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The Effect of Green Banking on Bank Profitability

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ABSTRACT

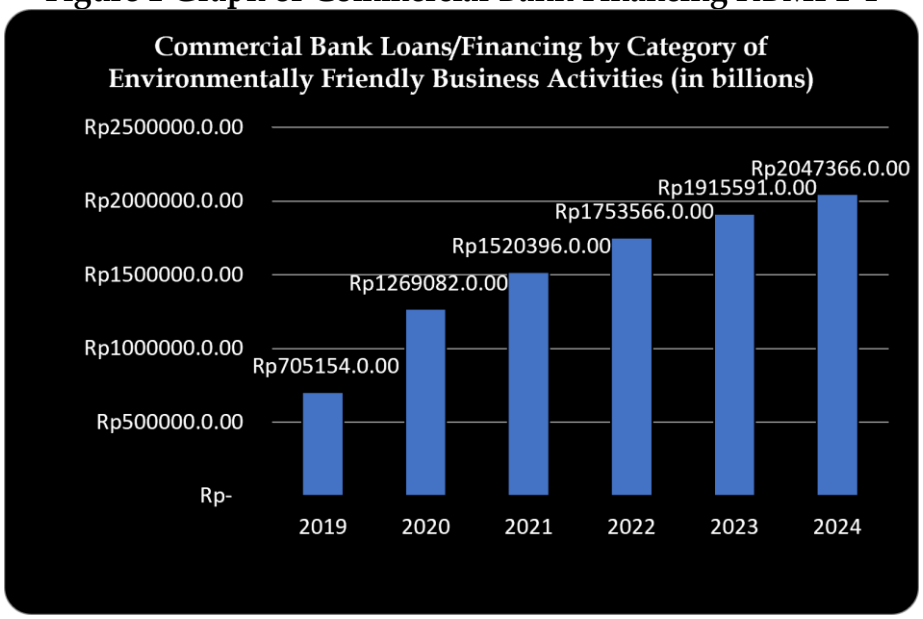
This study aims to examine the effect of green banking on bank profitability. The study employed quantitative methods with documentation techniques in collecting secondary data obtained from annual reports and corporate sustainability reports. The theoretical basis used in this study is stakeholder theory. The research sample consisted of 44 banks listed on the Indonesia Stock Exchange (IDX) with a total of 173 observations during the 2021-2024 period. Data analysis was conducted using panel data regression with the selected model, a fixed effect model (FEM), using Eviews 12. The results showed that the implementation of green banking, along with control variables, simultaneously affected profitability. However, partially, green banking did not show a significant effect on profitability. This finding indicates that the implementation of green banking has not been able to increase bank profitability because the practice has not been fully integrated into the main business strategy, which has a direct impact on financial performance, especially profitability. Furthermore, the benefits of implementing green banking tend to be indirect, such as an improved reputation among stakeholders, whose impact on profitability is more likely to be seen in the long term.

INTRODUCTION

Profitability can be defined as an accounting concept that describes an industry's ability to generate net income that exceeds costs during a specific period, as well as a characteristic of the banking sector in conducting its activities within the financial system (Sabnur et al., 2024). This ratio is one of the most effective parameters for evaluating a company's financial capability, as it reflects the company's efficiency in optimizing resources and bank operations to generate *profit* (Khotijah et al., 2025) . High profitability can attract investors to invest their funds in a particular industry (Siskawati & Suryono, 2022) . Therefore, profitability is crucial for every company, including those in the banking sector (Wijayani, 2023) . As part of efforts to maintain profitability, attention must be paid to factors that can influence profitability ratios, one of which is sustainability. Today, sustainability is not merely about regulatory compliance and reputation; it has become a key element that adds value for stakeholders (Cahyani & Permatasari, 2025) .

The growing attention to sustainability has made this issue increasingly important in the Indonesian economy, including within the banking industry. The banking sector's focus on the importance of sustainability through its environmental responsibility is illustrated, for example, in Figure 1, which shows an increase in bank financing based on categories of environmentally conscious business activities. The increase in commercial bank loans/financing by category of environmentally conscious business activities from 2019 to 2024 indicates that banks are beginning to direct their loan portfolios toward sectors that support sustainability.

Figure 1 Graph of Commercial Bank Financing KBMI 1-4



Data source: OJK (2025)

In line with this trend, as the financial services sector regulator, the OJK is implementing various measures to support the adoption of sustainable finance, one of which is through the Phase II Sustainable Finance Roadmap (2021–2025) as a continuation of the Phase I Sustainable Finance Roadmap (2015–2019). This roadmap was developed to accelerate the transition toward greater sustainability

in the financial sector. In Phase II of the Sustainable Finance Roadmap, there is hope that the adoption of sustainable finance will become *the "new* normal" for the financial services industry (OJK, 2020) .

The Phase II Sustainable Finance Roadmap (2021–2025), developed by the OJK(2020), outlines various policies to support the implementation of sustainable finance. One of its key aspects is the internalization of environmental, social, and governance (ESG) factors. This roadmap guides banks in adopting business strategies that go beyond merely pursuing short-term profits to also consider environmental aspects a key component of sustainability. One strategy deemed relevant to support this objective is the implementation *of green banking*.

