

The Effect Of Return On Assets (Roa), Return On Equity (Roe), And Non-Performing Financing (Npf) On The Capital Adequacy Ratio (Car) At Sharia Commercial Banks 2021–2025

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Abstract

The Capital Adequacy Ratio (CAR) is a key indicator for assessing a bank's ability to maintain capital adequacy and manage risks. In Islamic commercial banks, profitability and financing risk factors may influence capital stability. This study aims to determine the effect of Return on Assets (ROA), Return on Equity (ROE), and Non-Performing Financing (NPF) on CAR in Islamic commercial banks during 2021–2025. This study employs a quantitative approach with an associative research design. The study uses secondary data from Islamic commercial banks' annual financial reports. The sample was selected using purposive sampling, resulting in 30 observations. Data analysis used panel data regression with the Fixed Effects Model (FEM). The results indicate that, individually, ROA, ROE, and NPF have no significant effect on CAR, with p-values of 0.8793, 0.7809, and 0.2455, respectively. However, when considered simultaneously, ROA, ROE, and NPF significantly affect CAR, with an F-statistical probability value of 0.000000. The adjusted R-squared value of 0.949543 indicates that the independent variables explain 94.95% of the CAR variation. This study concludes that ROA, ROE, and NPF do not individually affect CAR significantly, but collectively they influence the capital adequacy of Islamic commercial banks. The findings are expected to provide insights for bank management in maintaining profitability, managing financing risk, and strengthening capital.

Keywords: Return on Assets (ROA), Return on Equity (ROE), Non-Performing Financing (NPF), Capital Adequacy Ratio (CAR), Islamic Commercial Banks.



INTRODUCTION

Islamic banking in Indonesia has grown rapidly, as shown by the number of new branch openings, the types of banking operations, and the volume of business conducted since the first Islamic bank was established in 1992. Islamic banking is an integral part of the national financial system that plays a vital role in driving economic growth based on Sharia principles. Islamic banks not only serve as financial intermediaries but also help maintain financial stability while adhering to Sharia principles that emphasize fairness, transparency, and the prohibition of usury.

An Islamic bank operates in accordance with Sharia principles. These Sharia principles distinguish it from conventional banks. Essentially, Islamic Sharia principles are based on the Quran and the Hadith. According to Law No. 21 of 2008 on Islamic Banking, a bank is a business entity that collects funds from the public in the form of deposits and channels them back to the public in the form of loans or other forms to improve the community's standard of living. A commercial bank is a bank that conducts business activities conventionally and/or based on Sharia principles, and which, in the course of its operations, provides payment transaction services.

From 2021 to 2025, Islamic banking faced significant challenges, primarily due to the COVID-19 pandemic that began in 2021. OJK statistical data on the Capital Adequacy Ratio (CAR) for Islamic Banking (SPS) show that the CAR for Islamic Commercial Banks (BUS) stood at 23.62% in 2021 and remained above 20% through 2024, indicating relatively high capital stability despite pressures in the real sector. (To allocate significant funds for liquidity provision—such as through credit disbursement—banks require substantial financing. Otherwise, this would disrupt the bank's liquidity. Every credit expansion plan must be supported by additional capital; otherwise, credit expansion will reduce the *Capital Adequacy Ratio* (CAR).

According to Bank Indonesia Regulation No. 15/12/PBI/2013, the minimum Capital Adequacy Ratio (CAR) is 8% of total Risk-Weighted Assets (RWA). The higher the CAR, the greater a bank's ability to absorb losses from earning assets and finance its operations independently.

Previous studies have offered varying perspectives on this relationship. Yokoyama & Mahardika (2019) find that ROA and NPF influence CAR. Meanwhile, Harun Al Rasyid & Suryanto (2022) support the argument that ROA and ROE have a significant positive effect on CAR, particularly in a case study of Bank BTPN.

One way to measure profitability is through a company's *Return on Assets* (ROA) and *Return on Equity* (ROE) ratios. Conducting a profitability analysis helps determine a company's ability to generate profits over a specific period.

