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The Influence of Solvency and Liquidity Ratios on the Profitability of Commercial Banks in Indonesia

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A B S T R A C T

The goal of this study is to find out how solvency and liquidity ratios affect the ability of private banks in Indonesia to make money from 2021 to 2023. The study examines the correlation among solvency, liquidity, and profitability within Indonesia's banking system, offering insights for regulators and bank executives to optimize financial frameworks and enhance efficiency. What makes this research unique are the combined solvency and liquidity ratios (DER and CR) that were used. The independent variables consist of solvency ratios, liquidity ratios, and their composite, whilst the dependent variable is the profitability ratio. Analysis of 40 banks listed on the OJK utilizing the FEM model indicates that solvency and liquidity ratios have an insignificant impact on profitability, evidenced by a R^2 of 7.85%.

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INTRODUCTION

The study entitled "The Impact of Solvency and Liquidity Ratios on Commercial Bank Profitability" is significant due to the fact that solvency and liquidity serve as primary measures of banking soundness. Examining its influence on profitability assists banks in risk management and enhances financial performance, while also contributing to academic research in banking. Furthermore, economic volatility and regulatory alterations necessitate that banks sustain equilibrium among solvency, liquidity, and profitability. Comprehending this link enables banks to maintain competitiveness and financial stability. The research results add to our understanding of the connection between commercial banks' solvency, liquidity, and profitability ratios. They also give us a new perspective by looking at the combined data between solvency and liquidity ratios, which hasn't been talked about much in the past. The research findings can also be used as a guide by academics and researchers who want to learn more about the factors that affect bank profitability, especially in developing countries like Indonesia.

Profitability is one of the key indicators in assessing the financial performance of a company, including the banking industry. Profitability is important because it reflects a firm's ability to generate profits from its operations, which can be used for further investment, paying dividends to shareholders, and increasing competitiveness in the market (Yuan et al., 2022). The stability of the banking sector's financial system also depends on profitability, as more financially stable banks are better able to handle economic challenges and maintain customer confidence (Sobol et al., 2023). Profitability in the banking industry is influenced by various both external and internal variables. Internal factors, such as bank size, credit quality, and liquidity, can affect a bank's ability to generate profits laba (Ali & Puah, 2019). External factors that can affect the bank's ability to generate profits are economic growth and inflation inflasi (Rachmawati & Marwansyah, 2019). Profitability is usually measured using Return on Assets (ROA), which shows how efficient a bank is in converting its assets into profitwhich shows how efficient a bank is in converting its assets into profit. Divide net income by total assets to get return on assets (ROA), which shows the effectiveness of management in leadership in directing the use of corporate resources for financial gain.

The profitability of commercial banks in Indonesia is influenced by various factors, including the leverage ratio and liquidity ratio. Each variable has a complex and mutually influencing relationship. The solvency ratio, also known as the leverage ratio, is a metric that quantifies the degree to which a company finance its assets through debt or the amount of debt burden it must assume in order to satisfy its obligations. In this study, the ratio used is the Debt to Equity Ratio (DER) because it has a significant impact on profitability (ROA). DER helps analyze how leverage affects the Indonesian commercial banks' financial results.

Debt to Equity Ratio (DER) is a financial ratio that measures the proportion of debt to equity in the capital structure of a company. If the DER is high, it means that the company's operations are paid for by more debt than stock. In addition to DER, Capital Adequacy Ratio (CAR) is also an important

ratio in assessing the health of a company's capital, especially in the banking industry. The Capital Adequacy Ratio (CAR) finds out whether a bank has enough money to weather financial storms and guarantees that it does. This ratio is important because the higher the CAR, the stronger the bank is in facing credit and liquidity risks (Thian, 2022).

In addition to the two ratios above, the Liquidity ratio is also an important thing that must be considered before making a decision to decide the amount of dividends to be paid to shareholders (Triyonowati et al., 2022). Liquidity measurement in the context of companies, especially banks, is often done using two main ratios, namely Current Ratio (CR). The current ratio (CR) compares a company's liquid assets to its short-term liabilities, indicating its liquidity. If a company's liquidity is too high, it can mean that its assets are not being used efficiently, which can lead to lower profits. Therefore, the purpose of this research is to analyze Indonesian commercial banks via the lens of solvency and liquidity ratios.

Some studies indicate that liquidity ratios such as Current Ratio and Quick Ratio, have a significant influence on bank profitability. As in research (Musadat, 2023) shows that liquidity ratios can be used to assess the bank's ability to meet short-term obligations, which in turn can affect profitability. In addition, research by (Aldyas Az-Zahra et al., 2024) shows that the solvency ratio affects the financial performance of banks, but the focus is limited to PT Bank BNI and does not cover other commercial banks in Indonesia. And research conducted (Susanto & Handoyo, 2023) shows that liquidity and solvency can affect financial distress, which has implications for profitability. However, this study did not directly link the three ratios in the context of commercial banks in Indonesia. Research that is more focused on commercial banks, such as that conducted (Purwanti, 2021) provides insight into the comparison of financial performance between public and private banks, but does not integrate the analysis of liquidity and solvency ratios together.

In this context, there is a gap in the literature that directly links liquidity and solvency ratios with the profitability of commercial banks in Indonesia. More in-depth and focused research on commercial banks, taking into account other variables that may affect this relationship, is urgently needed to provide a better understanding of the financial dynamics in the Indonesian banking sector.

