

Original Article

The Effect of Capital Adequacy Ratio on Return on Assets of Banking Companies Listed on the Indonesia Stock Exchange, 2022-2024

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Abstract: This study examines the influence of Capital Adequacy Ratio (CAR) on Return on Assets (ROA) among banking companies listed on the Indonesia Stock Exchange during 2022–2024. This study applies a descriptive quantitative research design with an explanatory approach using secondary data from annual financial statements. The purposive sampling method was used to select 35 banking companies from a population of 43 banks, resulting in 105 firm-year observations. Data analysis was conducted using descriptive statistics and simple linear regression. The results indicate that CAR has a negative and statistically significant relationship with ROA ($B = -0.053$; $p = 0.017$). The regression model explains 5.4% of the variation in ROA, indicating that other factors contribute substantially to banking profitability. These findings suggest that higher capital adequacy does not automatically lead to higher profitability, highlighting the importance of effective capital utilization and other financial performance determinants.

Keywords: Banking Companies, Capital Adequacy Ratio, Indonesia Stock Exchange, Return on Assets.

I. INTRODUCTION

Banks are not only intermediaries between capital markets and the public, as they absorb money from them and put it back at their disposal through credit flow or other forms of financial services to households and businesses; banks also have a unique strategic path in economic development. Banks act as a form of financial intermediary that maintains economic stability and funds productive endeavors. Because this intermediation function relies heavily on public trust and financial stability, banking companies are required to maintain sound financial performance. Financial statements therefore provide an essential basis for evaluating bank conditions, profitability, and operational resilience.

Return on Assets (ROA) is one of the most widely used indicators to assess a bank's profitability performance. ROA measures the bank's ability to generate earnings from the assets it controls, with higher ROA generally reflecting more effective asset utilization and better operational efficiency [6]. However, profitability performance among Indonesian banks varies considerably across companies and periods. The variations in ROA in 2022-2024 imply that banks would differ from one another despite operating within close external conditions such as geographic proximity, possibly due to differences in internal financial management and strategic decision-making.

An internal factor that is likely to affect the profitability of all banks in particular is capital adequacy. Capital Adequacy Ratio (CAR) is a bank's ability to provide sufficient capital coverage against the risks involved in its operations. A small capital position invests more in enhancing financial resilience, supporting business expansion and protection against credit, market and operational risks [7]. Theoretically, higher CAR may lead to better profitability, as banks that are well capitalized can do more business and absorb losses. However, if the institutions are not utilizing their funds efficiently by allocating them to productive assets, then higher capital levels can lead to poorer profitability too.

Prior empirical studies have established mixed results for the association between CAR and ROA. Many researchers found that CAR has a significant and positive impact on profitability [2], [4], [8]. By comparison, other studies suggest that operating with higher CAR reduces profitability due to excessive capital remaining idle and thus consuming resources in less than optimal asset management [10]. This ambiguity is a research question since the relationship between capital strength and profitability has not reached a consensus, especially in Indonesian companies after economic reforms post-COVID-19 pandemic. Moreover, most of the previous studies look at different periods and samples, which creates an additional knowledge gap, thus requiring an enhancement in current empirical understanding with recent banking data.

Thus, the present study was conducted on banking companies listed on the Indonesian Stock Exchange for the period from 2022 to 2024. The purpose of this study is to find out the capital adequacy and profitability performance analysis and



whether Capital Adequacy Ratio significantly affects Return on Assets (ROA). This study examines the most recent three-year period, providing current empirical evidence in relation to capital strength and profitability within Indonesia's banking sector.

II. LITERATURE REVIEW

A) Return on Assets

Return on Assets (ROA) is one of the profitability ratios that will tell you how much profit your total assets generate. For banks, ROA indicates management efficiency in deploying available assets to produce profit. If the ROA is high, it means that an entity has been able to utilize its assets better and achieve higher profitability performance [6]. Banks are substantially involved in asset management activities, especially around the distribution of credit and investment services; thus, return on assets (ROA) is frequently utilized as a metric for financial standing.

ROA was measured as net income divided by total assets and multiplying the result with 100 percent. It is the ratio that shows how well Banking companies turn their assets into earnings. Yet, the variation in REIT profitability across banks suggests that bank internal factors instead matter as drivers of ROA: capital management and operational efficiency.

