

The Effect of Green Banking and Capital Adequacy Ratio on Profit in State-Owned Banks Listed on the Indonesia Stock Exchange

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History of the article :

Accepted June 2025

Revised June 2025

Approved June 2025

Published June 2025

ABSTRACT

This study analyzes the impact of green banking and Capital Adequacy Ratio (CAR) on the profits of state-owned banks (BUMN) listed on the Indonesia Stock Exchange from 2014 to 2023. Key issues include the operational dependence of banks on electricity and paper, which hinders the significant impact of green banking on profits. Annual report data from the official bank websites were used, with a sample of 4 state-owned banks. The research method is descriptive quantitative with panel data regression analysis using Eviews 12 software. The results show that green banking does not significantly affect the profits of state-owned banks, while CAR has a significant impact due to compliance with Bank Indonesia's minimum capital adequacy regulation of 8%. Simultaneously, green banking and CAR significantly affect the profits of state-owned banks. The combination of effective green banking implementation and adequate CAR positively contributes to profit increases through operational cost savings, enhanced customer trust, and increased business activity and bank revenue.

Keywords: Green Banking; Capital Adequacy Ratio (CAR); Profits

INTRODUCTION

Organizations are currently required to behave ethically, not only pursuing profit, but also paying attention to the environment (planet) and society (people) for long-term sustainability (Handajani, 2019). Ethical banking attracts the attention of investors who are looking for productive investments that are environmentally friendly (Muhamat & Nizam, 2010). In Indonesia, state-owned banks have begun to adopt green banking practices to meet regulations and stakeholder expectations, as stipulated in PBI Number 14/15/PBI/2012 (Bisnis, 2017).

Based on a survey by the Katadata Insight Center (KIC), several banks have implemented green banking, such as BCA (25.7%), BRI (23.7%), BNI (12.6%), and Bank Mandiri (12.1%) (KIC, 2023). Green banking practices are important for sustainability,

where banks prioritize not only profitability but also social and environmental impact (Mustofa, 2020).

Green banking integrates environmental risk management in banking activities, including online services, green accounts, and green financing (Bai, 2011; Gupta, 2015). According to Nath, Nayak, and Goel, green banking indicators include Carbon Emission, Green Reward, Green Building, Reuse/Recycle/Refurbish, Paperless, and Green Investment.

Indonesia, as the 10th largest contributor of carbon emissions in the world, must reduce carbon emissions by up to 300 million tons within the next 6 years in accordance with the Net-Zero Pact (Environment, 2022). State-owned banks need to consider the impact of their investments on the environment in the context of reducing carbon emissions. A positive Capital Adequacy Ratio (CAR) correlates with profit growth, which allows banks to participate in green projects (Bahri, 2018).

During the 2014-2023 period, the ratio of capital adequacy to profit of state-owned banks fluctuated. CAR increased from 16.44% in 2014 to 22.18% in 2023, although it decreased in 2017 and 2020 due to global economic impacts (Bank Indonesia, 2023). Bank profits also showed an upward trend, from IDR 14,213,400 in 2014 to IDR 36,271,034 in 2023, although they declined in 2016 and 2020 due to the COVID-19 pandemic (State-Owned Banks, 2023).

Previous research has shown mixed results on the influence of green banking and CAR on profit growth. Nurmalia (2021) found that there was no significant influence between green banking and CAR with profit growth in Sharia Commercial Banks in Indonesia. On the other hand, Mahartini (2023) shows that green banking has a significant effect on profit growth at Bank Perkreditan Rakyat. Abraham & Iswandi (2021) found that CAR had a positive effect on profit growth but not significantly.

This study aims to examine the relationship between the implementation of green banking and CAR on profits in state-owned banks listed on the Indonesia Stock Exchange for the period 2014-2023, using the Green Coin Rating indicator. The research method used was descriptive with a quantitative approach and panel regression data analysis with Eviews 12 software.

METHOD

This study uses a quantitative approach in its descriptive method. According to Kasiram (2008), quantitative research analyzes information using numerical data. Descriptive research aims to describe or explain conditions, events, or objects related to variables that are explained through numbers or words (Setyosari, 2010).