Based on this gap, this study uses the latest measurement with composite variables of Solvency Ratio (DER) and Liquidity Ratio (CR). This study uses data from 2021-2023, which covers the years after the COVID-19 pandemic. This study uses 40 banking companies registered with OJK. This number is quite significant and provides better results compared to studies that use a smaller sample size. Many studies on bank profitability focus on Islamic banks or banks in other countries. This study focuses on banking in Indonesia in general, profitability indicators using ROA as a measure of profitability can be a focus especially if it is associated with the impact of financial ratios that have not been widely discussed before.From various previous literature studies and several problems that occur, the author will further examine whether the Solvency ratio and

liquidity ratio affect the profitability ratio of Commercial Banks for the 2021-2023 period.

LITERATURE REVIEW

Trade-off theory

In the study entitled "Analysis of the Effect of Solvency and Liquidity on Profitability in Indonesian Commercial Banks", the trade-off theory proposed by (The Modigliani & Miller Theorem, 1963) becomes a relevant theoretical framework to understand the relationship between solvency, liquidity, and profitability. This theory states that companies must balance between the benefits derived from the use of debt (leverage) and the costs associated with the risk of bankruptcy. In the context of trade-off theory, banks must find a balance between maintaining sufficient liquidity and utilizing solvency to increase profitability. Research by (Inegbedion et al., 2020) shows that liquidity risk and leverage have a significant impact on bank profitability in the short and long term. Therefore, it is important for bank management to manage these two factors effectively to achieve optimal financial performance.

In the context of Indonesian national banking, the importance of analyzing the impact of solvency and liquidity on the overall profitability of banks is a critical aspect of understanding financial performance. Several studies have demonstrated that the variables in question play a significant role in determining the profitability of the bank.

The first factor is solvency, which is typically measured by the ratio of debt to equity and has a direct impact on the profitability of a bank. Modal curtailment had a substantial impact on the profitability of the Islamic banking sector from 2012 to 2016, suggesting that a well-structured modal structure could influence the bank's financial operations (Rabbani & Joyosumarto, 2023). In addition, other studies have shown that bank capital is an important determinant in determining bank profitability (Putri & Wahyudi, 2023). This is consistent with the findings of (Nadzifah & Sriyana, 2020a), who stated that the profitability of banks is influenced by their internal performance, which includes capital adequacy.

Profitability is also significantly influenced by liquidity. Study conducted by (Haryati et al., 2024), It was determined that the Return on Assets (ROA) of banks listed on the Indonesia Stock Exchange is positively impacted by liquidity, as measured by the Loan to Deposit Ratio (LDR). In the same, (Zatnika et al., 2022) examined additional variables and identified the correlation between profitability and liquidity in conventional commercial banks.

Research by (Nadzifah & Sriyana, 2020) highlights the significance of solvency and liquidity in relation to the profitability of Islamic and conventional commercial banks, reinforcing the notion that the financial stability of banks is dictated by their capital and liquidity strategies. Similarly, have examined the impact of liquidity risk on bank profitability, demonstrating that proficient liquidity management is essential for enhancing financial performance (Pratiwi & Suryantini, 2018).

In general, the profitability of commercial banks in Indonesia is significantly influenced by both solvency and liquidity, as evidenced by a variety of studies.

These two variables are not only interrelated, but they also indicate that effective management of both can enhance the financial performance of banking institutions.

Profitability Ratio

Measurement of profitability ratios is done by comparing the various components in the profit/loss statement or balance sheet. Measurements can be made for several periods. Profitability ratios can be analyzed using the following ratios (Thian, 2022). Profitability ratio as measured by Return on Asset (ROA).

A measure that indicates the proportion of assets that contribute to the generation of net income. On the other hand, this ratio is utilized to determine the amount of net profit that will be earned by each fund in terms of total assets. When the return on assets is higher, it indicates that the quantity of net profit that is funded by total assets is also exceedingly high. The following is the calculation of Return on Asset (ROA) (Thian, 2022).

$$ROA = \frac{Net\ Income}{\text{Total Assets}} \text{ x } 100\%$$

Solvency Ratio to Profitability Ratio

The research results add to our understanding of the connection between commercial banks' solvency, liquidity, and profitability ratios. They also give us a new perspective by looking at the combined data between solvency and liquidity ratios, which hasn't been talked about much in the past. The research findings can also be used as a guide by academics and researchers who want to learn more about the factors that affect bank profitability, especially in developing countries like Indonesia.

(Mery & Dony, 2021) Demonstrates that positive loan growth correlates with enhanced bank solvency, subsequently leading to increased profitability via better retention of earnings. (Winoto & Bustaman, 2020)Corroborate these findings, indicating that the capital adequacy ratio positively influences bank profitability. Conversely, certain research indicate that solvency ratios do not consistently exert a beneficial impact on profitability. (Qolbi & Ichsani, 2023a) determined that the solvency ratio does not have a significant impact on the profitability of companies listed on the Indonesia Stock Exchange. (Qolbi & Ichsani, 2023a) indicates that while a correlation exists between the liquidity ratio and profitability, the solvency ratio does not exert a substantial influence on profitability within the pharmaceutical sector. Furthermore, (Nadya Angel Berliana et al., 2022a) indicates that the profitability ratio does not significantly influence stock returns, suggesting that solvency may not consistently enhance profitability.