B) Capital Adequacy Ratio

Capital Adequacy Ratio (CAR) is a ratio that indicates the sufficiency of capital owned by banks to provide for risk-weighted assets. CAR denotes a bank's capacity to absorb inevitable losses and continue functioning [7]. The first of those metrics is that a higher CAR implies greater financial resilience, since these banks have more capacity to absorb any losses and are better positioned to handle credit risk, market risk, as well as operational risks.

Conserved capital, promotes holy benefits of banks regulated behaviors as well provides the stability that flows and goes outside this keep worry particular fuction as expand productive activities unless risk more create in consequence adverse sound condition. So, higher CAR may motivate banks to deploy more capital as they can cater to a broader capacity of lending and risk management activities.

Nevertheless, one does not always get higher profitability with a high CAR. If capital is too high, it means some bank resources are wasted on non-productive assets. This could lead to lower efficiency for banks in terms of generating returns using their existing resources. Therefore, it depends not only on the absolute amount of capital held but also on how effectively this money is allocated.

C) Relationship between CAR and ROA

The intermediate explanation for the role of CAR and ROA, as mentioned, is capital in supporting banking operations. As capital adequacy strengthens banks against unforeseen losses, this allows for further business expansion with less financial risk. More specifically, from a theoretical perspective, a larger capital adequacy ratio should exert a positive influence on bank profitability through reinforced operational capacity and consolidated financial stability.

Meanwhile, the empirical study of CAR against ROA is still ambiguous. Other significant findings are that CAR has a positive relationship and is also significantly related to ROA; this shows that the capital adequacy ratio, which indicates adequate capital, will support improved performance [2], [4]. The results suggest that banks with stronger capital positions are more capable of managing risks and taking advantage to generate profits.

However, other studies showed that higher CAR did not improve profitability because the presence of excess capital can impede efficiency unless they are invested in providing income-generating assets [1], [10]. These differences in findings imply varied effects of CAR on ROA based on banking situations, capital management and conditions.

Drawing on such theoretical arguments and prior empirical evidence, the following hypothesis is developed within the present study:

H1: Capital Adequacy Ratio has a significant influence on Return on Assets of banking companies listed on the Indonesia Stock Exchange during 2022–2024.

D) Research Method

This study applies a quantitative research approach with an explanatory research design to examine the influence of Capital Adequacy Ratio (CAR) on Return on Assets (ROA). The quantitative approach is used because this study analyzes numerical financial data and tests the relationship between research variables through statistical analysis.

The population of this study consists of 43 banking companies listed on the Indonesia Stock Exchange (IDX). The purposive sampling method is used, with the following criteria: most banking companies listed on the IDX in the 2022–2024 observation period; companies that provide complete annual financial statements during the research duration; and companies

whose CAR and ROA variable data are available. This led to the selection of 35 banking companies and accordingly, there are total observations (firm-year) were made of 105 firm year observation.

This research uses secondary data in the form of annual financial reports posted by banking company sampled and also on the Indonesia Stock Exchange. The independent variable in this study is Capital Adequacy Ratio (CAR), and the dependent variable is ROA (Return on Assets). CAR is computed as total capital divided by risk-weighted assets, and ROA follows the formula net income divided by total assets, where returns are expressed as a percentage.

Data analysis was conducted using IBM SPSS Statistics 27. The analysis procedures include descriptive statistical analysis, classical assumption testing, and simple linear regression analysis. The regression model used in this study is:

$$ROA = \alpha + \beta CAR + \varepsilon$$

Where ROA represents Return on Assets, α represents the constant, β represents the regression coefficient of CAR, and ε represents the error term.

Because this study wants to see whether CAR has a significant effect on ROA in the observation period, simple linear regression is used. While the dataset comprises observations from a variety of companies for multiple years, this analysis aims to examine firms as listed banking companies and assess CAR vs ROA during 2022 - 2024 respectively.

III. RESULTS AND DISCUSSION

A) Descriptive Results

The analysis covers 105 firm-year observations from 35 banking companies. Capital Adequacy Ratio (CAR) ranges from 13.80% to 67.30%, with a mean of 31.106% and a standard deviation of 11.817. Return on Assets (ROA) ranges from -13.70% to 7.10%, with a mean of 0.818% and a standard deviation of 2.708. These results show that the sampled banks generally maintain strong capital adequacy, while profitability varies substantially across banks and years.

Table 1: Descriptive Statistics

Variables	N	Minimum	Maximum	Mean (SD)
CAR	105	13.80	67.30	31.106 (11.817)
ROA	105	-13.70	7.10	0.818 (2.708)

Table 1 summarizes the descriptive characteristics of CAR and ROA for the 105 observations included in the final analysis.