The population in this study consists of 4 banks, which include all financial statements of state-owned banks that have implemented the concept of green banking during the 2014-2023 period, namely Bank BRI, BNI, BTN, and Mandiri.

The sampling technique in this study is a saturated sample where all members of the population are used as samples.

1. Data Analysis Techniques

This study analyzes the influence of green banking and CAR on profits in state-owned banks using quantitative analysis techniques. The data analysis technique in this study uses panel data regression using eviews software 12.

2. Descriptive Statistics

Descriptive statistics collects, summarizes, and presents data to provide useful information, including center size, distribution, and location of data such as mean and standard deviation.

3. Panel Data Regression Model

The study used panel data regression with Common Effect, Fixed Effect, and Random Effect approaches.

4. Classic Assumption Test

a. Normality Test: Checks whether the residual is normally distributed using the Jarque-Bera test..

b. Multicollinearity Test: Determine the linear relationship between independent variables with tolerance and VIF values.

5. Hypothesis Testing

a. T Test: Assesses the average difference between two groups of small samples with normal distribution.

b. F Test: Assesses the difference in the average of three or more groups of normally distributed samples with the same variant.

6. Coefficient of Determination

Adjusted R^2 shows how strongly the regression model explains the variation of the dependent variable, with a value close to 1 indicating stronger information than the independent variable

RESULTS AND DISCUSSION

Descriptive Statistical Results

Table I. Descriptive Statistical Test

	Green Banking	CAR	Laba
Minimum	0	14,64	Rp 209.263
Maximum	1	25,23	Rp 60.425.048
Mean	0,73	19,85	Rp 19.255.495
Std. Dev	0,25	2,27	Rp 15.707.198

Source : Various data, data processed by the author (2024)

Based on the results of the descriptive statistical test in the table above, it can be explained as follows:

1. Green Banking

The average value of green banking is 0.73 with a standard deviation of 0.25. The maximum value of green banking is 1 and the minimum value is 0. The highest green banking value was owned by BRI banks in 2019, 2020 and 2022, then BNI and BTN banks in 2021 and 2022, and Mandiri banks in 2023, while the lowest green banking value was owned by Bank BNI in 2014 and 2015.

2. CAR

The average CAR value is 19.85 with a standard deviation of 2.27. The maximum value of CAR is 25.23 and the minimum value is 14.64. The highest CAR

value is owned by BRI bank in 2023 while the lowest CAR value is owned by BTN bank in 2014.

3. Profit

The average profit value is IDR 19,255,495 with a standard deviation of IDR 15,707,198. The maximum profit value is IDR 60,425,048 and the minimum value is IDR 209,263. Bank BRI recorded the highest profit value in 2023, while bank BTN recorded the lowest profit value in 2019.

Model Selection Test Results

Chow Test

The Chow test is used to determine the best panel data regression model between the model produced with the common effect model approach and the model produced with the fixed effect model approach (Baltagi, 2005).

Effects Test	Statistic	d.f.	Prob.
Cross-section F	12.023922	(3,34)	0.0000
Cross-section Chi-square	28.926377	3	0.0000

Figure 7. Chow Test

Source : Processed by the author on Eviews 12

The probability value is $0.0000 < 0.005$, then the selected model is the Fixed effect model (FEM).

Hausman Test

The Hausman test is used to select the optimal panel data regression model between the model using the random effect approach and the model using the fixed effect approach.

Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Cross-section random	5.446971	2	0.0656

Figure 8. Hausman Test

Source : Processed by the author on Eviews 12

The probability value is $0.0656 > 0.005$, then the selected model is the Random effect model (REM).

Legrange Multiplier Test

The Lagrange Multiplier test is used to determine the best panel data regression model between the model generated with the random effect model approach and the model generated with the common effect model approach.

	Test Hypothesis		
	Cross-section	Time	Both
Breusch-Pagan	16.55271 (0.0000)	0.019743 (0.8883)	16.57245 (0.0000)

Figure. 9 Legrange Multiplier Test

Source : Processed by the author on Eviews 12

The probability value is $0.0000 < 0.005$, then the chosen model is the Random effect model (REM).

Berdasarkan hasil uji pemilihan model, maka *Random effect model* (REM) adalah model yang terbaik dalam penelitian ini.