The variation in findings may stem from several factors, such as methodological differences, the sample employed, and the context of the industry. Some studies indicate that elevated solvency ratios might enhance profitability by fostering greater confidence and stability. Conversely, other research points to the possibility that factors like risk management and operational efficiency could play a more significant role in influencing

profitability. In this study, the solvency ratio was analyzed using the following ratios;

Debt to Equity Ratio (DER)

The debt-to-capital ratio quantifies the relationship between debt and capital, providing insight into financial structure. A high DER suggests that the company's debt is outweighing its capital, which could signal a higher financial risk if the company struggles to pay its obligations. Conversely, a low DER indicates that the company relies more on equity than debt in its capital structure (Thian, 2022). Calculated by the formula:

$$DER = \frac{\text{Total Debt}}{\text{Total Equity}} \text{ x } 100\%$$

Capital Adequacy Ratio (CAR)

One of the most essential components of a bank is its capital, which is why it is mandatory for all financial institutions to achieve a sufficient level of capital adequacy in order to keep their liquidity levels stable. Measurement of the capital adequacy ratio (Capital Adequacy Ratio) or often referred to as CAR is as follows (Sihotang et al., 2020). Calculated by the formula;

$$CAR = \frac{\text{Equity Capital}}{\text{Risk Weighted Assets}} \text{ x } 100\%$$

H1: Solvency ratio affects profitability ratio

Liquidity ratio to profitability

Liquidity and profitability ratios serve as critical metrics in the evaluation of the financial performance of banks, encompassing commercial banks in Indonesia. Investigations into the correlation between these two ratios reveal a spectrum of findings, with some evidence endorsing and others refuting the substantial impact of liquidity ratios on profitability.

Certain research indicates that liquidity ratios may not exert a considerable influence on the profitability of banks. (Rismawati et al., 2024) The study determined that the Financial Debit Ratio (FDR), serving as a proxy for liquidity, did not exert a significant direct influence on Return on Assets (ROA) in Islamic commercial banks in Indonesia from 2016 to 2020. (Robingah & Sa'adah, 2021) indicates that liquidity, as assessed by the Current Ratio (CR), exerts an inconsequential beneficial influence on profitability. (Qolbi & Ichsani, 2023) The liquidity ratio influences profitability; however, findings indicate that this effect is not consistently significant

Conversely, some studies indicate a positive correlation between liquidity and profitability ratios. (Nuhin & Suprayogi, 2022) demonstrates that liquidity significantly influences profitability in Islamic insurance firms in Indonesia, as indicated by Return on Equity (ROE). (Sya'adah et al., 2019) Stated liquidity ratio is shown to influence the profitability performance of Islamic commercial banks, particularly in relation to credit risk variables. (Moridu & Posumah, 2021) States

that a good liquidity ratio can improve the bank's financial performance, thus potentially increasing profitability.

In general, the impact of liquidity ratios on the profitability of commercial banks in Indonesia is a topic of debate, as there is both positive and negative evidence. However, it is crucial to take into account the context and other variables that may affect this relationship. Consequently, the liquidity ratio is quantified in this investigation by employing;

Current Ratio (CR)

Using available current assets, the ratio assesses the company's capacity to settle short-term obligations or debts that are about to mature. Cash, securities, accounts receivable, inventory, and other assets are examples of current assets. On the other hand, short-term debts such as tax, interest, and note payables, as well as salary payables, are examples of current liabilities. Accordingly, it is preferable for a business to be able to maintain a current ratio of 3:1, which means that every current loan of Rp1.0 must be secured by current assets of Rp3. The following is the formula for the current ratio; (Jirwanto et al., 2024).

$$CR = \frac{\text{Current Asset}}{\text{Current Liability}}$$

H2: Liquidity ratio affects profitability ratio

Inter-variable Relationship

Combining the solvency ratio (Debt to Equity Ratio/DER) and liquidity ratio (Current Ratio/CR) in one composite ratio is based on the need to obtain more comprehensive the facts regarding the current state of the company's finances. DER measures how much a company depends on debt in its capital structure, while CR demonstrates that the corporation is capable of meeting its short-term obligations. Conversely, if the company has a low DER but a low CR, then even though the debt is small, The inability to fulfill short-term obligations poses a significant threat (Thian, 2022).

By combining DER and CR into one composite ratio, this study can provide a relationship between funding structure and liquidity, so that the analysis of its impact on profitability becomes more accurate. In addition, According to the employed theory, the trade-off theory elucidates that firms must equilibrate the advantages of debt utilization with the peril of insolvency. The formula for calculating the composite in this study is:

Composite Score = (Weight x DER)+(Weight x CR)

The conceptual paradigm for this research is as follows:

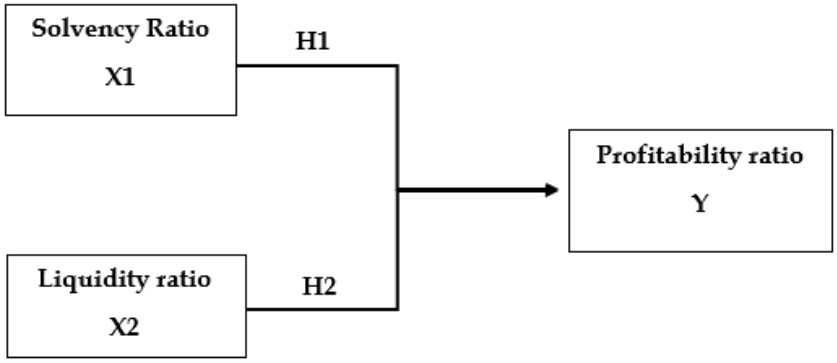

Figure 1. Conceptual Framework

METHODOLOGY

Secondary data refers to data that has been previously collected from indirect or second-hand sources, such as government publications or library materials (Sena Wahyu Purwanza et al., 2020). Secondary data can be seen in financial reports and is the type of data that is utilized, from financial data provision platforms such as IDX, Financial Services Authority (OJK), Indonesia Stock Exchange (IDX) or Commercial Bank Company sites. Some criteria for banking companies used in this study are as follows;

Table 1. Sampling Criteria

No.	Criteria	Explanation
1.	Banks that are registered as Commercial Banks in Indonesia.	Banks supervised by the Financial Services Authority (OJK).
2.	Have complete Financial Statements for the period 2021-2023.	Financial statement data must be available to analyze the research variables..
3.	Provide data related to research variables.	The variables studied include the ratio of Return on Asset (ROA), Debt to Equity Ratio (DER), Capital Adequacy Ratio (CAR) and Current Ratio (CR).
4.	Not experiencing mergers or acquisitions during the study period.	To maintain data consistency from year to year.