Return on Assets (ROA) is a ratio that indicates the return on the total assets a company uses. (Kasmir, 2016:201). In addition, *Return on Assets* (ROA) provides a

better measure of a company's profitability because it demonstrates management's effectiveness in managing investments to generate revenue. The higher the *Return on Assets* (ROA), the greater the company's ability to generate profits; the higher this ability, the more likely the company is to attract investors interested in the value of its shares based on its after-tax profit ratio.

Return on Equity (ROE) measures return on equity, or the profitability of shareholders' equity; it compares net income after taxes to shareholders' equity. This ratio indicates how efficiently the company uses shareholders' equity. The higher the ratio, the better. This means the company's owners are in a stronger position, and vice versa.

In reality, however, not all banks with high profitability ratios have strong capital adequacy (CAR). Some Islamic banks also have high levels of non-performing financing, which can erode capital adequacy because of the risks associated with problematic financing. This indicates that the relationship between *Return on Assets* (ROA), *Return on Equity* (ROE), and *Non-Performing Financing* (NPF) and the *Capital Adequacy Ratio* is not always consistent.

Non-Performing Financing (NPF) refers to financing in which the debtor fails to meet the agreed-upon terms, such as requirements for loan principal repayment, increased deposit margins, increased collateral, and so on. (Rivai, Veithzal, Sofyan Basir, 2013) .

On the other hand, a high NPF ratio also indicates poor quality in Islamic banks' financing disbursement process. If this occurs, Islamic commercial banks must bear the associated risks using their own capital. The Bank of Indonesia (BI) has also stipulated that the *Net Performing Financing* (NPF) ratio must be below 5%. (OJK, 2014) .

In addition to profitability and funding risk, a bank's capital adequacy ratio can also be influenced by other internal factors such as liquidity, operational efficiency, and the bank's characteristics. Liquidity, as proxied by the *Financing-to-Deposit Ratio* (FDR), reflects a bank's ability to manage funds raised for channeling into loans. Meanwhile, operational efficiency, measured by the *Operating Expense to Operating Income Ratio* (BOPO), indicates a bank's ability to control costs to generate revenue. Additionally, bank size can influence a bank's ability to maintain capital stability, as it relates to operational capacity and risk management. These factors are theoretically related to the *Capital Adequacy Ratio* (CAR). However, this study focuses its analysis solely on the variables *Return on Assets* (ROA), *Return on Equity* (ROE), and *Non-Performing Financing* (NPF).

The imbalance between profitability, capitalization, and financing risk—as reflected in ROA, ROE, and NPF—is a key concern regarding the performance of Sharia Commercial Banks. Fluctuating profitability—particularly ROA and ROE, which tend to be low during certain periods—indicates that the banks' ability to optimize assets and

capital has not yet been fully realized. This suggests that operational efficiency and productive asset management remain major challenges to maintaining stable financial performance.

Furthermore, these conditions may affect banks' capital structures, as reflected in the Capital Adequacy Ratio (CAR). Although the CAR is generally at a relatively strong level, fluctuations in profitability and rising financing risks may affect banks' ability to maintain long-term capital stability. Thus, it is important to analyze the relationship between ROA, ROE, NPF, and CAR in greater depth.

RESEARCH METHODOLOGY

A research method is essentially a scientific approach to collecting data for specific purposes and applications. The author examines aspects closely related to the research problem in greater detail to better understand the subject matter and draw conclusions about the research problem.

This study employs a quantitative approach with an associative research design. The quantitative approach was chosen because this study aims to measure the relationship between numerical variables (ROA, ROE, NPF, and CAR) using numerical financial data. Meanwhile, the associative research design is used to determine the influence or cause-and-effect relationship between the independent and dependent variables. This study uses secondary data in the form of annual financial reports published by each bank and the Financial Services Authority (OJK).