B) Effect of Capital Adequacy Ratio on Return on Assets

Capital Adequacy Ratio (CAR) has a negative and statistically significant relationship with Return on Assets (ROA); which is the result of simple linear regression analysis; The regression equation can be stated as follows: $ROA = 2.476 - 0.053(CAR)$ The CAR coefficient is -0,053, significance value equals to 0,017 indicates that there are significant of effect between variable CAR on ROA at a95 %significantly level. This negative coefficient implies that an increase in CAR contributes to a decrease in ROA for this period. In particular, a 1-percentage-point increase in CAR predicts approximately at least a statistically significant ROA decrease of about 0.053 percentage points.

This suggests that increasing capital adequacy does not guarantee that banking companies listed on the Stock Exchange of Indonesia in 2022–2024 can increase their profits. While having adequate capital is necessary for financial stability and absorbing potential risks, a high level of excess capital may drag down profitability if the funds are not productive, i.e., sustainably allocated into assets. Under these conditions, some of the bank's capital may be unproductive, constraining how much banks can earn from their assets.

The result supports the argument that having strong capital should go hand-in-hand with using it wisely and an efficient operational process. A bank with a high level of CAR is required to utilize optimal capital allocation in corporate lending, investment strategies, and asset management, especially if the overall profitability requirements are low. Nevertheless, this result should be interpreted with caution for the reason that CAR describes only a small percentage of ROA variation on its own. Based on the adjusted R², CAR explains 5.4% of changes in ROA as well, since profitability is influenced by other factors, namely credit risk and operational efficiency, average liquidity management, income structure, macroeconomic condition category and control variable level bank size, separately with firms up to October 2023 data training.

Table 2: Simple Linear Regression Coefficient

Predictor	B	Std. Error	T	Sig.
CAR	-0.053	0.022	-2.427	0.017

Table 3: Regression Model Summary

R	R ²	Adjusted R ²	F	Df	Sig.
-0.233	0.054	0.045	5.892	1, 103	0.017

The CAR and ROA have a weak negative correlation ($R = -0.233$). The following table shows that the coefficient of determination is $R^2 = 0.054$ and adjusted $R^2 = 0.045$ which means CAR accounts for around 5.4% of the change in ROA. The full regression model was statistically significant, $F(1,103) = 5.892$, $p = .017$, thus supporting the hypothesis that marital status is a predictor of happiness for married people versus divorced, but not for single and widowed individuals as well. The modest fit suggests that banking profitability is driven largely by forces beyond this univariate model. Consequently, a large capital buffer should be considered mainly as an indicator of resilience and risk absorption rather than as a direct guarantee for larger profitability. In addition to other factors, ROA may be explained by asset quality and credit risk, efficiency in terms of operating cost-to-profit ratio, liquidity, income structure, diversification level and various macroeconomic conditions, for instance, the Credit growth rate or inflation pressure.

IV. CONCLUSION

This research tested the relationship between Capital Adequacy Ratio (CAR) and Return on Assets (ROA) for banks registered in the Indonesia Stock Exchange for the period 2022–2024. The approach used as data for the study are 35 banking companies with a total of 105 firm-years, which shows that, based on this research, CAR in any way has a negative and statistically significant relationship with ROA. The implication of this finding is that bank companies' capital adequacy does not translate directly into better profitability performance in the same period. Theoretically, banks are not only able to stabilize their capital situation and manage financial risks but also comply with the so-called Capital-Adequacy (CA) restriction when there exist absorptive capacities in terms of potential losses. But the study shows that how firm capital is efficiently utilized contributes significantly to profitability. For ROA, having a lot of capital does not help if that extra cash is just sitting around and cannot be put to use.

This study provides new empirical evidence on the linkages between capital adequacy and profitability in the Indonesian banking sector in the post-pandemic economic recovery period. The results stress that in order to improve profitability, bank management must pay attention not only to capital adequacy but also to the efficiency of capital allocation, asset quality and sustainable business expansion. However, there are several limitations with this study. The CAR topic is only one explanatory variable and uses a three-year observation period. Thus, future research can add related variables such as Non-Performing Loans (NPL), Loan to Deposit Ratio (LDR), Net Interest Margin (NIM), operational efficiency advantage and macroeconomic factors. Future studies may explore a longer time span and utilize sophisticated data analysis methods to gain more extensive insight into banking profitability determinants.

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