Classical Assumption Test Results

Normality Test

The normality test is used to assess whether the data in the study follows the normal distribution or not. Nonetheless, the normality test is not a required requirement for BLUE (Best Linear Unbiased Estimator), so it is important to test it in the GLS (Generalized Least Squares) approach. (Prof. Mudrajad Kuncoro, 2005).

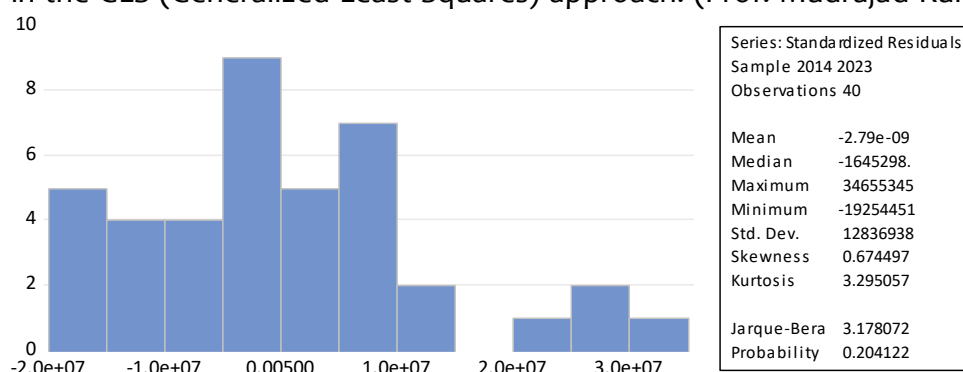


Figure 10. Normality Test

Source : Processed by the author on Eviews 12

Probability $0.204122 > 0.05$ means that normal data or data normality test assumptions have been met.

Multicollinearity Test

The Multicollinearity test aims to look at the correlation between independent

		X1	X2
variables	X1	1.000000	0.211284
	X2	0.211284	1.000000

Figure 11. Uji Multikoleniaritas

Source : Processed by the author on Eviews 12

The correlation coefficient between X1 and X2 is 0.211284, which is less than 0.85. Therefore, it can be concluded that no problem of multicollinearity or multicollinearity is declared non-existent (Napitupulu et al., 2021:141).

Hypothesis Test

Results of the t test

The t-test is performed to find out if there is a partial influence of independent variables on dependent variables.

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-33661138	16047469	-2.097598	0.0428
X1	8276301.	6122177.	1.351856	0.1846
X2	2364123.	819334.1	2.885420	0.0065

Figure 12. Uji t

Source : Processed by the author on Eviews 12

The influence of independent variables on partially dependent variables can be explained as follows:

- The t-test on the Green Banking variable showed a calculated t-value of 1.351856, which is smaller than the table t-value (2.024394164), and a significance value of 0.1846 greater than 0.05. Therefore, the alternative hypothesis (H_a) is rejected and the zero hypothesis (H_0) is accepted, which states that the Green Banking variable does not have a significant influence on the profits of state-owned banks.
- The t-test on the CAR variable showed a calculated t-value of 2.885420, which is greater than the table t-value (2.024394164), and a significance value of 0.0065 is smaller than 0.05. Thus, the alternative hypothesis (H_a) is accepted and the null hypothesis (H_0) is rejected, which suggests that the CAR variable has a significant effect on the profits of state-owned banks.

F Test

The F test was performed to find out whether all the independent variables used in the regression model together had an influence on the dependent variables.

F-statistic	6.208570
Prob(F-statistic)	0.004731

Figure 13. F Test

Source : Processed by the author on Eviews 12

The F-value of the calculation is 6.208570, which is greater than the F-value of the table (3.251923846), and the significance value of 0.004731 is less than 0.05. Therefore, the alternative hypothesis (H_a) is accepted and the null hypothesis (H_0) is rejected. This indicates that together, the Green Banking and CAR variables have a significant influence on the profits of state-owned banks.

Coefficient of Determination

The Determination Coefficient taken is the adjusted R^2 value used to measure how much the contribution of all independent variables to the dependent variables.