Population and Sample

Population

The population in this study consists of all Sharia Commercial Banks (BUS) registered with the Financial Services Authority (OJK) from 2021 to 2025. Based on OJK data, 14 Sharia Commercial Banks were actively operating and had publicly available financial statements during that period. The following are the names of the banks registered with the OJK:

1. PT Bank Syariah Bukopin
2. PT Bank BTPN Syariah
3. PT Bank Panin Dubai Syariah
4. PT Bank Aladin Syariah
5. PT Bank Muamalat Indonesia
6. PT Mega Syariah Bank
7. PT Bank Jabar Banten Syariah
8. PT Bank Syariah Indonesia, Inc.
9. PT Bank Aceh Syariah



10. PT Bank Riau Kepri Syariah
11. PT Bank Victoria Syariah
12. PT BCA Syariah Bank
13. PT CIMB Niaga Syariah Bank
14. PT Mybank Indonesia Syariah

Sample

The sample in this study was determined using purposive sampling, a technique in which the sample is selected based on specific, predetermined criteria to ensure it is relevant to the research objectives.

Table 1 Criteria for Selecting Banking Samples

No	Sample Criteria
1	Registered as a Sharia Commercial Bank (BUS) with the OJK
2	Has published complete annual financial statements for 5 consecutive years (2021–2025)
3	Has not undergone any mergers or acquisitions during the study period
4	Has total assets of at least Rp 1 trillion during the observation period
5	Has an NPF ratio explicitly reported in its public financial statements
6	Actively operating (not under suspension or special supervision by the OJK)

Source: Primary data processed by the author

Based on these criteria, the researcher determined that 7 Sharia Commercial Banks met all specified requirements and were selected as the research sample. With an observation period of 5 years, the total number of observations (n) used was 7 banks × 5 years = 35 observations.

Hypothesis Testing

t-Test (Partial)

According to Ghazali (2016), the t-test indicates the extent to which a single independent variable, on its own, explains the dependent variable. You can perform a t-test by examining the probability value (sig). If the probability value is < 0.05, then H_0 is



rejected, or H_1 is accepted (there is a partial or individual effect), and if the probability value is > 0.05 , then H_0 is accepted, or H_1 is rejected (there is no partial or individual effect).

F-Test (Simultaneous)

Simultaneous hypothesis testing determines whether the independent variables, as a whole, affect the dependent variable (Ghozali & Dwi, 2017). The F-test is conducted using the significance level specified in this study, which corresponds to the probability value. If the probability is less than 0.05, then H_0 is rejected, and H_1 is accepted

Coefficient of Determination (Adjusted R^2)

The coefficient of determination (R^2) can be used to measure a model's ability to explain the dependent variable. However, this test has a limitation: it is biased toward the number of independent variables included in the model. Every time an additional independent variable is added, R^2 increases, regardless of whether that variable has a significant effect on the dependent variable. Therefore, this study uses adjusted R^2 , which ranges from 0 to 1. The closer the adjusted R^2 value is to 1, the better the model explains the dependent variable (Ghazali, 2016).

RESEARCH RESULTS AND DISCUSSION

(T-Test)

The t-test determines the effect of each independent variable on the dependent variable. Decisions are made by comparing the probability value with a significance level of 5%.

The test results show:

Table 2: T-Test Results

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.296221	0.009326	31.76217	0.0000
X1	-0.143449	0.930605	-0.154146	0.8790
X2	-0.033720	0.119848	-0.281354	0.7812
X3	-0.117105	0.098033	-1.194541	0.2456

Based on the results of the t-test in Table 2, the following results were obtained:

1. The Effect of Variable X1 on the Dependent Variable

Based on the test results, variable X1 has a coefficient of -0.143449, a t-statistic of -0.154146, and a p-value of 0.8790. This p-value exceeds the 5% significance level



(0.8790 > 0.05). This indicates that variable X1 does not have a significant partial effect on the dependent variable. The negative coefficient value indicates that an increase in X1 tends to be followed by a decrease in the dependent variable; however, this effect is not statistically significant.

2. The Effect of Variable X2 on the Dependent Variable

Variable X2 has a coefficient of -0.033720, a t-statistic of -0.281354, and a p-value of 0.7812. Since the p-value is greater than 0.05 (0.7812 > 0.05), it can be concluded that X2 does not have a significant partial effect on the dependent variable. A negative coefficient indicates an inverse relationship between X2 and the dependent variable, but this relationship is not statistically significant.