Green banking represents a bank's efforts to incorporate environmentally conscious principles into its operational systems and services. *Green banking* encompasses various initiatives, such as financing environmentally friendly projects, minimizing the negative impact of bank operations on the environment, sound resource management, and the adoption of environmentally friendly technologies (Asmara & Nugraeni, 2024). The first regulation focusing on *green banking* practices in Indonesia is Bank Indonesia Regulation (PBI) No. 14/15/PBI/2012 regarding the Assessment of Commercial Bank Asset Quality. This regulation stipulates that national banks are required to consider and assess environmental aspects as a prerequisite for granting loans. (Bank Indonesia, 2012) .

Furthermore, there is OJK Regulation No. 51/POJK.03/2017 regarding the Implementation of Sustainable Finance for Financial Services Institutions, Issuers, and Public Companies. This regulation contains several guidelines for implementing sustainable finance, such as Priority Programs, Strategic Steps, Sustainable Finance Action Plans, Sustainability Reports, and Social and Environmental Responsibility Funds ( )(Otoritas Jasa Keuangan, 2017) . All of these regulations are designed to be followed by all Financial Services Institutions, Issuers, and Public Companies in order to achieve sustainable finance and foster a national economy that takes environmental, social, and economic aspects into account (Asfahaliza & Anggraeni, 2022) .

The implementation of these *green banking* principles has the potential to have varying impacts on a bank's profitability. The adoption of *green banking* can benefit the environment and influence a bank's profitability through several activities, such as reducing paper usage, *internet banking*, *SMS banking*, and ATMs (Anggraini & Muhammad Iqbal, 2022). Furthermore, *green banking* can build a positive reputation among shareholders and the public, as the industry will be perceived as caring and attentive to environmental concerns. This assertion is supported by Inegbedion's research(2024) , which found that *green banking* has a significant positive effect on bank profitability in Nigeria, with goodwill serving as a mediator between *green banking* and profitability through an enhanced bank image. However, the initial implementation of *green banking* typically involves substantial costs, such as those associated with developing environmentally friendly products, green technology, and human resource training (Yundari et al., 2025) . This is supported by a study by Karyani & Obrien(2020) , which shows that *green banking* practices have a negative impact on the profitability of banks

participating in *green banking* pilot projects and listed on the green investment index in Indonesia. The contradictory findings of previous studies indicate that the relationship between green banking and bank profitability remains inconclusive. Moreover, although several studies have examined this relationship, empirical evidence focusing on Indonesian listed banks during the recent period of sustainable finance implementation remains limited. Differences in institutional settings, measurement approaches, and observation periods may contribute to the inconsistent findings.

Therefore, this study seeks to fill this gap by examining the effect of green banking on the profitability of banks listed on the Indonesia Stock Exchange during 2021–2024.

The correlation between the implementation *of green banking* and bank profitability can be explained through the perspective *of stakeholder theory*. *Stakeholder theory* views organizations and their environment as mutually influential relationships (Subroto & Endaryati, 2024). This theory states that profit is a consequence of a bank's ability to maintain relationships and meet the interests of its *stakeholders*. In this study, *green banking* is viewed as one of the strategies banks employ to address *stakeholders'* interests regarding environmental issues that have the potential to influence bank profitability.

The research sample consists of all banks listed on the Indonesia Stock Exchange (IDX), totaling 44 banks. The study period covers 2021–2024, selected because it coincides with the implementation of Phase II of the Sustainable Finance Roadmap (2021–2025). Based on the data collection process, a total of 173 observations meeting the research criteria were obtained. The fact that the number of observations did not reach 176 indicates that the research data constitutes an unbalanced panel, as some banks lacked complete data for the entire observation period.

Based on this description, the researcher aims to test the impact *of green banking* on bank profitability, particularly for banks listed on the Indonesia Stock Exchange (IDX) that have complete and accessible data throughout the study period. It is hoped that this study can provide empirical evidence regarding the impact of *green banking* on bank profitability in Indonesia, especially during the implementation phase of the Phase II Sustainable Finance Roadmap.

LITERATURE REVIEW

Stakeholder Theory

Quoting from Subroto & Endaryati(2024), *Stakeholder Theory* is a capitalist perspective that emphasizes the interdependent relationships between businesses, consumers, suppliers, employees, investors, communities, and other interested parties within an organization. In this study, *stakeholder theory* serves as the foundation for addressing the interests of *stakeholders*. *Green banking*, classified as a banking strategy aimed at meeting *stakeholders'* expectations regarding environmental issues, plays a crucial role in maintaining the bank's relationships with its *stakeholders* which in turn has the potential to influence profitability.

Green Banking

Green banking can be interpreted as banking that operates based on the principles of sustainability. *Green banking* asserts that banks must not only focus on conducting business to maximize *profits* but must also take responsibility for maintaining the balance of nature (Mustika et al., 2023). As one of the financial institutions that support national development, banks need to monitor the environmental impacts caused by their operations (Dong & Akhtar, 2022). Therefore, it is important for banks to incorporate *green banking* practices into their operations, structure, investments, and financing plans (Jain & Sharma, 2023).

Profitability

Profitability is a useful parameter for assessing a company's financial health (Taufiq et al., 2025). An industry's ability to manage its resources and operations to generate profits can be demonstrated by its profitability ratios (Khotijah et al., 2025) . The results of profitability measurements can be used as a reference by management in evaluating industry performance and by shareholders and regulators as input in considering decisions related to the company.

