

The Effect of Cash Ratio and Loan to Asset Ratio on Return on Asset at PT. Bank Mandiri Tbk

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Abstract

This study examines the effect of liquidity and asset allocation on bank profitability by analyzing the influence of Cash Ratio (CR) and Loan to Asset Ratio (LAR) on Return on Assets (ROA) at PT Bank Mandiri Tbk. As one of Indonesia's largest state-owned banks, maintaining optimal liquidity and productive asset utilization is essential to sustaining financial performance and public trust. This research aims to determine the partial and simultaneous effects of CR and LAR on ROA. A quantitative associative approach was employed using secondary data derived from the bank's annual financial statements over the 2014–2023 period. The sample consisted of 10 years of observations selected through purposive sampling. Data were analyzed using multiple linear regression, supported by classical assumption tests, t-tests, F-tests, and coefficient of determination analysis with a 5% significance level. The results indicate that Cash Ratio has a positive and significant effect on ROA, suggesting that improved liquidity strengthens financial stability and enhances profitability. Similarly, Loan to Asset Ratio demonstrates a positive and significant effect on ROA, indicating that a higher proportion of productive earning assets contributes to increased income generation. Simultaneously, CR and LAR significantly influence ROA. These findings highlight the importance of balancing liquidity management and loan allocation strategies to optimize bank profitability and ensure sustainable financial performance.

1. Introduction

Cash Ratio (CR) is a financial ratio used to measure a company's level of liquidity. This ratio helps assess the company's ability to meet its short-term obligations using cash or assets that can quickly be converted into cash. The higher the cash ratio, the more liquid the company is, meaning it has more cash or easily convertible assets to pay its short-term liabilities (Arsita, 2021). A higher Cash Ratio is associated with a higher Return on Assets (ROA). Conversely, if the Cash Ratio decreases, the Return on Assets will also decline.

Loan to Asset Ratio (LAR) is a ratio used to measure a bank's liquidity level by indicating its ability to meet credit demand using its total assets. LAR measures the bank's capability to provide loans supported by the assets it owns. This ratio compares the total loans extended by the bank to its total assets. The greater the amount of loans disbursed, the lower the potential credit risk, as the loans are financed by the bank's assets. LAR is

calculated by dividing total loans by total assets (Kunia, 2021). A higher Loan to Asset Ratio is associated with a higher Return on Assets. Conversely, if the Loan to Asset Ratio decreases, the Return on Assets will also decline.

PT Bank Mandiri (Persero) Tbk is one of the state-owned banks listed on the Indonesia Stock Exchange (IDX). As a government-owned bank that serves as a pillar of the national economy, PT Bank Mandiri (Persero) Tbk operates based on public trust, which is considered its most valuable asset. Therefore, the bank must consistently demonstrate strong performance to maintain and enhance that trust. PT Bank Mandiri was officially established under Deed No. 9 dated October 2, 1998. The bank conducted its Initial Public Offering (IPO) on July 14, 2003. The following presents data on cash, current liabilities, net income, total assets, and total loans of PT Bank Mandiri from 2019 to 2023.

Table 1. Cash, Current Liabilities, Net Income, Total Assets, and Total Loans
(in billion rupiah)

Year	Cash	Current Liabilities	Net Income	Total Assets	Total Loans
2019	—	—	—	—	—
2020	—	—	—	—	—
2021	—	—	—	—	—
2022	—	—	—	—	—
2023	—	—	—	—	—

Based on Table 1 above, the financial data of PT Bank Mandiri Tbk show fluctuations. In terms of cash, over the five-year period, there was a decrease in 2019 amounting to Rp 390.074 quadrillion and an increase in 2021 amounting to Rp 1.384 quadrillion. The fluctuations in cash reflect the company's cash inflows and outflows classified into operating, investing, and financing activities.

Furthermore, current liabilities increased in 2020, 2022, and 2023. The highest increase occurred in 2020, amounting to Rp 3.81 quintillion. One year later, in 2022, current liabilities increased by Rp 2.22 quintillion, and in 2023 they rose by Rp 2.53 quintillion. This was attributed to the People's Business Credit (KUR) and Micro Business Credit (KUM) programs, which, according to management claims, had not yet achieved optimal performance, reaching only 24.3% of the bank's total loan portfolio over the past five years.

Net income declined from 2022 to 2023. The decrease began in 2022 amounting to Rp 380.69 quadrillion, followed by a decline of Rp 288 quadrillion in 2023. In addition, both total assets and total loans decreased in 2021. Total assets declined by Rp 3.71 quintillion, while total loans decreased by Rp 957.91 quadrillion. This decline was due to the suboptimal growth of KUR and KUM recipients, which showed significant fluctuations and consequently affected the growth of total loans at Bank Mandiri Tbk.

