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The Effect of Credit Risk and Liquidity Risk on Bank Profitability

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ABSTRACT

The purpose of this study was to determine the extent to which Credit risk, Liquid Assets to Deposit Ratio, and Bank Size to affect the profitability of banks listed on the Indonesia Stock Exchange during the period 2019 - 2023. The variables analyzed in this study, namely Credit risk, Liquidity risk, and Liquid Assets to Deposit Ratio, as well as control variables, namely Bank Size, GDP Growth, and Inflation. This study uses a panel data regression method with a random effect model approach to test the relationship between variables. The results showed that Credit risk has a significant negative effect on profitability, while Liquidity risk has no significant effect. Liquid Assets To Deposit Ratio and Bank Size have a positive effect on bank profitability. Meanwhile, GDP Growth and Inflation have no significant effect. These findings theoretically confirm that the importance of managing credit risk and liquidity risk in maintaining the financial performance of banks. The implications of this study provide direction for investors and banking management to make strategic decisions in risk assessment, liquidity structure, and growth policy to improve profitability and competitiveness in the banking sector.

Keywords: Bank Size (BZ), Credit risk (CR), Liquid Assets to Deposit Ratio(LDR), Return on Assets (ROA), Return on Equity (ROE)

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INTRODUCTION

Banks have two important roles, namely as liquidity providers and as risk modifiers (Abdelaziz, Rim, Helmi, 2022). In the last 20 years, bank profitability has been threatened by political interference, currency exchange rates, non-performing loans and interest rate fluctuations. Banks need to monitor economic factors to measure risk and manage it. Failure to manage risk can result in bank failure which can lead to systematic failure, as happened in the Asian banking crisis (1997-1998) and the global financial crisis (2007-2008) (Hunjra 2022).

Profitability is a crucial factor in ensuring the financial and economic security of a company. Profitability serves as a condition for investment capacity, increases debt security, and strengthens overall financial conditions. Profitability acts as a catalyst for business activity, increases

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investment attractiveness, and is a key competitive advantage for companies facing challenges and uncertainty (Nakonechna & Hradyuk, 2024).

Return on Assets is a kind of return on investment, and can be broadly defined. Return on Assets shows the capacity of a business to generate profits by utilizing its assets. In some sectors, Return on Assets is greater than others because the amount of capital invested in assets varies (Panigrahi & Vachhani, 2021). "Return on Equity shows how much profit can be earned for each investment in a business. In every sector, this is a crucial ratio, and for certain companies, it is more important than Return on Assets (Panigrahi & Vachhani, 2021).

Credit risk is considered a major risk category that has the potential to threaten the operational sustainability and financial stability of banking entities, especially given the implications arising from multiple sources of harm (Velliscig, Floreani, Polato, 2023). Credit Risk is a major concern for most financial authorities and banking regulatory bodies, given its position as one of the main threats faced by banking institutions (Bhatt et al., 2023).

Liquidity Risk through the use of a panel data set of commercial banks from industrialized countries, Chung et al (Khalaf & Awad, 2024). Studied the causes of Liquidity Risk in their study Liquidity Risk and Bank Performance (Abu Khalaf & Awad, 2024). It was found that reliance on outside finance and liquid assets is a major contributor to Liquidity Risk (Abu Khalaf & Awad, 2024). Due to the increased cost of funds, liquidity risk reduces bank profitability but increases net interest margins (Abu Khalaf & Awad, 2024). The findings suggest that, in a market-based financial system, Liquidity Risk has a negative relationship with bank ROA and ROE. Other studies such as (Hacini, Boulenfad, Dahou 2021).

Liquid assets to deposits ratio is an important component of liquidity management, which helps banks to ensure that they have sufficient liquid assets to meet potential deposit withdrawals. This ratio is used along with other liquidity measures such as cash to deposit ratio and loan to deposit ratio to provide a comprehensive picture of the bank's liquidity position (Sathyamoorthi, Mapharing, Dzimir, 2020).

Bank Size significantly affects funding strategies, with large banks increasing their deposit-to-asset ratio, while medium-sized banks show a higher reliance on wholesale funding, indicating an inverted U-shaped relationship between funding sources and bank size (Naqvi and Pungaliya, 2024).

GDP growth is influenced by the tax revenue structure. The study found that a tax structure burdened with consumer taxes on production and income taxes can support economic growth. It emphasizes that restructuring the tax burden from direct taxes to indirect taxes can stimulate growth in the GDP growth of trade-oriented open economies, which highlights the significant relationship between tax structure and GDP growth (Kutasi & Marton, 2024).