3. The Effect of Variable X3 on the Dependent Variable

The test results show that variable X3 has a coefficient of -0.117105, a t-statistic of -1.194541, and a probability value of 0.2456. This probability value exceeds the 5% significance level (0.2456 > 0.05), so X3 does not have a significant partial effect on the dependent variable. The negative coefficient indicates that an increase in X3 tends to decrease the dependent variable, but this effect is not yet significant.

Based on the overall t-test results, the independent variables X1, X2, and X3 do not have a significant partial effect on the dependent variable at the 5% significance level. This is indicated by the fact that all probability values for each independent variable are above 0.05. Thus, the partial hypotheses stating that each independent variable influences the dependent variable are not statistically significant.

Simultaneous Test (F-Test)

The F-test determines whether all independent variables collectively affect the dependent variable.

The test results show:

Table 3 F-Test Results

Root MSE	0.023024	R-squared	0.963462
Mean of the dependent variable	0.290765	Adjusted R-squared	0.949543
Standard deviation of the dependent variable	0.122507	Standard error of regression	0.027518
Akaike information criterion	-4.104602	Sum of squared residuals	0.015902
Schwarz criterion	-3.684242	Log-likelihood	70.56902

Hannan-Quinn criterion	-3.970125	F-statistic	69.21766
Durbin-Watson statistic	2.185238	Prob(F-statistic)	0.000000

Based on the test results in Table 3, the F-statistic is 69.21766, with a Prob(F-statistic) of 0.000000. This probability value is smaller than the 5% significance level ($0.000000 < 0.05$). This indicates that the independent variables X1, X2, and X3 collectively have a significant effect on the dependent variable.

Thus, the regression model used in this study can explain the relationship between the independent variables and the dependent variable simultaneously. This means that changes in the dependent variable can be influenced collectively by a combination of variables X1, X2, and X3.

Furthermore, the R-squared value of 0.963462 indicates that the independent variables in the model account for 96.35% of the variation in the dependent variable. Factors outside the research model explain the remaining 3.65%. The adjusted R-squared value of 0.949543 also indicates that, even after accounting for the number of independent variables in the model, the model's ability to explain the dependent variable remains very strong.

Based on the F-test results, the hypothesis that variables X1, X2, and X3 simultaneously influence the dependent variable is accepted. Thus, the regression model used in this study is suitable for explaining the relationships among the variables under study.

Test of the Coefficient of Determination R^2

The results of the coefficient of determination are shown in the following table:

Table 4 Results of the R-Square Test

Root MSE	0.023024	R-squared	0.963462
Mean dependent variable	0.290765	Adjusted R-squared	0.949543
Standard deviation of the dependent variable	0.122507	Standard error of regression	0.027518
Akaike information criterion	-4.104602	Sum of squared residuals	0.015902
Schwarz criterion	-3.684242	Log-likelihood	70.56902

Hannan-Quinn criterion	-3.970125	F-statistic	69.21766
Durbin-Watson statistic	2.185238	Prob(F-statistic)	0.000000

DISCUSSION**Effect of Return on Assets (ROA) on the Capital Adequacy Ratio (CAR)**

Based on the partial hypothesis testing (t-test) results, the Return on Assets (ROA) variable had a regression coefficient of -0.143037 and a p-value of 0.8793 > 0.05. These results indicate that ROA does not significantly affect the Capital Adequacy Ratio (CAR) at Sharia Commercial Banks for the 2021–2025 period. Thus, the first hypothesis (H1), which states that ROA affects CAR, is rejected.

In theory, ROA reflects a bank's ability to generate profits through the utilization of all its assets. An increase in ROA should boost the bank's net income, which can then be used as a source of internal capital through retained earnings, thereby potentially increasing the CAR. However, the results indicate that neither an increase nor a decrease in ROA significantly affected changes in CAR.

These findings indicate that the profitability levels achieved by Sharia Commercial Banks during the study period have not been the primary factor determining capital adequacy. This may be because banks do not use profits entirely to increase capital; instead, they may allocate them to operational needs, liability payments, business development, or profit distribution to shareholders.