Adjusted R-squared	0.210800
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Figure 14. Determination Coefficient

Sumber : Diolah oleh penulis pada Eviews 12

Adjusted R-squared by 0.210800 or 21.08%. The value of this determination coefficient indicates that independent variables, consisting of Green Banking and CAR,

are able to explain as much as 21.08% of the variation in the profit variables of state-owned banks. The rest, which is 78.92%, is explained by other variables that are not included in this research model.

The Influence of Green Banking on the Profit of State-Owned Banks

Based on the results of the t-test on the Green Banking variable, a calculated t value of 1.351856 was obtained which was lower than the t table (2.024394164), and a significance value of 0.1846 which was greater than 0.05, then the alternative hypothesis (H_a) was rejected and the null hypothesis (H_0) was accepted. This shows that the Green Banking variable does not have a significant influence on the profits of state-owned banks in this study.

These findings indicate that the banking sector has not fully optimized the implementation of green banking, so it has not had a significant impact on bank profits. This is due to the bank's high operational dependence on electrical and paper energy. Although paper use has been reduced, it has not reached 100% optimal.

The results of this study do not support the findings of Mahartini (2023) which shows that green banking has a significant influence on profit growth. However, these results are in line with the findings of Nurmalia et al. (2021) who found that green banking does not have a significant influence on profits.

The Influence of CAR on the Profit of State-Owned Banks

Based on the results of the t-test on the CAR variable, a calculated t-value of 2.885420 was obtained, which is greater than the table t-value (2.024394164), with a significance value of 0.0065 which is smaller than 0.05. This shows that the alternative hypothesis (H_a) is accepted while the zero hypothesis (H_0) is rejected, which indicates that the CAR variable has a significant influence on the profits of state-owned banks. The compliance of state-owned banks with Bank Indonesia regulations by maintaining a capital adequacy ratio of at least 8% has helped the bank to remain healthy and increase profits.

These results contradict the findings of Novitasari (2015) research which showed that CAR has a negative influence that is not significant on profit growth. However, these results are consistent with the research of Anisah Lubis (2018) which found that CAR has a significant influence on profit growth.

CAR shows the bank's ability to maintain a sufficient amount of capital to absorb the risk of loss from its operational activities.

The Influence of Green Banking and CAR on the Profit of State-Owned Banks

Based on the results of the F test, the calculated F value of 6.208570 exceeded the F value of the table (3.251923846), with a significance value of 0.004731 which was lower than 0.05. This indicates that the alternative hypothesis (H_a) is accepted while the null hypothesis (H_0) is rejected. Therefore, it can be concluded that the variables of Green Banking and CAR together have a significant effect on the profits of state-owned banks.

The results of this study are consistent with the findings of Mahartini (2023) which shows that green banking has a significant influence on profit growth, as well as with the research of Anisah Lubis (2018) which found that CAR has a significant influence on profit.

However, these findings are not in line with Bahri's (2018) research which shows that CAR has an insignificant negative effect on profit growth. The implementation of green banking reflects the bank's commitment to environmentally friendly practices that can improve customer reputation and loyalty, while a good CAR shows the bank's financial health, increases customer and investor confidence, and the bank's ability to expand its business.

CONCLUSION

Based on the results of tests that have been carried out in the study on the Effect of Green Banking and the Capital Adequacy Ratio to Profit in State-Owned Banks Listed on the Indonesia Stock Exchange for the 2014-2023 Period, it can be concluded that:

1. Green Banking partially has no effect on the profits of state-owned banks. This is due to the high dependence of banks' operations on the use of electrical energy and the use of paper. Although there has been a reduction in the use of paper, these efforts have not reached the optimal level. On the other hand, the use of electrical energy is still the main need in the daily operations of banks.
2. Capital Adequacy Ratio (CAR) partially has a significant effect on the profits of state-owned banks. This is due to the state-owned banks' compliance with Bank Indonesia regulations which mandate each financial institution to maintain a capital adequacy ratio of at least 8%, thereby increasing customer and investor confidence in the bank and encouraging an increase in business activities and bank revenues, which ultimately contributes to increased profits.
3. Simultaneously, Green Banking and CAR have a significant effect on the profits of state-owned banks. This is because the combination of good green banking implementation and adequate CAR levels has contributed positively to increasing the profits of state-owned banks in Indonesia through savings in operational costs, increased customer confidence, and increased business activities and bank revenues.

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