2. Literature Review

Cash Ratio

Cash Ratio is the ability of a company's cash and marketable securities to cover its current liabilities. This ratio is considered the most accurate measure of a company's ability to meet short-term obligations because it only takes into

account the most liquid components of current assets (Fitriana & Febrianto, 2021). According to Kasmir (2021), the Cash Ratio is a tool used to measure how much cash is available to pay debts. The availability of cash can be reflected in cash funds or cash equivalents such as checking accounts or savings in banks that can be withdrawn at any time.

According to Kasmir (2021), a company's inability to pay its obligations, especially short-term liabilities that have matured, can be caused by several factors: the company may not have sufficient funds at all, or it may have funds but not in cash form at the time of maturity, thus requiring time to liquidate other assets such as collecting receivables, selling securities, or disposing of other assets. The Cash Ratio reflects a company's ability to meet its short-term obligations and is crucial because it relates to the conversion of assets into cash.

The formula for the Cash Ratio is as follows:

$$\text{Cash Ratio} = (\text{Cash} / \text{Current Liabilities}) \times 100\%$$

Loan to Assets Ratio (LAR)

Loan to Assets Ratio (LAR) is a ratio used to measure a bank's liquidity level by indicating its ability to meet credit demand using its total assets (Gayo, Prihatni, & Armeliza, 2022). Meanwhile, Loan to Deposit Ratio represents the proportion of loans granted by a bank compared to total public funds and its own capital. According to Rivai (2020), Loan to Assets Ratio (LAR) is used to show a bank's ability to fulfill credit demand by utilizing its total assets.

LAR has a positive influence on bank financing performance. The higher this ratio, the better the credit performance, as a larger portion of total assets is allocated to loans. However, it negatively affects liquidity because a higher ratio

indicates that more funds are allocated to loans and fewer funds are available to meet short-term obligations. Thus, the higher the ratio, the greater the bank's loan disbursement. The larger the loan assets, the lower the bank's liquidity.

The formula for Loan to Assets Ratio is as follows:

$$\text{Loan to Assets Ratio} = (\text{Total Loans} / \text{Total Assets}) \times 100\%$$

Return on Assets (ROA)

Return on Assets (ROA) is a ratio used to measure management's ability to generate profits by utilizing total assets (Sanjana & Rizky, 2020). ROA measures a company's ability to generate earnings. According to Rahmani (2019), when the cost of capital (the cost required to finance assets) is deducted from ROA analysis, it reveals the company's ability to generate returns from the assets employed.

ROA evaluates a company's capability to generate profit using all available assets. A higher ROA indicates more efficient asset utilization and greater profitability. According to Eddy et al. (2020), company profitability can be calculated by comparing profits generated during a certain period with total assets or capital. Profitability is determined by the company's success and its ability to use assets productively (Febrianti & Suartini, 2021).

The formula for Return on Assets is as follows:

$$\text{Return on Assets} = (\text{Net Income} / \text{Total Assets}) \times 100\%$$

The Effect of Cash Ratio on Return on Assets

An increase in liquidity, as measured by the Cash Ratio, can positively affect Return on Assets (ROA). When liquidity increases, profit tends to increase as current assets grow alongside current liabilities (Mauliza & Sufi, 2021). High liquidity helps companies manage short-term obligations and take advantage of investment opportunities. However, excessively high liquidity may also have negative effects, as idle funds may reduce potential returns.

Previous research by Mohamad (2010) and Saad (2010) found that the current ratio significantly affects ROA. Meanwhile, Afriyanti (2019) found that the current ratio has a negative and significant effect on ROA.

Based on the previous studies, the hypothesis proposed is:

H1: Cash Ratio affects Return on Assets at PT Bank Mandiri Tbk.

The Effect of Loan to Assets Ratio on Return on Assets

Loan to Deposit Ratio is used to measure the composition of loans granted compared to public funds and equity used (Permana, 2022). This ratio reflects a bank's ability to repay customer withdrawals by relying on loans as a source of liquidity. The higher this ratio, the lower the bank's liquidity. Therefore, it can be concluded that Loan to Deposit Ratio positively influences ROA.

Previous studies by Novian (2015) and Dewi (2015) found that Loan to Assets Ratio has a positive but insignificant effect on ROA. In contrast, Kumalasari & Hersugondo (2020) and Rochmah & Oetomo (2018) concluded that LAR has a significant positive effect on ROA.