Source: Authors' compilation (2025)

The banking companies selected as samples in this study consist of various commercial banks that meet these criteria:

1. PT. Allo Bank Indonesia Tbk.
2. PT. Bank Amar Indonesia Tbk.
3. PT Bank Raya Indonesia Tbk.

4. PT. Bank Bumi Arta Tbk.
5. PT Bank Central Asia (Persero) Tbk.
6. PT. Bank Negara Indonesia (Persero) Tbk.
7. PT. Bank Rakyat Indonesia BRI (Persero) Tbk.
8. PT. Bank Syariah Indonesia BSI Tbk.
9. PT. Bank Tabungan Negara BTN (Persero) Tbk.
10. PT. Bank SMBC Indonesia Tbk.
11. PT. Bukopin Tbk.
12. PT. Bank CIMB Niaga Tbk.
13. PT. Bank Danamon Indonesia Tbk.
14. PT. Bank Jago Tbk.
15. PT Bank JTrust indonesia Tbk.
16. PT. Mandiri Sekuritas
17. PT. Bank Maspion Indonesia Tbk.
18. PT. Bank Maybank Indonesia Tbk.
19. PT. Bank Mega Syariah
20. PT. Bank MNC INternasional Tbk.
21. PT Bank IBK Indonesia Tbk.
22. PT. Bank Neo Commerce Tbk.
23. PT. Bank OCBC NISP Tbk.
24. PT. Bank OK Tbk.
25. PT. Bank Pan Indonesia Tbk.
26. PT. Bank Permata Tbk.
27. PT. Bank of India Indonesia Tbk.
28. PT Bank Victoria International Tbk.
29. PT. Bank Woori Saudara Indonesia Tbk.
30. PT. Bank Ina Perdana Tbk.
31. PT. Bank Aladin Syariah indonesia Tbk.

32. PT. Bank IBK Indonesia Tbk.
33. PT. Bank Nationalnobu Tbk.
34. PT. Bank Capital Indonesia Tbk.
35. PT. Bank Ganesha Tbk.
36. PT. Bank Sinar Mas Tbk.
37. PT. Bank China Construction Bank Ind Tbk.
38. PT. Bank Mayapada internasional Tbk.
39. PT. Bank QNB Indonesia Tbk.
40. PT. Bank Mestika Dharma Tbk.

This research employs panel data regression to examine the impact of DER, CAR, and CR variables on ROA. The regression model is selected through the Chow test, Hausman test, and Lagrange Multiplier (LM) test. Data is tested with the classical assumption test, statistical testing is done through the t test, F test, and R-Square test. All analyses were conducted using Stata software.

RESEARCH RESULT

Regression Model Selection Test

Outcomes of the regression model selection utilizing Stata 17 software

Table 2. Results of Regression Model Selection Test

Regression Model	***Data Processing Results***	
Chow Test	Prob > F =	0.0030
Hausman Test	Prob > chi2 =	0.0029
Lagrange Multiplier Test (LM Test	Prob > chibar2 =	1.0000

Source: Processed Data (2025)

In the Chow Test, the p-value (Prob> F) has a value of 0.0030 or smaller than alpa (0.05), so the decision to be taken after the Chow Test is the optimal estimation model to be applied in this study is the Fixed Effect Model (FEM).
The Hauman Test shows the p-value (Prob> chi2) has a value of 0.0029 or smaller than alpa (0.05), so the decision to be taken after the Hausman Test is the optimal estimation model to be applied in this study is the Fixed Effect Model (FEM).

The Lagrange Multiplier Test (LM Test) shows that the p-value (Prob> chibar2) of the Lagrange Multiplier Test (LM Test) has a value of 1.0000 or smaller than alpa (0.05), so the decision to be taken after the Lagrange Multiplier Test test is the optimal estimation model to be applied in this study is the Common Effect Model (CEM).

Of the three regression selection tests that are superior to the Fixed Effect Model (FEM), namely the Chow Test and the Hashuman Test, the model chosen for this study is the Fixed Effect Model (FEM).

The subsequent findings of the Classical Analysis Test performed with Stata 17 are presented in the following table:

Table 3. Results of Multicollinearity Test

	CAR	CR	DERCR
CAR	1.0000		
CR	-0.3440	1.0000	
DERCR	-0.5333	3.1583	1.0000

Source: Processed Data (2025)

From the results of the classical assumption test with the multicollinearity test, the correlation coefficient of CAR, CR and the composite DERCR is -0.5333 <0.85, it passes the multicollinearity test, which means it is free of multicollinearity.

Analysis of Panel Data Regression

The findings of the model selection test led to the use of the Fixed Effect Model (FEM) as the optimal regression model for this investigation. FEM was selected twice, namely in the Chow Test and Hausman Test. In this regression analysis, heteroscedasticity is tested using robust standard errors that allow to correct heteroscedasticity problems in the model. Robust standard errors provide consistent estimates despite the inequality of error variances between units. Therefore, this model automatically addresses heteroscedasticity, and there is no need to conduct additional heteroscedasticity tests (White test or Breusch-Pagan test), as the robust standard errors already correct the problem. The regression results with vce(robust) show that the coefficient estimates remain consistent despite potential heteroscedasticity, indicating that this model can be interpreted more safely without bias caused by differences in error variance between observations such as the studies by (Baptista et al., 2021).

