehensive understanding of internal banking conditions before relating them to empirical data.

These conditions, together with inconsistent empirical findings over the past five years concerning the effects of LDR, NPL, and BOPO on ROA, highlight an empirical evidence gap for conventional commercial banks listed on the IDX during 2021–2024, particularly in the context of post-pandemic economic adjustment and global monetary policy dynamics. Previous research indicates that the relationship between liquidity, proxied by the loan-to-deposit ratio (LDR), and profitability (ROA) remains inconsistent. Ni Damayanti and Susila (2022) find that "LDR has a positive and significant effect on profitability during the COVID-19 pandemic, indicating that effective lending growth increases financial institutions' profits." These findings contrast with Nurjuni Maulidayanti, Ismawanto, and Sari (2020), who demonstrate that LDR has a negative and significant effect on ROA among banks listed on the IDX during 2016–2019. This indicates that increased fund allocation without sound risk management may reduce profitability. Meanwhile, Rembet and Baramuli (2020) conclude that LDR has no significant effect on ROA among national private foreign exchange commercial banks during 2015–2018, suggesting that liquidity is not the principal determinant of profitability.

Previous findings concerning the effect of non-performing loans (NPL) on bank profitability are diverse. Juniarti et al. (2025) report a positive and significant effect on profitability among conventional commercial banks listed on the Indonesia Stock Exchange during 2020–2022. This unusual finding may reflect specific circumstances, such as lending expansion accompanied by higher profit margins, preventing increased non-performing loans from undermining financial performance. Conversely, Sochib et al. (2023) report the more commonly observed negative and significant effect of NPL on ROA among national conventional commercial banks during 2017–2021. This indicates that high non-performing loans directly reduce profit-generating capacity. Rahmawati et al. (2021), however, state that NPL does not affect profitability. The adverse effect of non-performing loans on banking performance therefore depends on institutional characteristics, the study period, and prevailing economic conditions. Pinasti and Mustikawati (2018) find that "BOPO has a negative and significant effect on commercial bank profitability during 2011–2015; increases not matched by proportional growth in operating income directly reduce bank profits." This aligns with the theoretical view that operating efficiency is a principal determinant of bank profitability. According to Shafira and Sparta (2024), "BOPO has a positive and significant effect

on profitability during the COVID-19 pandemic when increased expenditure supports service quality, digital transformation, or business expansion and contributes positively to profits."

This study differs in addressing the limited research on banking conditions during the post-COVID-19 economic recovery of 2021–2024. Much previous research focuses on the pandemic period and produces inconsistent findings concerning the effects of LDR, NPL, and BOPO on ROA. Accordingly, this study selects liquidity, financing quality, and operating efficiency as independent variables and profitability as the dependent variable.

The research objectives are as follows:
a. To determine and examine the effect of liquidity on profitability among conventional commercial banks listed on the IDX during 2021–2024.
b. To test and analyze the effect of financing quality on profitability among conventional commercial banks listed on the IDX during 2021–2024.
c. To determine and examine the effect of operating efficiency on profitability among conventional commercial banks listed on the IDX during 2021–2024.

Based on the research questions and objectives, provisional hypotheses were formulated to guide the research and analysis. The study proposes three hypotheses:
H1: Liquidity affects profitability.
H2: Financing quality affects profitability.
H3: Operating efficiency affects profitability.

METHODS

This study uses a quantitative approach and secondary data from external sources, comprising annual financial statements of conventional commercial banks listed on the Indonesia Stock Exchange during 2021–2024. All information was obtained from official exchange publications and financial statements published by the respective banks. Purposive sampling selected 20 banking institutions meeting predetermined criteria. Statistical procedures, from tests of analytical assumptions to calculation of the coefficient of determination, were performed using IBM SPSS Statistics version 24.