Inflation in discussion national central banks, and in particular, the Federal Reserve or the European Central Bank, are trying to control the growth of inflation however, central bank efforts to control Inflation have not been very successful. In addition, our understanding of the driving forces of Inflation is still imperfect. Throughout history, attitudes towards Inflation have not been constant, but the monetary approach to Inflation has dominated. The Keynesian approach and economic regulation theory also contribute to the understanding of Inflation (Girdzijauskas, Streimikiene, Griesiene, Mikalauskiene, Kyriakopoulos 2022).

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METHODS

This research uses a quantitative approach using the explanatory method, to test the relationship between the independent variable and the dependent variable which is related to the financial performance of the bank. The selection of this approach is considered appropriate to analyze how risk and bank characteristics affect bank profitability.

The population in this study uses conventional banks listed on the Indonesia Stock Exchange (IDX) during the period 2019 - 2023. By using purposive sampling used to determine samples based on certain criteria, conventional banks that are always consistently listed in the research period, do not experience delisting, and have publicly accessible financial reports. Based on these criteria, there were 41 banks that met the requirements and were used as research samples, resulting in 205 panel data observations.

The data used is secondary data obtained from annual financial reports, as well as the annual reports of each bank. This study examines independent variables, namely Credit risk (CR), Liquidity risk (LDR), and Liquid Assets to Deposits Ratio (LAD), as well as control variables such as Bank size (BZ), GDP Growth (GDP), and inflation (INF). The dependent variable is bank profitability, which is measured using Return on Assets (ROA) and Return on Equity (ROE).

To assess the effect of independent variables on profitability, the data analyzed using panel data regression analysis method with random effect model approach. This approach was chosen because it is able to capture individual effects between banks and changes over time simultaneously, and allows identification of the contribution and level of significance of variables in explaining variations in bank profitability in Indonesia.

RESULTS AND DISCUSSION

The data used in the study were processed and analyzed using the panel data regression method to determine the effect of credit risk and liquidity risk on bank profitability. These results are presented in tabular form for easy understanding by the reader.

Table 1. Panel Data Regression Results Model 1

Variables	Coefficient	Significance
Constanta	-0,088535	0.0287
Credit Risk (CR)	-0,131352	0.0333
Liquidity Risk (LDR)	-0,002030	0.5324
Liquid Assets to Deposits Ratio (LAD)	0,490090	0.0146
Bank Size (BZ)	-0,002712	0.0358
GDP Growth (GDP)	-0,001514	0.1468
Inflation (INF)	-0,000494	0.3655

Source: E-views 9.0

The regression results indicate that Credit Risk has a significant negative effect on ROA (sig. 0.0333 < 0.05; coefficient –0.131352). This means that as CR increases, bank profitability measured by ROA decreases. Theoretically, high credit risk reduces the quality of assets and forces banks to increase loan loss provisions, thereby lowering overall asset returns. Previous studies also support this evidence. Research by Abd-Elmaged (n.d) confirms that CR negatively affects ROA, while Permatasari (2022) emphasized that borrowers with high credit risk are more likely to default, leading to more non-performing loans and weaker asset quality. Similar findings were reported by Bhatt et al. (2023) and Hunjra et al. (2022), who stated that credit risk

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significantly undermines financial performance. In the Indonesian context, these results reflect the vulnerability of banks during 2019–2023, highlighting the need for strong credit monitoring systems and risk mitigation strategies (Bhatt et al., 2023; Hunjra et al., 2022).

The regression results show that Liquidity Risk has no significant effect on ROA (sig. 0.5324 > 0.05). This finding contradicts Abu khalaf and Awad (2024) who found a negative effect of liquidity risk on bank profitability. One possible explanation is that Indonesian banks maintained stable liquidity levels during 2019–2023 due to OJK regulations, so liquidity fluctuations did not directly impact ROA (Abu Khalaf & Awad, 2024).

The regression results reveal that LAD has a positive and significant effect on ROA (sig. 0.0146 < 0.05; coefficient 0.490090). This supports liquidity management theory, which emphasizes that adequate liquid assets strengthen depositor confidence and reduce funding costs. Sathyamoorthi et al. (2020) also found that sufficient liquidity reserves improve bank performance. Thus, Indonesian banks with higher LAD achieved better profitability from their assets (Sathyamoorthi et al., 2020).