Previous Research and Hypothesis Development

Several previous studies have shown that the adoption *of green banking* impacts bank profitability, albeit in different ways. Inegbedion(2024) found that *green banking* measured by a bank's commitment to funding companies that invest in social initiatives, environmental awareness, and sustainability has a positive effect on bank profitability in Nigeria, with *goodwill* mediating the correlation between *green banking* and profitability through an enhanced image of banks committed to *green banking*. These results are supported by the study by Sanjaya & Larissa(2025), which found that *green banking* has a positive impact on profitability. Furthermore, the study by Putri et al.(2022) which examined the number of ATMs and CSR funds found that the number of ATMs had no significant impact on profitability, while CSR funds had a positive impact on profitability.

Related research was also conducted by Al-kubaisi & Khalaf(2023) , in which *green banking* proxied by *the availability of online banking* (AOOB) and *the availability of mobile applications* (AOMA) revealed that AOOB did not have a significant impact on profitability, whereas AOMA had a negative effect on profitability. These results indicate that the implementation *of green banking* through the availability of mobile applications can reduce profitability if it is not offset by the volume of transactions conducted via those applications. Consistent with this, Karyani & Obrien(2020) also found that *green banking* practices have a negative impact on the profitability of publicly held banks, reinforcing the negative effect of *green banking* practices on profitability.

Overall, previous studies indicate that the effect of green banking on profitability remains inconclusive. Positive findings suggest that green banking enhances reputation and stakeholder confidence, thereby improving financial performance. Conversely, negative findings argue that the substantial investment required for green initiatives may reduce short-term profitability, while several studies report insignificant effects depending on the proxies used.

These inconsistent findings indicate that the relationship between green banking and profitability remains open for further investigation.

Based on stakeholder theory, banks that actively implement green banking demonstrate their commitment to addressing stakeholders' environmental concerns. Such commitment may strengthen stakeholder trust, enhance corporate reputation, improve customer loyalty, and attract investors, all of which can contribute to better financial performance. However, empirical evidence from previous studies remains inconsistent regarding the relationship between green banking and profitability, implying that the effectiveness of green banking may depend on both the institutional context and the implementation process. Therefore, stakeholder theory provides a theoretical rationale that green banking is expected to influence bank profitability, although the direction and magnitude of this relationship require further empirical examination. Accordingly, the following hypothesis is proposed:

H_1: *Green banking* affects profitability

RESEARCH METHODS

Research Types and Samples

This study adopts a quantitative research design to investigate the relationship between green banking and bank profitability. The study utilizes secondary data collected through documentation techniques from annual reports and sustainability reports available on the official websites of the respective companies and the Indonesia Stock Exchange (IDX). The research sample comprises all banks listed on the Indonesia Stock Exchange (IDX) during the 2021–2024 period, consisting of a total of 44 banks. The sample was limited to banks with complete and accessible data as required, resulting in 173 observations.

Operational Definitions of Variabeles

Variable	Proxy	Measurement
Profitability	Profitability reflects a company's ability to generate profits. ROA, from asset management (Tristanti & Aisyaturrahmi, 2023) ROE, from equity management (Unver-erbas & Yilmaz-ozekenci, 2025) ROAA, from average asset management (O'Connell, 2023)	ROA $= \frac{Net\ Income}{Total\ Assets}$ ROE $= \frac{Net\ Income}{Total\ Equity}$ ROAA $= \frac{Net\ Income}{Average\ Total\ Assets}$
Green Banking	Green banking refers to the disclosure of a bank's green activities Indicator from (Sanjaya & Larissa, 2025)	GB $= \frac{Number\ of\ Green\ Banking\ Disclosures}{Total\ Green\ Banking\ Indicators}$

Company Size	Company size reflects the size of a company, which is usually measured based on the logarithm of total assets. (Khusnah & Kirana, 2023)	SIZE = Ln(Total Assets)
Capital Adequacy Ratio	CAR is a capital adequacy ratio that reflects a bank's capacity to withstand future risks. (Oktavionita et al., 2022)	CAR = $\frac{Bank\ Capital}{ATMR}$
Bank Age	*Bank Age* indicates how long the bank has been in operation. (Nur Iman et al., 2022)	*Bank Age* = Year of Study – Year the Bank Was Established

Source: Data Processed by the Author (2026)

Data Analysis Techniques

The data analysis technique in this study began with descriptive statistical tests to describe the characteristics of the panel data on banks in Indonesia for the 2021–2024 period using the mean, median, maximum, minimum, and standard deviation. Next, a reliability test was conducted using Cohen's Kappa to measure the consistency of the measurement instruments, as well as a correlation test using Pearson's Product-Moment or Spearman's Rank correlation, depending on the data distribution. The main analysis employed panel data regression using the Common Effect Model (CEM), Fixed Effect Model (FEM), and Random Effect Model (REM), with the selection of the best model determined through the Chow test, Hausman test, and Lagrange Multiplier test. Once the best model was identified, classical assumption tests were conducted, including tests for normality (Jarque-Bera), multicollinearity (Variance Inflation Factor/VIF), heteroscedasticity (Glejser), and autocorrelation (Durbin-Watson). Next, a panel data regression analysis was conducted to test the effect of green banking on profitability while controlling for the control variables. This was followed by an F-test to examine the simultaneous effects of the independent variables, a t-test to examine partial effects, and a Coefficient of Determination (Adjusted R^2) test to measure the model's ability to explain the variation in the dependent variable.