In this study, using the Fixed Effect Model (FEM) test was carried out using Stata 17, and the results are tabulated again as follows:

Table 4. Results of Fixed Effect Model (FEM)Test

ROA	*Coefficient*
ROAt1	-.237509
CAR	-.817418
CR	.0003657
DERCR	-.3852213
_cons	.1199235

Source: Processed Data (2025)

ROA=-.1199235-.817418.CAR +. 0003657.CR -. 3852213.DERCR

The fact that the ROA (Y) variable will grow by 0.1199235% despite the absence of the CAR (X1), CR (X2), and DERCR composite variables is shown by the constant value of -0.1199235 inside the equation. With the CAR (X1) variable's beta coefficient value of -0.817418, the ROA (Y) variable will drop by 0.817418% if all other variables remain constant and variable X1 has grown by 1%. Conversely, variable Y will rise by 0.817418% if variable X1 falls by 1% and all other variables remain constant.

Beta coefficient of the CR (X2) variable is 0.0003657, if the value of other variables is constant and the X2 variable decreases by 1%, the ROA (Y) variable will decrease by 0.0003657%. Likewise, on the contrary, if In addition to the other variables remaining unchanged, the variable X1 will grow, and the variable Y will increase by 0.0003657%.

The composite variables DER and CR have a beta coefficient value of-0.3852213, In the event that the values of the other variables remain unchanged and the value of the constant variable reduces by one percent, the ROA (Y) variable will see a rise of 0.3852213%. Conversely, if the composite variable rises by 1% and all other factors remain constant, the Y variable will fall by 0.3852213%.

T test

In this study, t-test statistics were conducted using Stata 17, and the results were re-tabulated as follows:

Table 5. Results of t-test

ROA	t	P > |t|
ROAt1	-0.96	0.165
CAR	-1.29	0.206
CR	1.07	0.140
DERCR	-1.16	0.253
_cons	2.11	0.042

Source: Processed Data (2025)

The t test results on the CAR (X1) variable show that the t value is - 1.29 < t-table 1.98, and the sig value. 0.206 > 0.05. Because the significance value is greater than 0.05, it accepts H0, so H1 is rejected. Thus, the CAR variable does not significantly affect the ROA of Commercial Banks in Indonesia.

The t test results on the CR (X2) variable show that the t-count value is 1.07 < table 1.98, and the sig value. 0.203> 0.05. Because the significance value is greater than 0.05, it accepts H0, so H2 is rejected. Thus, the CR variable does not significantly affect the ROA of Commercial Banks in Indonesia.

The t-test results on the composite variables of DER and CR show that the t-count value is -1.67 < t-table 1.98, and the sig value. 0.253 > 0.05. Since the significance value is greater than 0.05, it accepts H0, so H3 is rejected. Thus, the

DERCR variable does not significantly affect the ROA of Commercial Banks in Indonesia.

F test (Simultaneous Test)

In this study, the F (simultaneous) test was conducted using Stata17 , and the results are tabulated as follows:

F(4,39)	=	1.65
Prob > F	=	0.1808

Figure 2. Results of f-test

The value of F count is 1.65 < F table which is 3.07 and sig value. 0.1808 > 0.05, then H0 is accepted and Ha is rejected, meaning that the CAR CR and DERCR variables have no effect on the ROA of Commercial Banks in Indonesia.

Test Coefficient of Determination (R2)

In this study, the coefficient of determination (R2) test was carried out using Stata 17, and the results were tabulated as follows:

R-squared:
Within = 0.0785
Between = 0.0872
Overall = 0.0060

Figure 3. Results of Test Coefficient of Determination (R2)

The Adjusted R-Square value is Within R^2 of 0.0785 The independent variables only explain 7.85% of the variation in ROA within each unit (bank). Between R^2 of 0.0872, Then only 8.72% of the variation between units is explained by the model in this study. Overall R^2 of 0.0060, Overall in this study the model is less able to explain the variation in ROA.

DISCUSSION

The Solvency ratio obtained from the t-test results indicates that the t-count value of 1.82% is less than the t-table value of 1.98% and the sig value of 0.071. Consequently, H1 is rejected., indicating that the Solvency ratio calculated by CAR has no significant effect on the profitability ratio calculated by ROA of Indonesian Commercial Banks. The results of this analysis are in line with research (Jannah et al., 2021) and (Yuniar et al., 2022). It has been established that while there exists a correlation between capital adequacy and efficiency concerning profitability, liquidity ratios, such as the Capital Adequacy Ratio (CAR), do not exhibit a significant impact on Return on Assets (ROA). This insignificance can be caused by several factors, including although CAR reflects the adequacy of bank capital in bearing risks, banks with high CAR levels do not always have high profitability because excess capital is not necessarily optimized to generate profits. Other factors such as regulations from OJK and Bank Indonesia set a minimum CAR limit so that banks generally maintain CAR at a

safe level, causing the variation to not be large enough to have a significant effect on ROA. And in certain economic conditions, banks tend to maintain higher capital as a risk mitigation measure, which can reduce the impact of CAR on profitability in the short term. Other studies also state that although CAR plays a role in bank health analysis, its effect on ROA is not significant. This study demonstrates that other factors, including Non-Performing Financing (NPF) and Financing to Deposit Ratio (FDR), exert a greater influence on profitability. (Almunawwaroh et al., 2018).