RESULTS AND DISCUSSION

Descriptive Statistics

Table 1. Descriptive Statistics Results

Variable	N	Min.	Max.	Mean	Std.Deviation
Liquidity (X1)	80	20.53	373.61	9079.06	4651.429
Financing Quality (X2)	80	0.01	14.09	304.84	243.362
Operating Efficiency (X3)	80	41.70	287.86	8440.63	3078.997
Profitability (Y)	80	-14.75	5.85	102.50	246.237
Valid N (*Listwise*)	80				

Classical Assumption Tests

Normality Test

Table 2. Initial Normality Test Results

Test Statistic	*Asym. Sig. (2-tailed)*	Description
0.132	0.001	**Not Normally Distributed**

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Table 3. Normality Test Results after Outlier Removal

Test Statistic	*Asym. Sig. (2-tailed)*	**Description**
0.083	0.200	**Normal**

Multicollinearity Test

Table 4. Multicollinearity Test Results

Variable	***Collinearity Statistics***		**Description**
	Tolerance	**VIF**	
(Constant)	-	-	-
Liquidity (X1)	0.912	1.097	No Multicollinearity
Financing Quality (X2)	0.806	1.241	No Multicollinearity
Operating Efficiency (X3)	0.871	1.149	No Multicollinearity

Autocorrelation Test

Table 5. Autocorrelation Test Results

Model	*Std. Error of the Estimate*	*Durbin-Watson*	Description
1	0.36204	2.303	No Autocorrelation

Heteroscedasticity Test

Table 6. Heteroscedasticity Test Results

	Coefficients[a]				
Model	***Unstandardized B***	***Coefficients Std. Error***	***Standardized Coefficients Beta***	**t**	**Sig**
(*Constant*)	0.267	0.103		2.597	0.012
Liquidity	0.001	0.001	0.135	1.075	0.286
Financing Quality	-0.029	0.016	-0.242	-1.817	0.073
Operating Efficiency	0.000	0.001	0.024	0.187	0.852

Multiple Linear Regression Analysis

Table 7. Multiple Linear Regression Results

Model	***Unstandardized B***	***Coefficients Std. Error***	***Standardized Coefficients Beta***
(Constant)	6.812	0.162	
Liquidity	0.011	0.001	0.184
Financing Quality	0.033	0.025	0.027
Operating Efficiency	-0.077	0.002	-0.976
Dependent Variable: Profitability			

Model Feasibility Test

Individual Significance Test t Test

Table 8. Individual Significance Test Results t Test

Variable	**Calculated t**	**Significance**	**Description**
Liquidity (X1)	9.447	0.000	Positive and Significant Effect
Financing Quality (X2)	1.315	0.193	No Effect
Operating Efficiency (X3)	-49.058	0.000	Negative and Significant Effect
Dependent Variable: Profitability			

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Coefficient of Determination R²

Table 9 Coefficient of Determination Results R²

Model	R	*R Square*	*Adjusted R Square*	*Std. Error of the Estimate*
1	0.989a	0.977	0.976	0.36204

Dependent Variable: Profitability

First Hypothesis

The findings show that liquidity has a positive and significant effect on profitability among conventional commercial banks listed on the IDX during 2021–2024. Higher liquidity is associated with a greater ability to generate profits, while lower liquidity reduces potential income. Liquidity is measured using the loan-to-deposit ratio (LDR), the ratio of total loans to public deposits. A high LDR within reasonable limits reflects the ability to allocate funds effectively through interest-generating loans. These results demonstrate that banking intermediation recovered during 2021–2024 and operated optimally in supporting national economic stability. Converting third-party deposits into productive assets is both a strategic measure for maintaining competitiveness and a fundamental instrument for sustainably improving profit efficiency. The model's success in capturing a positive correlation between lending intensity and profitability provides strong empirical validation of banking financial management theory. The findings align with Hariyani (2021:112), who states that "LDR has a positive and significant effect on profitability because optimal lending is a bank's main income source." Kasmir (2019:225) similarly states that "a higher LDR, up to a certain limit, increases bank profits through interest income."