RESULTS

Descriptive Statistical Test

This analysis was conducted to present all the variables that were the subject of the study. The following are the results of the analysis:

Table 1 Result of Descriptive Statistical Test

	ROA	ROE	ROAA	GB	SIZE	CAR	AGE
Mean	0.008762	0.047257	0.009296	0.633361	31.56795	0.443906	48.97688
Median	0.008788	0.042439	0.009099	0.619048	30.95792	0.291368	49.00000
Maximum	0.084093	0.211653	0.089638	0.952381	35.42552	3.905047	111.0000
Minimum	-0.180577	-1.239267	-0.135720	0.285714	28.40720	0.104952	23.00000
Std. Dev.	0.023753	0.125325	0.023635	0.125903	1.719361	0.450957	18.68059
Skewness	-3.242627	-6.494014	-1.982887	0.216127	0.478240	4.282506	0.819066
Kurtosis	27.55623	66.18658	14.56784	2.802227	2.266751	27.28478	3.528203
Jarque-Bera	4649.858	29995.55	1077.950	1.628782	10.47017	4779.917	21.35450
Probability	0.000000	0.000000	0.000000	0.442909	0.005326	0.000000	0.000023
Sum	1.515790	8.175502	1.608224	109.5714	5461.255	76.79579	8473.000
Sum Sq. Dev.	0.097046	2.701473	0.096082	2.726462	508.4666	34.97836	60021.91
Observations	173	173	173	173	173	173	173

Source: Eviews 12 output, 2026

Table 1 presents the descriptive statistics for all variables. The dataset comprises 173 observations. The profitability variables (ROA, ROE, and ROAA) exhibit substantial variation across banks, reflecting differences in financial performance during the observation period. The average Green Banking Disclosure Index is 0.633, suggesting that banks disclosed approximately two-thirds of the green banking indicators used in this study. In addition, the variation in SIZE, CAR, and AGE indicates that the sample represents banks with heterogeneous characteristics, supporting the suitability of the data for panel regression analysis.

Reliability Analysis

Reliability testing is useful for determining whether a measurement parameter can be trusted to produce the same results when administered by different people. A high reliability value indicates that the measurement parameter is more reliable across raters. The following are the results of the reliability test using Cohen's Kappa:

Coder 1 and Coder 2

Table 2 Results of Cohen's Kappa Test 1

		Value	Asymptotic Standard Error[a]	Approximate T[b]	Approximate Significance
Measure of Agreement	Kappa	.815	.032	15.391	.000
N of Valid Cases		357			

Source: SPSS 26 output, 2026

Referring to the test results in Table 2, it can be seen that the inter-coder reliability value for Coders 1 and 2 is 0.815. A value of 0.815 in the Cohen's Kappa test falls into the "almost perfect" category.

Coder 1 and Coder 3

Table 3 Results of Cohen's Kappa Test 2

		Value	Asymptotic Standard Error[a]	Approximate T[b]	Approximate Significance
Measure of Agreement	Kappa	.776	.035	14.830	.000
N of Valid Cases		357			

Source: SPSS 26 Output, 2026

Referring to the test results in Table 3, it shows that the inter-coder reliability for Coders 1 and 3 is 0.776. A value of 0.776 in Cohen's kappa test falls into the substantial category.

Correlation Analysis

Correlation tests are useful for analyzing the relationship between independent and dependent variables. The highest possible correlation value is +1, and the lowest is -1. Conversely, a value close to 0 indicates a weak or insignificant correlation. The following presents the results of the correlation test using *Spearman's rank correlation* method:

ROA

Table 4 Results of the Spearman Test for ROA

Correlation Probability	GB	SIZE	CAR	AGE	ROA
GB	1.000000				

SIZE	0.684389	1.000000			
	0.0000	-----			
CAR	-0.399922	-0.715361	1.000000		
	0.0000	0.0000	-----		
AGE	0.323668	0.447239	-0.165197	1.000000	
	0.0000	0.0000	0.0299	-----	
ROA	0.348745	0.387735	-0.010638	0.356556	1.000000
	0.0000	0.0000	0.8895	0.0000	-----

Source: Eviews 12 output, 2026

As presented in Table 4, Green Banking (GB) is significantly and positively correlated with ROA, indicating a positive association between the two variables. However, the correlation is relatively weak, suggesting that the strength of their relationship is limited. Similarly, SIZE and AGE are positively associated with ROA, whereas CAR does not exhibit a significant association.

ROE

Table 5 Results of the Spearman Test for ROE

Correlation Probability	GB	SIZE	CAR	AGE	ROE
GB	1.000000				

SIZE	0.684389	1.000000			
	0.0000	-----			
CAR	-0.399922	-0.715361	1.000000		
	0.0000	0.0000	-----		
AGE	0.323668	0.447239	-0.165197	1.000000	
	0.0000	0.0000	0.0299	-----	
ROE	0.501826	0.653793	-0.352835	0.389082	1.000000
	0.0000	0.0000	0.0000	0.0000	-----

Source: Eviews 12 output, 2026

As presented in Table 5, Green Banking (GB) is significantly and positively associated with ROE, indicating a moderate positive relationship between the two variables. Among the control variables, SIZE also shows a significant positive association with ROE and exhibits the strongest correlation among the variables. In contrast, CAR is significantly but negatively associated with ROE, whereas AGE demonstrates a significant positive association with ROE.