From the t-test results, the Liquidity ratio shows that the t-count value of 1.41% is smaller than the t-table value of 1.98% and the sig value is 0.160, the results show that H2 is rejected, indicating that the liquidity ratio calculated by CR does not have a significant effect on the profitability ratio calculated by ROA of Indonesian Commercial Banks. This insignificance can be caused by several factors including in the banking industry, too high liquidity can reflect idle funds that do not contribute significantly to profits; Or large banks with relatively high liquidity tend to already have good operational efficiency, so the effect of CR on ROA is minimal. As research conducted by (Posumah et al., 2022) revealed that liquidity as measured by CR has an insignificant positive effect on profitability (ROA) in finance companies. Furthermore, by (Nadya Angel Berliana et al., 2022) stated that the liquidity ratio has an insignificant negative effect on stock returns, which also reflects the company's profitability. And the statement (Qolbi et al., 2023) shows that although the liquidity ratio affects profitability, the effect is not strong enough to be considered significant in a broader context.

Based on the findings of the t test performed on the ratios of liquidity and solvency, it can be concluded that the t count value stands at 1.67% is smaller than the t-table value of 1.98% and the sig value is 0.097, Composite or combined DER and CR have no significant effect on ROA of Indonesian Commercial Banks. The insignificance of this combined variable could be due to the influence of DER and CR into one variable which could cause the loss of the influence of each ratio on profitability and prove that the two ratios do not have a strong relationship with profitability together. Regulatory policies implemented by OJK and Bank Indonesia may also play a role, as regulations that set minimum limits for CAR and CR stabilize them at a certain level. As a result, the variation in DER and CR is limited, so their effect on ROA is not significant enough. In addition, while DER and CR are important to assess bank stability and liquidity, other factors such as operational efficiency and asset quality may be more dominant in influencing bank profitability. These findings match research (Widodo, 2019) The findings of the regression analysis indicate that CR does not have a major impact on the profitability of the company, contrary to the previous statement, which claims that liquidity and solvency ratios are frequently thought to be crucial when evaluating financial performance. In addition, research conducted by (Jannah et al., 2021) which notes that liquidity and solvency variables simultaneously do not affect company profitability, with solvency variables having a greater effect than liquidity.

CONCLUSIONS AND RECOMMENDATIONS

This study's results indicate that an increase in the solvency ratio, as measured by the Debt to Equity Ratio (DER) and Capital Adequacy Ratio (CAR), results in a decrease in the profitability ratio, measured by Return on Assets (ROA). An increase in the liquidity ratio, as indicated by the Current Ratio (CR), is associated with a rise in ROA. The findings suggest that the solvency ratios (DER and CAR) and the liquidity ratio (CR) do not exert a statistically significant influence on the profitability of Commercial Banks in Indonesia from 2021 to 2023.

The findings indicate that leverage and liquidity do not serve as the main factors influencing bank profitability. Additional factors, including operational efficiency, asset quality, and macroeconomic conditions, may significantly influence ROA. This is consistent with the literature emphasizing the significance of non-financial ratios and external economic factors in assessing bank performance.

ADVANCED RESEARCH

Future research should incorporate additional variables that may influence profitability, based on these findings. Incorporating operational, asset management, and macroeconomic indicators may provide a more thorough understanding of the factors influencing Commercial Bank profitability in Indonesia. Extending the study period may yield deeper insights into the long-term effects of solvency and liquidity ratios on bank performance. This research would elucidate the intricate factors influencing profitability and enhance the understanding of overall bank financial health.

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REFERENCES

Aldyas Az-Zahra, Hanyfah Nur Aidah, Kasmania, D., Harlan Ariyanto, Rima Dessi Aryani, & Muhammad Faisal Basri. (2024). Analisis Rasio Likuiditas, Solvabilitas, Dan Profitabilitas Terhadap Kinerja Laporan Keuangan Pada PT BANK BNI. *Journal of International Multidisciplinary Research*, *2*(6), 222–233. https://doi.org/10.62504/jimr569

Ali, M., & Puah, C. H. (2019). The internal determinants of bank profitability and stability. *Management Research Review*, *42*(1), 49–67. https://doi.org/10.1108/MRR-04-2017-0103

Almunawwaroh, M., & Marliana, R. (2018). Pengaruh Car,Npf Dan Fdr Terhadap Profitabilitas Bank Syariah Di Indonesia. *Amwaluna: Jurnal Ekonomi Dan Keuangan Syariah*, *2*(1), 1–17. https://doi.org/10.29313/amwaluna.v2i1.3156

Baptista, E. A., Dey, S., & Pal, S. (2021). Chronic respiratory disease mortality and its associated factors in selected Asian countries: evidence from panel error correction model. *BMC Public Health*, *21*(1), 53. https://doi.org/10.1186/s12889-020-10042-7

Haryati, H., Roswinna, W., & Anggraeni, A. F. (2024). Pengaruh Efisiensi dan Likuiditas terhadap Profitabilitas Perbankan Periode 2020-2022. *Jurnal Proaksi*, *11*(1), 250–264. https://doi.org/10.32534/jpk.v11i1.5402

Inegbedion, H., Vincent, B. D., & Obadiaru, E. (2020). Risk Management and the Financial Performance of Banks in Nigeria. *International Journal of Financial Research*, *11*(5), 115. https://doi.org/10.5430/ijfr.v11n5p115

Jannah, T. R. M., Mursidi, M., & Widayat, W. (2021). The Effect of Liquidity and Solvability on the Profitability of Banking Companies Listed on the Indonesia Stock Exchange in 2017-2019. *Jamanika (Jurnal Manajemen Bisnis Dan Kewirausahaan)*, *1*(3), 180–187. https://doi.org/10.22219/jamanika.v1i3.18240