Based on the research data, ROA for Sharia Commercial Banks during 2021–2025 fluctuated. Some banks even experienced negative ROA, such as Bank Syariah Bukopin and Bank Panin Dubai Syariah at the beginning of the study period. Meanwhile, most banks' CAR remained high. These conditions indicate that a bank's capital adequacy is influenced not only by its ability to generate profits from assets but also by capital policies, risk management strategies, and external capital support.

The results are consistent with Suhendro (2022), which found that ROA does not have a partial effect on CAR in Islamic banking. However, these results differ from those of Yokoyama & Mahardika (2022) and Safitri et al. (2023), who found that ROA has a positive effect on CAR. These differing results may reflect differences in study periods, sample sizes, and the economic conditions prevailing during each study period.

Thus, it can be concluded that the ability of Islamic Commercial Banks to generate profits from their assets does not directly determine an increase in capital adequacy during 2021–2025.



The Effect of Return on Equity (ROE) on the Capital Adequacy Ratio (CAR)

Based on the partial test results, the Return on Equity (ROE) variable yielded a regression coefficient of -0.033768 with a p-value of 0.7809 > 0.05. These results indicate that ROE does not significantly affect CAR at Sharia Commercial Banks for the 2021–2025 period. Therefore, the second hypothesis (H2), which states that ROE affects CAR, is rejected.

ROE is a ratio that indicates a bank's ability to generate profits based on its equity capital. In theory, higher ROE indicates that a bank manages its capital effectively and generates greater profits. These profits can strengthen the bank's core capital and improve its CAR.

However, the results show a negative but insignificant relationship between ROE and CAR. This indicates that an increase in return on shareholders' equity has not yet directly improved a bank's capital adequacy ratio. One reason for this is that an increase in ROE does not always directly reflect an increase in a bank's capital.

During the study period, several Sharia commercial banks experienced significant changes in their ROE. Bank Syariah Bukopin and Bank Panin Dubai Syariah posted negative ROE figures due to pressure on financial performance. At the same time, several other banks, such as BTPN Syariah and Bank Mega Syariah, reported positive ROE figures. However, these ROE changes were not accompanied by significant changes in CAR, as CAR is primarily influenced by risk-based capital management under regulatory requirements.

The results support Suhendro (2022), who found that ROE does not affect CAR in Islamic banking. However, this study's results differ from those of Ratu Nur Aisyah and Agus Hartadi (2026), who found that ROE has a significant positive effect on CAR. These differing results indicate that the relationship between return on equity and capital adequacy may vary by bank characteristics, observation period, and profit management strategies.

Based on these results, ROE has not been a major factor influencing the capital adequacy level of Islamic commercial banks during 2021–2025.

The Effect of Non-Performing Financing (NPF) on the Capital Adequacy Ratio (CAR)

Based on the partial test results, the Non-Performing Financing (NPF) variable yielded a regression coefficient of -0.117135 with a p-value of 0.2455 > 0.05. These results indicate that NPF does not significantly affect CAR at Sharia Commercial Banks for the 2021–2025 period. Thus, the third hypothesis (H3), which states that NPF affects the CAR, is rejected.

Theoretically, an increase in NPF indicates a rise in non-performing financing, which can increase the bank's risk of losses. High levels of non-performing financing require the bank to set aside loan loss reserves, which can reduce profits and ultimately potentially limit the bank's ability to strengthen its capital.

The results indicate that NPF has a negative relationship with CAR, but this effect is not statistically significant. This means that an increase in NPF tends to lower CAR, but this decrease is not statistically strong enough to affect the bank's capital adequacy ratio.

This may be because, during the study period, Sharia Commercial Banks still maintained relatively high CAR levels, enabling them to absorb the risks associated with non-performing financing. Additionally, the banks have implemented risk management strategies—such as setting aside provisions, restructuring financing, and monitoring asset quality—thereby keeping the impact of NPF on capital under control.

Based on the research data, several banks experienced an increase in NPF during a specific period, such as Bank Syariah Bukopin and Bank Panin Dubai Syariah. However, this increase did not directly reduce CAR because the banks still had sufficient capital to manage financing risks.