ROAA

Table 6 Results of the Spearman Test for ROAA

Correlation Probability	GB	SIZE	CAR	AGE	ROAA
GB	1.000000 -----				
SIZE	0.684389 0.0000	1.000000 -----			
CAR	-0.399922 0.0000	-0.715361 0.0000	1.000000 -----		
AGE	0.323668 0.0000	0.447239 0.0000	-0.165197 0.0299	1.000000 -----	
ROAA	0.339663 0.0000	0.378675 0.0000	-0.004828 0.9497	0.343897 0.0000	1.000000 -----

Source: Eviews 12 output, 2026

As presented in Table 6, Green Banking (GB) is significantly and positively associated with ROAA, indicating a weak positive relationship between the two variables. Similarly, SIZE and AGE exhibit significant positive associations with ROAA, although the strength of these relationships ranges from weak to moderate. In contrast, CAR does not show a significant association with ROAA.

Panel Data Regression Model Selection Analysis

Chow Test

The Chow test is useful for determining the most appropriate model between *the common effects model* and *the fixed effects model*. If *the p-value for the cross-section chi-square test* is > 0.05, the *common effects model* is accepted. Conversely, when *the p-value for the cross-section chi-square test* is < 0.05, the *fixed-effects model* is accepted.

ROA

Table 7 Results of the ROA Chow Test

Redundant Fixed Effects Tests Equation: Untitled Test cross-section fixed effects			
Effects Test	Statistic	d.f.	Prob.
Cross-section F	4.508103	(43,125)	0.0000
Cross-section Chi-square	161.997560	43	0.0000

Source: Eviews 12 output, 2026

Referring to the results of the Chow test presented in Table 7, *the cross-section chi-square p-value* for the model using ROA as the dependent variable is 0.0000, which is < 0.05. This indicates that *the Fixed Effects Model* is the most appropriate estimation method to apply.

ROE

Table 8 Results of the ROE Chow Test

Redundant Fixed Effects Tests Equation: Untitled Test cross-section fixed effects			
Effects Test	Statistic	d.f.	Prob.
Cross-section F	2.256997	(43,125)	0.0003
Cross-section Chi-square	99.404536	43	0.0000

Source: Eviews 12 output, 2026

Referring to the results of the Chow test presented in Table 8, *the cross-section chi-square p-value* for the model using ROE as the dependent variable is 0.0000, which is < 0.05. This indicates that *the Fixed Effects Model* is the most appropriate estimation method to apply.

ROAA

Table 9 Results of the Chow Test for ROAA

Redundant Fixed Effects Tests
Equation: Untitled
Test cross-section fixed effects

Effects Test	Statistic	d.f.	Prob.
Cross-section F	6.314105	(43,125)	0.0000
Cross-section Chi-square	199.707515	43	0.0000

Source: Eviews 12 output, 2026

Referring to the results of the Chow test presented in Table 9, *the cross-section chi-square p-value* for the model using ROAA as the dependent variable is 0.0000, which is < 0.05. This indicates that *the Fixed Effects Model* is the most appropriate estimation method to apply.

Hausman Test

The Hausman test is conducted to determine which model is the best fit: *the Fixed Effects Model* or *the Random Effects Model*. When *the p-value for the cross-section random effect* is greater than 0.05, the *Random Effects Model* is accepted. However, when *the p-value for the cross-sectional random effect* is less than 0.05, the *Fixed Effects Model* is accepted.

ROA

Table 10 Results of the Hausman Test for ROA

Correlated Random Effects - Hausman Test
Equation: Untitled
Test cross-section random effects

Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Cross-section random	21.459133	4	0.0003

Source: Eviews 12 output, 2026

Referring to the results of the Hausman test in Table 10, *the p-value* for *the cross-section random* test for the model with the dependent variable calculated using ROA is 0.0003, which is < 0.05. This indicates that the *Fixed Effects Model* is the most appropriate estimation method to apply.

ROE

Table 11 Results of the Hausman Test for ROE

Correlated Random Effects - Hausman Test
Equation: Untitled
Test cross-section random effects

Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Cross-section random	18.986933	4	0.0008

Source: Eviews 12 output, 2026

Referring to the results of the Hausman test in Table 11, *the p-value* for the *cross-section random* test for the model with the dependent variable calculated using ROE is 0.0008, which is < 0.05. This indicates that *the Fixed Effects Model* is the most appropriate estimation method to apply.

ROAA

Table 1 Results of the Hausman Test for ROAA

Correlated Random Effects - Hausman Test
Equation: Untitled
Test cross-section random effects

Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Cross-section random	21.643846	4	0.0002

Source: Eviews 12 output, 2026

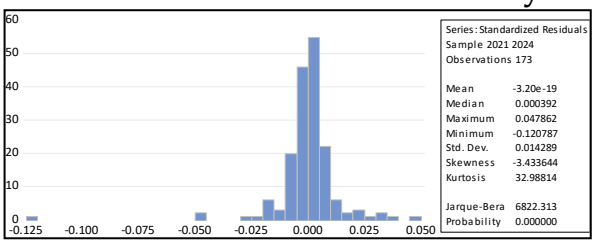
Referring to the results of the Hausman test in Table 12, *the p-value* for the *cross-section random* test for the model with the dependent variable calculated using ROAA is 0.0002, which is < 0.05. This indicates that *the Fixed Effects Model* is the most appropriate estimation method to apply.