Jirwanto, H., Aqsa, M. A., Agusven, T., Herman, H., & Sulfitri, V. (2024). *MANAJEMEN KEUANGAN*. www.penerbitazkapustaka.com

Mery, M., & Dony, C. A. (2021). The Effects of Credit Growth on Risk and Performance of Conventional Banks in Indonesia. *Journal of International Conference Proceedings*, *4*(1), 140–149. https://doi.org/10.32535/jicp.v4i1.1135

Moridu, I., & Posumah, N. H. (2021). Perputaran Kas Terhadap Rasio Likuiditas Pada Pt. Bank Negara Indonesia (Persero) Tbk. *Jurnal Ilmu Keuangan Dan Perbankan (JIKA)*, *10*(2), 129–142. https://doi.org/10.34010/jika.v10i2.3369

Musadat, I. A. (2023). Analisis Kinerja Keuangan PT Bank Rakyat Indonesia (Persero) Tbk Menggunakan Rasio Likuiditas Tahun 2019 – 2021. *Economics Professional in Action (E-Profit)*, *5*(2), 90–97. https://doi.org/10.37278/eprofit.v5i2.716

Nadya Angel Berliana, Trisnia Widuri, & Zaenul Muttaqien. (2022a). Pengaruh Rasio Likuiditas, Rasio Profitabilitas dan Ukuran Perusahaan Terhadap Return Saham Perusahaan Sub Sektor Plastik dan Kemasan. *Akuntansi*, *1*(3), 209–220. https://doi.org/10.55606/jurnalrisetilmuakuntansi.v1i3.86

Nadya Angel Berliana, Trisnia Widuri, & Zaenul Muttaqien. (2022b). Pengaruh Rasio Likuiditas, Rasio Profitabilitas dan Ukuran Perusahaan Terhadap Return Saham Perusahaan Sub Sektor Plastik dan Kemasan. *Akuntansi*, *1*(3), 209–220. https://doi.org/10.55606/jurnalrisetilmuakuntansi.v1i3.86

Nadzifah, A., & Sriyana, J. (2020a). Analisis Pengaruh Inflasi, Kurs, Birate, PDB Dan Kinerja Internal Bank Terhadap Profitabilitas Pada Perbankan Syariah Dan Konvensional. *Jurnal Manajemen Dan Bisnis Indonesia*, *6*(1), 79–87. https://doi.org/10.32528/jmbi.v6i1.3537

Nadzifah, A., & Sriyana, J. (2020b). Analisis Pengaruh Inflasi, Kurs, Birate, PDB Dan Kinerja Internal Bank Terhadap Profitabilitas Pada Perbankan Syariah Dan Konvensional. *Jurnal Manajemen Dan Bisnis Indonesia*, *6*(1), 79–87. https://doi.org/10.32528/jmbi.v6i1.3537

Nuhin, M. A. F., & Suprayogi, N. (2022). Pengaruh Kinerja Manajemen, Efisiensi, Kinerja Underwriting dan Likuiditas terhadap Profitabilitas Perusahaan Asuransi Syariah di Indonesia Periode 2015-2019. *Jurnal Ekonomi Syariah Teori Dan Terapan*, *9*(5), 628–642. https://doi.org/10.20473/vol9iss20225pp628-642

Posumah, R. F. K., Tulung, J. E., & Wangke, S. J. C. (2022). Analisis Pengaruh Rasio Permodalan, Kualitas Piutang, Likuiditas Dan Rasio Gearing Terhadap Profitabilitas Pada Perusahaan Pembiayaan Periode 2017-2020. *Jurnal EMBA : Jurnal Riset Ekonomi, Manajemen, Bisnis Dan Akuntansi*, *10*(3), 1016. https://doi.org/10.35794/emba.v10i3.43498

Pratiwi, K. N. C., & Suryantini, N. P. S. (2018). Pengaruh Risiko Bank Terhadap Profitabilitas Bank Bpr Di Kota Denpasar. *E-Jurnal Manajemen Universitas Udayana*, *7*(7), 3886. https://doi.org/10.24843/EJMUNUD.2018.v07.i07.p16

Purwanti, E. (2021). Analisis Perbedaan Kinerja Keuangan Bank Umum Pemerintah Dan Bank Swasta Nasional Yang Terdaftar Di Bursa Efek Indonesia Periode 2013-2017. *Among Makarti*, *13*(2). https://doi.org/10.52353/ama.v13i2.194

Putri, A. P. J., & Wahyudi, I. (2023). Pengaruh Risiko Kredit, Risiko Likuiditas, Modal Bank Dan Efisiensi Operasional Terhadap Profitibilitas Bank. *Jurnal Ilmiah Manajemen, Ekonomi, & Akuntansi (MEA)*, *7*(3), 79–94. https://doi.org/10.31955/mea.v7i3.3313

Qolbi, A. N., & Ichsani, S. (2023a). Rasio Keuangan: Pengaruh Terhadap Profitabilitas (Studi Empiris pada Perusahaan Subsektor Farmasi Yang Tercatat di BEI). *Jurnal Ekonomi Efektif*, *5*(3), 449. https://doi.org/10.32493/JEE.v5i3.28751

Qolbi, A. N., & Ichsani, S. (2023b). Rasio Keuangan: Pengaruh Terhadap Profitabilitas (Studi Empiris pada Perusahaan Subsektor Farmasi Yang Tercatat di BEI). *Jurnal Ekonomi Efektif*, *5*(3), 449. https://doi.org/10.32493/JEE.v5i3.28751