The results of this study differ from those of Ratu Nur Aisyah and Agus Hartadi (2026), who found that NPF has a significant negative effect on CAR, but are consistent with several studies indicating that the effect of NPF on CAR may vary depending on a bank's ability to manage financing risks.

Thus, the financing risk reflected by NPF has not significantly affected the capital adequacy of Sharia Commercial Banks for the 2021–2025 period.

The Effect of Return on Assets (ROA), Return on Equity (ROE), and Non-Performing Financing (NPF) on the Capital Adequacy Ratio (CAR)

Based on the results of the simultaneous test (F-test), a probability value of $0.000000 < 0.05$ was obtained with an F-statistic value of 69.21882. These results indicate that the variables ROA, ROE, and NPF collectively have a significant effect on the CAR of Sharia Commercial Banks for the 2021–2025 period. Thus, the fourth hypothesis (H4) is accepted.

The coefficient of determination indicates an Adjusted R-Squared value of 0.949543, meaning that the variables ROA, ROE, and NPF account for 94.95% of the CAR variation. Other factors outside the scope of this study explain the remaining 5.05%. These other factors may include the Financing-to-Deposit Ratio (FDR), bank size, operational efficiency (BOPO), liquidity, or capital management policies.

Overall, the results indicate that no single financial indicator determines a bank's capital adequacy; rather, it results from the interaction between the bank's ability to



generate profits and its ability to manage financing risks. ROA and ROE reflect profitability, while NPF reflects the level of financing risk that the bank must control.

Although each variable individually did not show a significant effect, these three variables collectively contributed to changes in CAR. This indicates that, in maintaining capital adequacy, bank management must balance profitability and risk management.

The results of this study are consistent with the research by Ratu Nur Aisyah and Agus Hartadi (2026) and Safitri et al. (2023), which state that profitability and financing risk factors jointly influence CAR at Sharia Commercial Banks.

Based on these results, Sharia Commercial Banks need to maintain asset quality, improve the efficiency of productive asset management, and continue their capital-strengthening strategies in order to sustain capital stability over the long term.

CONCLUSION

Based on the results of the study on the effects of Return on Assets (ROA), Return on Equity (ROE), and Non-Performing Financing (NPF) on the Capital Adequacy Ratio (CAR) at Sharia Commercial Banks for the 2021–2025 period, the following conclusions can be drawn:

1. *Return on Assets (ROA)* does not have a significant effect on *the Capital Adequacy Ratio (CAR)* at Sharia Commercial Banks for the 2021–2025 period.

This is supported by the partial test (t-test) results, which show that the probability value for ROA (0.8793) is greater than the significance level of 0.05. Thus, neither an increase nor a decrease in ROA has been able to influence changes in a bank's capital adequacy significantly. This indicates that profits generated from asset management have not been directly used as the primary source for increasing a bank's capital.

2. *Return on Equity (ROE)* does not have a significant effect on *the Capital Adequacy Ratio (CAR)* of Sharia Commercial Banks for the 2021–2025 period.

The t-test results show that the probability value for ROE is 0.7809, which is > 0.05 . This indicates that the bank's ability to generate profits from its own capital is not yet a primary factor determining the capital adequacy ratio. Changes in ROE during the study period did not significantly affect the CAR.

3. *Non-Performing Financing (NPF)* does not have a significant effect on *the Capital Adequacy Ratio (CAR)* of Sharia Commercial Banks for the 2021–2025 period.

Based on the partial test results, the probability value for NPF was $0.2455 > 0.05$. Although NPF has a negative relationship with CAR, the increase in non-performing financing has not yet placed significant pressure on capital adequacy because the bank still maintains a sufficiently strong capital base to manage financing risks.

4. Return on Assets (ROA), Return on Equity (ROE), and Non-Performing Financing (NPF) simultaneously have a significant effect on the Capital Adequacy Ratio (CAR) at Sharia Commercial Banks for the 2021–2025 period.

This is demonstrated by the F-test results, with a p-value of $0.000000 < 0.05$. Furthermore, the Adjusted R-Squared value of 0.949543 indicates that ROA, ROE, and NPF account for 94.95% of the CAR variation. Factors outside the research model influence the remaining 5.05%.

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