Analysis of Classical Assumptions

Normality Test

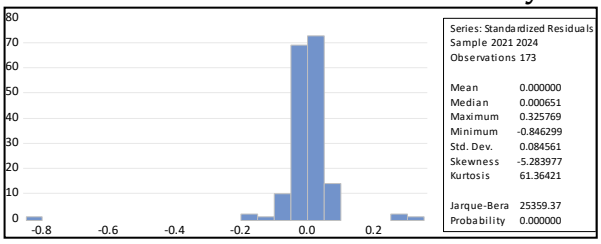
The normality test was conducted to determine whether the residual values are normally distributed. This study used the *Jarque-Bera* test to verify that the data are normally distributed, as evidenced by *a p-value* > 0.05.

Table 2 Results of the ROA Normality Test



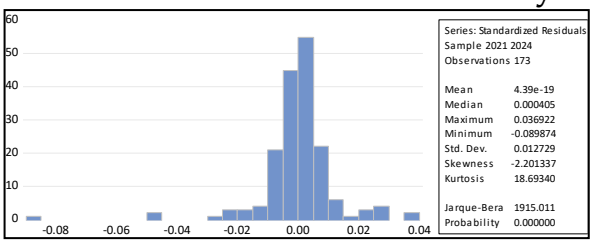
Source: Eviews 12 output, 2026

Table 3 Results of the ROE Normality Test



Source: Eviews 12 output, 2026

Table 4 Results of the ROAA Normality Test



Source: Eviews 12 output, 2026

The normality test results (Tables 13–15) indicate that the residuals of the ROA, ROE, and ROAA models are not normally distributed. Nevertheless, this does not affect the validity of the regression analysis because the selected estimation method is the Fixed Effects Model (FEM) using OLS, for which residual normality is not a prerequisite for obtaining the Best Linear Unbiased

Estimator (BLUE) (Napitupulu et al., 2021). Therefore, the violation of the normality assumption is not considered problematic in this study.

Multicollinearity Test

Multicollinearity tests are useful for confirming the presence of correlations among independent variables, which can interfere with the relationship between the independent and dependent variables. A model is considered free of multicollinearity when the VIF value is < 10.

Table 5 Results of the Multicollinearity Test

Variable	Coefficient Variance	Uncentered VIF	Centered VIF
C	0.121887	75055.69	NA
GB	0.000748	186.3178	1.621880
SIZE	0.000149	91443.15	2.554054
CAR	4.24E-05	6.748158	1.606564
AGE	2.55E-06	3765.570	1.949916

Source: Eviews 12 output, 2026

Referring to the test results presented in Table 16, the Centered VIF values for all independent variables are not greater than 10. This indicates that there is no evidence of multicollinearity in the model.

Heteroscedasticity Test

The heteroscedasticity test is useful for determining whether there are differences in residual variance across observations. This study used the Glejser test to ensure that the model did not exhibit signs of heteroscedasticity, as evidenced by *a p-value* for the test greater than 0.05.

Table 6 Results of the ROA Heteroscedasticity Test

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-0.216825	0.166455	-1.301406	0.1955
GB	-0.002849	0.013037	-0.218566	0.8273
SIZE	0.009344	0.005820	1.605477	0.1109
CAR	0.001702	0.003104	0.548275	0.5845
AGE	-0.001426	0.000761	-1.873450	0.0633

Source: Eviews 12 output, 2026

Table 7 Results of the ROE Heteroscedasticity Test

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-1.699144	0.982762	-1.728946	0.0863
GB	-0.049465	0.076972	-0.642638	0.5216
SIZE	0.074313	0.034362	2.162648	0.0325
CAR	0.008796	0.018324	0.480008	0.6321
AGE	-0.011878	0.004493	-2.643512	0.0093

Source: Eviews 12 output, 2026

Table 8 Results of the ROAA Heteroscedasticity Test

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-0.228693	0.139848	-1.635297	0.1045
GB	-0.002386	0.010953	-0.217877	0.8279
SIZE	0.009629	0.004890	1.969288	0.0511
CAR	0.002223	0.002607	0.852370	0.3956
AGE	-0.001379	0.000639	-2.157012	0.0329

Source: Eviews 12 output, 2026

The heteroscedasticity test results (Tables 17–19) indicate different conditions across the three profitability models. The ROA model does not exhibit heteroscedasticity, suggesting that the homoscedasticity assumption is satisfied. In contrast, the ROE and ROAA models show evidence of heteroscedasticity.

According to Napitupulu et al.(2021) , this issue can be addressed using the Huber-White technique when estimating the model.

Autocorrelation Test

The autocorrelation test is useful for determining whether there is a correlation between the residuals in year t and the residuals in the previous year (t-1). The test method used is the Dubin-Watson test, which states that if dU < d < 4-dU, the model is considered free of autocorrelation.