Based on previous studies, the hypothesis proposed is:

H2: Loan to Deposit Ratio affects Return on Assets at PT Bank Mandiri Tbk.

The Effect of Cash Ratio and Loan to Assets Ratio on Return on Assets

When liquidity increases, profit also tends to increase as current assets grow (Mauliza & Sufi, 2021). LAR measures a bank's ability to meet credit demand using its total assets. The larger the loans disbursed, the lower the potential credit risk, as loans are financed by the bank's own assets. A higher Cash Ratio and Loan to Deposit Ratio indicate a greater ability to meet short-term obligations.

However, excessive allocation of funds to current assets has two contrasting effects. On one hand, company liquidity improves. On the other hand, the company may lose opportunities to earn higher profits because funds that could be invested productively are reserved for liquidity purposes.

Previous studies by Firmanza (2021), Budiharjo (2021), and Putri (2020) found that Cash Ratio and Loan to Assets Ratio affect ROA.

Meanwhile, Herawati (2016) found that Cash Ratio and Loan to Assets Ratio do not affect ROA. Based on previous studies, the hypothesis proposed is:

H3: Cash Ratio and Loan to Deposit Ratio affect Return on Assets at PT Bank Mandiri Tbk.

3. Research Method

Research Design

This study employs a quantitative approach using an associative (causal) research design to examine the effect of the Cash Ratio (CR) and Loan to Asset Ratio (LAR) on Return on Assets (ROA) at PT Bank Mandiri Tbk. The associative design aims to identify the causal relationship between independent variables (CR and LAR) and the dependent variable (ROA).

Data and Sample

This study uses secondary data obtained from the published annual financial statements of PT Bank Mandiri Tbk, which are publicly available through the Indonesia Stock Exchange (IDX) and the company's official reports.

The population of this study consists of the company's financial statements since its listing on the Indonesia Stock Exchange. The accessible population covers 31 years of financial reports. The sample was selected using purposive sampling based on the following criteria:

1. Availability of complete financial statement data.
2. Consistency of reporting format.
3. Relevance to research variables.

Based on these criteria, the study uses 10 years of annual data from 2014 to 2023, resulting in 10 observations.

Data Analysis Technique

The data were analyzed using multiple linear regression analysis with the following model:

$$ROA = \alpha + \beta_1 CR + \beta_2 LAR + \varepsilon$$

Where:

- α = constant
- β_1, β_2 = regression coefficients
- ε = error term

Prior to regression analysis, classical assumption tests were conducted, including:

- Normality test
- Multicollinearity test
- Heteroscedasticity test
- Autocorrelation test

Hypothesis testing was conducted using:

1. **t-test (partial test)** to examine the individual effect of CR and LAR on ROA.
2. **F-test (simultaneous test)** to examine the joint effect of CR and LAR on ROA.
3. **Coefficient of Determination (R^2)** to measure the explanatory power of the independent variables.

All statistical analyses were performed using SPSS version 26 with a significance level of 5% ($\alpha = 0.05$).

4. Results and Discussion

4.1 Multiple Linear Regression Analysis

Based on the results of data processing using SPSS version 26, the regression output is presented in Table 6. Based on Table 6, the multiple linear regression equation is formulated as follows:

$$ROA = 1086.355 + 0.043CR + 0.159LAR$$

The regression equation can be interpreted as follows:

1. **Constant (α) = 1086.355**

The constant indicates that if Cash Ratio (CR) and Loan to Asset Ratio (LAR) are assumed to be zero, the value of Return on Assets (ROA) would be 1086.355%. However, the constant primarily serves as a statistical intercept in the regression model.

2. **Cash Ratio (CR) coefficient = 0.043**

The regression coefficient of 0.043 implies that every 1% increase in Cash Ratio will increase ROA by 0.043%, assuming other variables remain constant. The positive coefficient indicates a positive relationship between CR and ROA.

3. **Loan to Asset Ratio (LAR) coefficient = 0.159**

The regression coefficient of 0.159 indicates that every 1% increase in LAR will increase ROA by 0.159%, ceteris paribus. The positive

coefficient suggests that LAR has a positive effect on ROA.

4.2 Partial Significance Test (t-test)

The t-test was conducted to examine the individual effect of each independent variable on ROA. The degree of freedom (df) is calculated as:

$$df = n - k = 10 - 2 = 8$$

At a significance level of 5%, the t-table value is 1.859.