Qolbi, A. N., & Ichsani, S. (2023c). Rasio Keuangan: Pengaruh Terhadap Profitabilitas (Studi Empiris pada Perusahaan Subsektor Farmasi Yang Tercatat di BEI). *Jurnal Ekonomi Efektif*, *5*(3), 449. https://doi.org/10.32493/JEE.v5i3.28751

Rabbani, S. A., & Joyosumarto, S. (2023). Analisis Kecukupan Modal, Tingkat Efisiensi, Likuiditas dan Inflasi Terhadap Profitabilitas pada bank umum Syariah periode 2012 - 2016. *Jurnal Keuangan Dan Perbankan*, *16*(2), 73. https://doi.org/10.35384/jkp.v16i2.314

Rachmawati, S., & Marwansyah, S. (2019). Pengaruh Inflasi, Bi Rate, Car, Npl, Bopo Terhadap Profitabilitas Pada Bank Bumn. *Jurnal Mantik Penusa*, *3*(1). https://www.idx.co.id

Rismawati, A., Mubarakah, U. M., & Amelia, R. W. (2024). Dampak Rasio Likuiditas Terhadap Tingkat Profitabilitas Pada Bank Umum Syariah (BUS) Periode 2016-2020. *Islamic Accounting Journal*, *3*(1), 13–24. https://doi.org/10.18326/iaj.v3i1.13-24

Robingah, B., & Sa'adah, L. (2021). Analisis Pengaruh Modal Kerja, Likuiditas, Dan Leverage Terhadap Profitabilitas Perusahaan Manufaktur Food And Beverage Di Bursa Efek Indonsia Periode 2015-2019. *Economicus*, *15*(1), 90–100. https://doi.org/10.47860/economicus.v15i1.232

Sena Wahyu Purwanza, S. Kep. , Ners. , M. K., Dr. (Cand) Aditya Wardhana, S. E. , M. M. , M. S., Ainul Mufidah, S. Kep. , Ns. , M. K., & Dkk. (2020). *Metodologi Penelitian Kuantitatif, Kualitatif Dan Kombinasi*. https://www.researchgate.net/publication/363094958

Sihotang, E. T., Puspasari, I. D., & Kurnia, A. U. (2020). *Evaluasi Rasio Keuangan pada Kategori BUKU 3*. *9*(2).

Sobol, I., Dopierała, Ł., & Wysiński, P. (2023). Is the profitability of Islamic and conventional banks driven by the same factors?—A study of banking in the Middle East. *PLOS ONE*, *18*(8), e0289264. https://doi.org/10.1371/journal.pone.0289264

Susanto, J. G. Y., & Handoyo, S. E. (2023). Pengaruh likuiditas, profitabilitas, solvabilitas, dan aktivitas terhadap financial distress pada perusahaan yang terdaftar di Bursa Efek Indonesia periode 2020-2021. *Jurnal Manajemen Bisnis Dan Kewirausahaan*, *7*(5), 1139–1152. https://doi.org/10.24912/jmbk.v7i5.26513

Sya'adah, M., Hidayat, D. S., & Hamdani, M. (2019). Faktor-Faktor Yang Berpengaruh Risiko Kredit Bank Umum Syariah Di Indonesia Periode 2010 – 2013. *Magisma: Jurnal Ilmiah Ekonomi Dan Bisnis*, *5*(2), 24–33. https://doi.org/10.35829/magisma.v5i2.24

The Modigliani, & Miller Theorem. (1963). *The Modigliani-Miller Theorem The New Palgrave Dictionary of Economics*.

Thian, A. (2022). *Analisis Laporan Keuangan* (Aldia, Ed.).

Triyonowati, M., Si, D., & Maryam, S. E. (2022). *Manajemen Keuangan Ii Manajemen Keuangan Ii Buku Ajar Buku Ajar*. www.indomediapustaka.com

Widodo, A. (2019). Analisis Pengaruh Current Ratio (Cr), Total Asset Turnover (Tato), Dan Debt To Asset Ratio (Dar) Terhadap Return On Asset (Roa), Serta Dampaknya Terhadap Nilai Perusahaan. *Jimf (Jurnal Ilmiah Manajemen FORKAMMA)*, *1*(2). https://doi.org/10.32493/frkm.v1i2.2542

Winoto, A., & Bustaman, Y. (2020). Impact of Liquidity, Ownership, Global Financial Crisis, and Capital Adequacy Ratio on Indonesian Banking Profitability Period 2007-2016. *The Winners*, *21*(1), 43. https://doi.org/10.21512/tw.v21i1.6012

Yuan, D., Gazi, Md. A. I., Harymawan, I., Dhar, B. K., & Hossain, A. I. (2022). Profitability determining factors of banking sector: Panel data analysis of

commercial banks in South Asian countries. *Frontiers in Psychology*, *13*. https://doi.org/10.3389/fpsyg.2022.1000412

Yuniar, C. A., Yusup, D. K., & Marta, M. S. (2022). Analisis Tingkat Pengembalian Aktiva Bank Umum Syariah Dilihat Dari Rasio Perbankan Syariah. *Finansha: Journal of Sharia Financial Management*, *3*(2), 43–56. https://doi.org/10.15575/fjsfm.v3i2.20868

Zatnika, Y., Safariah, I., & Hodijah, C. (2022). Pengaruh Dana Pihak Ketiga dan Kredit Bermasalah Terhadap Profitabilitas (pada Bank Umum Konvensional yang Terdaftar di Bei Tahun 2014-2017). *Cakrawala Repositori IMWI*, *5*(1), 73–84. https://doi.org/10.52851/cakrawala.v5i1.95