ROA

Table 20 Results of the ROA Autocorrelation Test

R-squared	0.638128	Mean dependent var	0.008762
Adjusted R-squared	0.502064	S.D. dependent var	0.023753
S.E. of regression	0.016761	Akaike info criterion	-5.109539
Sum squared resid	0.035118	Schwarz criterion	-4.234637
Log likelihood	489.9751	Hannan-Quinn criter.	-4.754596
F-statistic	4.689920	Durbin-Watson stat	1.825945
Prob(F-statistic)	0.000000		

Source: Eviews 12 output, 2026

Given:

dL = 1.7042

4 – dL = 2.2958

dU = 1.7988

4 – dU = 2.2012

d = 1.825945

Referring to the autocorrelation test results in Table 20, it shows that 1.7988 < 1.825945 < 2.2012 (dU < d < 4–dU), which means that the model does not exhibit autocorrelation.

ROE

Table 9 Results of the ROE Autocorrelation Test

R-squared	0.544730	Mean dependent var	0.047257
Adjusted R-squared	0.373548	S.D. dependent var	0.125325
S.E. of regression	0.099193	Akaike info criterion	-1.553568
Sum squared resid	1.229901	Schwarz criterion	-0.678666
Log likelihood	182.3836	Hannan-Quinn criter.	-1.198625
F-statistic	3.182171	Durbin-Watson stat	1.851481
Prob(F-statistic)	0.000000		

Source: Eviews 12 output, 2026

Given:

dL = 1.7042

4 – dL = 2.2958

dU = 1.7988

4 – dU = 2.2012

d = 1.851481

Referring to the autocorrelation test results in Table 21, we see that 1.7988 < 1.851481 < 2.2012 (dU < d < 4 – dU), which means that the model does not exhibit autocorrelation.

ROAA

Table 10 Results of the ROAA Autocorrelation Test

R-squared	0.709938	Mean dependent var	0.009296
Adjusted R-squared	0.600875	S.D. dependent var	0.023635
S.E. of regression	0.014932	Akaike info criterion	-5.340715
Sum squared resid	0.027870	Schwarz criterion	-4.465813
Log likelihood	509.9718	Hannan-Quinn criter.	-4.985773
F-statistic	6.509427	Durbin-Watson stat	1.732092
Prob(F-statistic)	0.000000		

Source: Eviews 12 output, 2026

Given:
dL = 1.7042
4 – dL = 2.2958
dU = 1.7988
4 – dU = 2.2012
d = 1.732092

Referring to the autocorrelation test results in Table 22, we see that 1.7042 < 1.732092 < 1.7988 (dL < d < dU), which means that the model exhibits autocorrelation. However, in panel data, autocorrelation is not really a problem, given that the autocorrelation test is actually intended for *time series* data. In panel data using the selected FEM model, the autocorrelation test is not a primary consideration; therefore, the assumption of no autocorrelation can be disregarded (Napitupulu et al., 2021).

Panel Data Regression Analysis

The simultaneous test (F-test) is conducted to evaluate the joint effect of all independent variables on the dependent variable. The independent variables are considered to have a simultaneous effect on the dependent variable when the resulting p-value is less than 0.05.

The partial test (t-test) is performed to assess the individual effect of each independent variable on the dependent variable. An independent variable is regarded as having a partial effect on the dependent variable if its p-value is below 0.05.

The coefficient of determination test is employed to evaluate the regression model's capability to explain the dependent variable, with the coefficient ranging from $0 \leq R^2 \leq 1$. A higher R^2 value indicates that the independent variables provide greater explanatory power for variations in the dependent variable.

ROA

Table 11 Results of the ROA Regression Test

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.952620	0.349124	2.728603	0.0073
GB	0.004747	0.027344	0.173611	0.8625
SIZE	-0.040656	0.012207	-3.330501	0.0011
CAR	-0.010794	0.006509	-1.658196	0.0998
AGE	0.006969	0.001596	4.366137	0.0000
Effects Specification				
Cross-section fixed (dummy variables)				
R-squared	0.638128	Mean dependent var		0.008762
Adjusted R-squared	0.502064	S.D. dependent var		0.023753
S.E. of regression	0.016761	Akaike info criterion		-5.109539
Sum squared resid	0.035118	Schwarz criterion		-4.234637
Log likelihood	489.9751	Hannan-Quinn criter.		-4.754596
F-statistic	4.689920	Durbin-Watson stat		1.825945
Prob(F-statistic)	0.000000			

Source: Eviews 12 output, 2026

Referring to the results presented in Table 23, the results of the panel data regression test for the dependent variable when measured using ROA are as follows:

$$\mathbf{ROA = 0.952620 + 0.004747\ GB - 0.040656\ SIZE - 0.010794\ CAR + 0.006969\ AGE + \varepsilon_{it}}$$

The estimated coefficients indicate that Green Banking (GB) has a positive coefficient, indicating a positive relationship with ROA. Similarly, AGE shows a positive coefficient, while SIZE and CAR have negative coefficients, indicating an inverse relationship with ROA.

The F-test indicates that the regression model is statistically significant, indicating that Green Banking, along with the control variables, jointly explain the variation in ROA.

The partial regression results reveal that Green Banking does not have a statistically significant effect on ROA. While the control variables, SIZE and AGE, significantly influence ROA, CAR does not show a significant effect.

The Adjusted R-squared value of 0.502064 indicates that approximately 50.2% of the variation in ROA can be explained by Green Banking and the control variables included in the model, while the remaining 49.8% is due to other factors outside the model.