Bank Size is found to have a significant negative effect on ROA (sig. 0.0358 < 0.05; coefficient –0.002712). This result contradicts the economies of scale theory, which expects larger banks to gain efficiency advantages. Naqvi & Pungaliya (2024) identified a non-linear relationship, where larger banks face higher costs and reliance on wholesale funding. In Indonesia, the decline in ROA for bigger banks may be due to operational inefficiencies and higher compliance burdens (Naqvi & Pungaliya, 2024).

The results indicate that GDP Growth has no significant effect on ROA (sig. 0.1468 > 0.05). This contradicts traditional macroeconomic theory, which predicts that stronger growth should support profitability. Kutasi & Marton (2024) highlighted the influence of tax structures on GDP growth, but in Indonesia, short-term profitability appears more dependent on internal banking factors than on macroeconomic conditions (Kutasi & Marton, 2024)

The study shows that Inflation has no significant effect on ROA (sig. 0.3655 > 0.05). This differs from findings by Girdzijauskas et al. (2022), who argued that inflation erodes profitability by increasing costs and distorting monetary stability. The absence of significance in Indonesia may be due to the relatively stable inflation environment maintained by Bank Indonesia during 2019–2023 (Girdzijauskas et al., 2022).

Table 2. Panel Data Regression Results Model 2

Variables	Coefficient	Significance
Constanta	-0,697183	0.0059
Credit Risk (CR)	-1,043496	0.0099
Liquidity Risk (LDR)	-0,001148	0.9565
Liquid Assets to Deposits Ratio (LAD)	2,970984	0.0210
Bank Size (BZ)	-0,022035	0.0064
GDP Growth (GDP)	-0,006646	0.3364
Inflation (INF)	-0,000564	0.8763

Source: E-views 9.0

Based on the regression results, it is known that the variable.

For ROE, Credit Risk also shows a significant negative effect (sig. 0.0059 < 0.05; coefficient –0.697183). This suggests that high credit risk reduces shareholder returns by lowering net income due to increased provisioning expenses. This is consistent with the findings of Abdelaziz et al.

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(2022), who observed that higher credit risk reduces banks' equity returns across MENA countries. Such results emphasize the importance of strengthening risk assessment procedures and loan recovery strategies to protect investor confidence in Indonesian banks (Abdelaziz et al., 2022)

Similarly, Liquidity Risk does not significantly affect ROE (sig. 0.9565 > 0.05). This indicates that banks could manage funding structures to safeguard shareholder returns despite liquidity variations. This result diverges from Hacini et al. (2021), who showed that liquidity risk management strongly affects equity returns in Saudi Arabia. The Indonesian case suggests that robust liquidity buffers and regulatory supervision minimize the role of liquidity risk in determining ROE (Hacini et al., 2021).

For ROE, LAD also shows a significant positive effect (sig. 0.0210 < 0.05; coefficient 2.970984). This indicates that strong liquidity positions not only protect bank assets but also improve shareholder returns. Abdelaziz et al. (2022) confirmed that liquidity buffers enhance bank profitability, which supports this study's findings. Hence, effective liquidity management becomes a strategic tool for maintaining both asset and equity returns in Indonesia (Abdelaziz et al., 2022).

The regression also shows a significant negative effect of Bank Size on ROE (sig. 0.0064 < 0.05; coefficient –0.022035). Despite their larger asset base, big banks in Indonesia may fail to generate proportionally higher equity returns.Velliscig et al. (2023) argued that larger banks are exposed to greater systemic and regulatory risks, reducing shareholder value. This finding underlines the importance of balancing growth with efficiency to sustain profitability (Velliscig et al., 2023)

GDP Growth also does not significantly affect ROE (sig. 0.3364 > 0.05). This suggests that shareholder returns are not directly linked to macroeconomic performance in Indonesia. Hunjra et al. (2022) similarly found that in emerging markets, micro-level bank risks often outweigh macroeconomic influences. Thus, internal management strategies play a larger role than GDP trends in shaping bank profitability (Hunjra et al., 2022).

Similarly, Inflation does not significantly affect ROE (sig. 0.8763 > 0.05). This indicates that Indonesian banks successfully adjusted interest margins and managed risks to shield equity returns from inflationary shocks. NAKONECHNA & HRADYUK, (2024) emphasized that internal profitability strategies can offset macroeconomic volatility, which aligns with these findings (NAKONECHNA & HRADYUK, 2024)

From an applied standpoint, the findings in this study provide significant direction for investors in strengthening bank performance evaluation and a more strategic investment decision-making process. Investors are advised to pay close attention to indicators such as Credit risk (CR), Liquid Assets to Deposits Ratio (LAD), and Bank Size (BZ), as these variables are proven to have an influence on bank profitability, which in turn affects the attractiveness of banks in the eyes of the capital market. For bank management, the results of this study can be used as a basis for designing managerial strategies that are right on target, especially in managing credit and liquidity risks effectively. Strategies for efficient use of assets, strengthening the liquidity structure, and managing operational growth wisely are important in building investor confidence and maintaining the bank's profitability performance on an ongoing basis.