Second Hypothesis

The analysis indicates that financing quality has no effect on profitability among conventional commercial banks listed on the IDX during 2021–2024. This suggests that the level of financing risk did not directly determine profits during this period. Financing quality is proxied by non-performing loans (NPL). The absence of an NPL effect may reflect stringent risk management and adequate allowances for impairment losses (CKPN) among listed conventional banks. Consequently, fluctuations in non-performing loans did not fundamentally disrupt financial performance. Substantial non-interest income at large banks also helped offset potential losses from bad loans. In light of the regression results, banks tend to compensate for bad loan risk by charging higher interest rates in certain segments. This maintains or increases interest income despite non-performing loans. During 2021–2024, regulatory credit relief policies meant reported NPL figures did not directly reflect actual risk and therefore did not significantly affect profitability. Banks no longer rely solely on loan interest. Income from digital services and other fee-based activities provides a strong buffer, making increases in NPL less threatening to ROA.

The regression results confirm that NPL fluctuations are no longer the sole major determinant of profitability in modern banking, provided management integrates preventive risk mitigation with adaptive income diversification. Bank earnings resilience during economic recovery depends not only on traditional asset quality but also on the ability to build a resilient business ecosystem by optimizing non-intermediation income. The finding of a disconnect between credit risk and earnings offers an empirical picture relevant to contemporary banking dynamics. It aligns with Prasanjaya and Khoiruddin (2018:78), who state that "NPL does not affect profitability when banks offset the risk through other income diversification." Siamat (2017:156) argues that "as long as banks maintain a strong capital buffer to absorb risk, small increases in NPL will not immediately reduce profitability significantly."

Third Hypothesis

The findings indicate that operating efficiency has a negative and significant effect on profitability. A higher operating efficiency ratio corresponds to lower bank profitability. Conversely, a lower ratio indicates greater efficiency and higher profitability. Operating efficiency is proxied by the operating expenses to operating income ratio (BOPO), which measures management's ability to control operating costs relative to operating income. In line with efficiency principles, companies

that minimize costs without reducing output quality earn greater profits. A high BOPO ratio indicates less efficient financial performance, often caused by high interest expenses or uncontrolled administrative costs. The regression analysis shows that operating efficiency (BOPO) has a negative and highly significant effect on ROA. It is a strongly influential variable in the model, indicating that efficiency was crucial for banking during 2021–2024. One theory used in this study assumes a positive relationship under a cost expansion scenario. However, the regression results demonstrate a strong negative relationship. In today's competitive economy, every rupiah of operating expenditure directly reduces net income unless tightly controlled. This negative result indicates that banks unable to undertake digital transformation bear the burden of conventional operating costs, including branch employee salaries, building rent, and manual administration. Conversely, banks minimizing BOPO experience exponential growth in ROA.

The regression results convey a strong message to modern banking: uncontrolled operating cost escalation is a principal determinant of systemic deterioration in profitability. Banks that optimize service digitalization have leaner cost structures than conventional banks and can convert revenue into net income more aggressively. The strong negative correlation between inefficiency and returns provides compelling empirical evidence of the importance of cost control as a profit driver. This aligns with the following expert views. Dendawijaya (2015) argues that a lower BOPO ratio indicates better operating efficiency and may increase bank profits. Similarly, Sudirman (2017) emphasizes that this indicator has a negative and significant effect on profitability because operating expenses are a major deduction from income and may reduce earnings.

CONCLUSION

Profitability is a primary benchmark for assessing a bank's ability to generate earnings through appropriate and efficient resource management. This study examines the effects of liquidity (LDR), financing quality (NPL), and operating efficiency (BOPO) on profitability (ROA) among conventional commercial banks listed on the Indonesia Stock Exchange during 2021–2024. Sampling from a population of 40 companies yielded 80 observations over the study period. The analysis indicates that liquidity, represented by the loan-to-deposit ratio (LDR), has a positive and significant effect on profitability. Greater lending therefore increases potential profits. Financing quality, measured using non-performing loans (NPL), does not affect profitability, meaning that the level of non-performing loans cannot serve as the principal benchmark for determining earnings. Meanwhile, operating efficiency, measured using BOPO, has a negative and significant effect on profitability. Higher operating costs reduce profits as a result of inefficient business management

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