Effect of Cash Ratio on Return on Assets

The calculated t-value for Cash Ratio is **3.443**, which is greater than t-table ($3.443 > 1.859$), with a significance value of $0.034 < 0.05$. Therefore, **H1 is accepted**. This result indicates that Cash Ratio has a positive and statistically significant effect on ROA at PT Bank Mandiri Tbk. The findings suggest that higher liquidity enhances the bank's ability to manage operational risks and maintain financial stability, which ultimately improves profitability. A higher Cash Ratio reflects stronger short-term solvency and better risk mitigation capacity, thereby increasing investor and public confidence. These results are consistent with Mohamad (2010) and Saad (2010), who found that liquidity ratios significantly influence ROA. However, this finding contrasts with Afriyanti (2019), who reported a negative and significant relationship.

Effect of Loan to Asset Ratio on Return on Assets

The calculated t-value for Loan to Asset Ratio is **2.949**, which is greater than t-table ($2.949 > 1.859$), with a significance value of $0.021 < 0.05$. Therefore, **H2 is accepted**. This finding indicates that LAR has a positive and statistically significant effect on ROA. The positive relationship implies that a higher proportion of loans to total assets contributes to increased profitability. Since loans are the primary earning assets for banks, a higher LAR indicates more productive asset utilization. When credit risk is well managed, increased loan distribution leads to higher interest income and improved financial performance.

This result supports the findings of Kumalasari & Hersugondo (2020) and Rochmah &

Oetomo (2018), who concluded that LAR has a positive and significant effect on ROA. However, it differs from Novian (2015) and Dewi (2015), who found a positive but insignificant relationship.

4.3 Simultaneous Significance Test (F-test)

The F-test was conducted to examine the simultaneous effect of CR and LAR on ROA.

From the SPSS output (Table 7), the calculated F-value is **17.736**.

The degree of freedom:

- $df1 = k = 2$
- $df2 = n - k - 1 = 10 - 2 - 1 = 7$

At a 5% significance level, the F-table value is approximately 4.066. Since F-count (17.736) $>$ F-table (4.066) and the significance value is $0.002 < 0.05$, **H3 is accepted**. This indicates that Cash Ratio and Loan to Asset Ratio simultaneously have a significant effect on Return on Assets at PT Bank Mandiri Tbk.

4.3 Discussion

The empirical findings demonstrate that liquidity (CR) and asset productivity (LAR) are important determinants of bank profitability. Adequate liquidity strengthens operational stability and reduces financial risk exposure, while optimal loan allocation enhances income generation through interest earnings.

However, although higher liquidity improves financial security, excessive liquidity may reduce profitability due to idle funds. Similarly, higher LAR increases profitability only if credit risk is effectively managed. Therefore, banks must maintain an optimal balance between liquidity and loan distribution to maximize profitability.

Overall, this study reinforces financial intermediation theory, which suggests that effective asset allocation and liquidity management are crucial in improving banking performance.

5. Conclusion and Recommendations

5.1 Conclusion

Based on the results of the multiple linear regression analysis and hypothesis testing, several conclusions can be drawn:

1. **Cash Ratio (CR) has a positive and significant effect on Return on Assets (ROA)** at PT Bank Mandiri Tbk. This finding indicates that improved liquidity strengthens the bank's financial stability and contributes to higher profitability.
2. **Loan to Asset Ratio (LAR) has a positive and significant effect on Return on Assets (ROA)** at PT Bank Mandiri Tbk. This suggests that a higher proportion of productive earning assets in the form of loans enhances the bank's income generation and overall financial performance.
3. **Cash Ratio and Loan to Asset Ratio simultaneously have a significant effect on Return on Assets (ROA)** at PT Bank Mandiri Tbk. This demonstrates that both liquidity management and optimal asset allocation play an important role in improving bank profitability.

Overall, the findings confirm that effective liquidity control and productive asset utilization are essential determinants of financial performance in the banking sector.

5.2 Recommendations

Based on the research findings, the following recommendations are proposed:

1. Managerial Implications (For PT Bank Mandiri Tbk)

Management should maintain an optimal balance between liquidity and loan distribution. While high liquidity strengthens financial resilience, excessive idle funds may reduce profitability. Therefore, the bank should:

- Continue monitoring credit distribution carefully to minimize non-performing loan (NPL) risk.
- Optimize asset allocation to ensure that loans remain productive earning assets.
- Maintain prudent risk management policies to sustain profitability growth.

2. Recommendations for Future Research

Future studies are encouraged to:

- Include additional financial performance indicators such as Net Profit Margin (NPM), Loan to Deposit Ratio (LDR), Quick Ratio,

Capital Adequacy Ratio (CAR), and Non-Performing Loans (NPL).

- Expand the research sample to include multiple banks or longer observation periods to improve generalizability.
- Apply alternative analytical methods such as panel data regression or structural equation modeling (SEM) to obtain more comprehensive results.

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