Table 3. Descriptive Statistics

	ROA	ROE	CR	NPL	LDR	LAD	BZ	GDP	INF
Mean	0.004131	0.021034	0.028808	0.028808	0.888990	0.013501	31.43797	2.286000	1.400000
Median	0.006390	0.036459	0.022959	0.022959	0.804071	0.010942	30.94107	1.900000	0.050000

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Maximum	0.041398	0.209358	0.200601	0.200601	4.836969	0.061302	35.31545	4.200000	5.300000
Minimum	-0.180577	-1.239267	7.66E-05	7.66E-05	0.031580	0.000608	27.58365	0.030000	-2.100000
Std. Dev.	0.023883	0.154332	0.026329	0.026329	0.540570	0.009875	1.724755	1.511798	2.704567
Skewness	-3.552197	-4.481520	2.617844	2.617844	4.226923	1.280598	0.316306	-0.117985	0.241264
Kurtosis	22.83032	31.59706	13.80688	13.80688	27.25218	5.303966	2.261594	1.684384	1.570417
Jarque-Bera	3790.055	7671.507	1231.718	1231.718	5634.389	101.3724	8.075638	15.25993	19.44544
Probability	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.017636	0.000486	0.000060
Sum	0.846757	4.311985	5.905600	5.905600	182.2429	2.767720	6444.784	468.6300	287.0000
Sum Sq. Dev.	0.116360	4.858952	0.141420	0.141420	59.61212	0.019895	606.8552	466.2487	1492.195
Observations	205	205	205	205	205	205	205	205	205

Source: E-views 9.0

The results of descriptive statistical tests show that the research variables have quite diverse data distributions with significant outliers. In terms of profitability, ROA and ROE have relatively low averages, at 0.41% and 2.10% respectively, with very negative minimum values indicating that there are companies experiencing extreme losses. The distribution of both variables is highly abnormal, with negative skewness and high kurtosis, indicating large deviations due to outliers. Meanwhile, credit risk variables such as CR and NPL show low average values, but the highly right-skewed distribution indicates that there are several companies with risk levels that are much higher than average. LDR shows a relatively healthy average of 88.9%, but the extreme maximum value (483%) indicates intermediation imbalances in a small number of companies.

The results of descriptive statistical tests show that the research variables have a fairly diverse data distribution with the presence of significant outliers. In the variable Other variables such as LAD have a low average with a right-skewed distribution, while company size (BZ) is more stable and tends to be close to normal. From a macroeconomic perspective, the average GDP growth rate was recorded at 2.29% with an average inflation rate of 1.4%, indicating that economic conditions were relatively under control despite considerable fluctuations. The Jarque–Bera normality test confirmed that almost all variables were not normally distributed, but this did not pose a serious obstacle in panel data analysis because the number of observations was large enough that the estimates remained consistent. Overall, these results indicate that the profitability of companies in the sample is relatively low and risky, while macroeconomic conditions are fairly stable, requiring further analysis to examine the relationship between variables in influencing the performance of financial institutions.

CONCLUSION

This study analyzes the relationship between credit risk and liquidity risk on the profitability of banks listed on the Indonesian stock exchange. Based on the results of panel data regression analysis, it is found that Credit Risk (CR), Liquid Assets to Deposits Ratio (LAD), and Bank Size

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(BZ) have a significant effect on bank profitability, while Liqudity risk (LDR), GDP Growth (GDP), and Inflation (INF) have no significant effect. The results of this study suggest that investors in the banking sector pay more attention to factors such as effective credit risk management, healthy liquidity to total deposits, and large bank size, in assessing profitability and investment attractiveness. In contrast, macroeconomic variables such as GDP Growth (GDP) and Inflation (INF) showed no significant effect on bank profitability in the short term. This research is in line with the fundamental-based approach to investment decision making and provides important information for investors and bank management when deciding on sustainable financial strategies. This study emphasizes the importance of banks to manage financial performance transparently and efficiently. By focusing on profitability and operational efficiency, banks can strengthen investor confidence and increase the value of the company in the eyes of the capital market.

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