ROE

Table 12 Results of the ROE Regression Test

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	5.801497	3.778868	1.535247	0.1273
GB	0.013958	0.127828	0.109191	0.9132
SIZE	-0.237911	0.147206	-1.616180	0.1086
CAR	-0.055176	0.034281	-1.609529	0.1100
AGE	0.036176	0.018310	1.975733	0.0504
Effects Specification				
Cross-section fixed (dummy variables)				
R-squared	0.544730	Mean dependent var		0.047257
Adjusted R-squared	0.373548	S.D. dependent var		0.125325
S.E. of regression	0.099193	Akaike info criterion		-1.553568
Sum squared resid	1.229901	Schwarz criterion		-0.678666
Log likelihood	182.3836	Hannan-Quinn criter.		-1.198625
F-statistic	3.182171	Durbin-Watson stat		1.851481
Prob(F-statistic)	0.000000			

Source: Eviews 12 output, 2026

Referring to the results presented in Table 24, the results of the panel data regression test for the dependent variable measured using ROE are as follows:

$$\mathbf{ROE = 5.801497 + 0.013958\ GB - 0.237911\ SIZE - 0.055176\ CAR + 0.036176\ AGE + \varepsilon_{it}}$$

The estimated coefficients indicate that Green Banking and AGE have positive coefficients, whereas SIZE and CAR have negative coefficients, suggesting different directions of association with ROE.

The F-test indicates that the regression model is statistically significant, implying that Green Banking and the control variables jointly explain variations in ROE.

The partial regression results indicate that neither Green Banking nor the control variables have a statistically significant effect on ROE.

The Adjusted R-squared value of 0.373548 indicates that approximately 37.35% of the variation in ROE is explained by Green Banking and the control variables, while the remaining 62.65% is explained by factors outside the regression model.

ROAA

Table 13 Results of the ROAA Regression Test

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.841427	0.473039	1.778767	0.0777
GB	0.001132	0.018893	0.059906	0.9523
SIZE	-0.035980	0.018228	-1.973913	0.0506
CAR	-0.015162	0.007828	-1.936986	0.0550
AGE	0.006323	0.002353	2.687454	0.0082
Effects Specification				
Cross-section fixed (dummy variables)				
R-squared	0.709938	Mean dependent var		0.009296
Adjusted R-squared	0.600875	S.D. dependent var		0.023635
S.E. of regression	0.014932	Akaike info criterion		-5.340715
Sum squared resid	0.027870	Schwarz criterion		-4.465813
Log likelihood	509.9718	Hannan-Quinn criter.		-4.985773
F-statistic	6.509427	Durbin-Watson stat		1.732092
Prob(F-statistic)	0.000000			

Source: Eviews 12 output, 2026

Referring to the test results in Table 25, the output of the panel data regression test for the dependent variable measured using ROAA is:

ROAA = 0.841427+0.001132 GB – 0.018228 SIZE – 0.007828 CAR+0.002353 AGE+ε_{it}

The estimated coefficients indicate that Green Banking and AGE have positive coefficients, while SIZE and CAR have negative coefficients, suggesting different directions of association with ROAA.

The F-test indicates that the regression model is statistically significant, implying that Green Banking together with the control variables jointly explains variations in ROAA.

The partial regression results reveal that Green Banking, SIZE, and CAR do not significantly affect ROAA. AGE is the only control variable that has a statistically significant effect on ROAA.

The Adjusted R-squared value of 0.600875 indicates that approximately 60.09% of the variation in ROAA can be explained by Green Banking and the control variables included in the model, whereas the remaining 39.91% is explained by other factors outside the model.

DISCUSSION

This study examined the effect of green banking on profitability, using ROA as the primary profitability measure and ROE and ROAA as robustness checks. The findings consistently indicate that green banking does not significantly affect profitability across all three profitability measures. The consistency of these results suggests that the absence of a significant relationship is robust and does not depend on the profitability proxy employed. Therefore, the proposed hypothesis (H1) is not supported.

These findings indicate that the implementation *of green banking* has not yet influenced profitability. These results remain consistent when using ROE and ROAA as alternative measures of profitability. The lack of an impact from *green banking* implementation on profitability may be due to banks not yet fully integrating *green banking* into their business strategies in a way that directly affects profitability (Siahaan et al., 2025) . Various factors such as the high

administrative costs associated with Environmental Impact Assessment (EIA) documents, the high risks of green financing, and the complexity of green credit procedures coupled with unclear fiscal incentives explain why banks have shown little interest in making a green portfolio one of the key applications of *green banking* a core component of their business strategy (Kayana et al., 2025) .

Although regulators have sought to promote the implementation of sustainable finance through various regulations and roadmaps, the reality is that the process of adopting *green banking* still faces obstacles and requires time to be effectively integrated into banks' strategies or business models. Furthermore, the effectiveness of *green banking* practices themselves typically manifests gradually and requires a longer period to accumulate into profitability, so their impact cannot yet be observed in the short term (Fikriyah & Ningtyas, 2026).

Referring to *stakeholder theory* as articulated by R. Edward Freeman, *profit* is the result of a company's success in meeting the demands of its *stakeholders* (Narbel & Muff, 2017) . *Green banking* is one of the business strategies banks employ to address *stakeholder* interests, particularly regarding environmental and sustainability issues. The research findings indicate that *green banking* has not yet had a significant impact on profitability. This finding does not mean that *stakeholder theory* is invalid; rather, it suggests that the economic benefits of addressing *stakeholder* interests through *green banking* have not yet been fully realized during the study's observation period. In other words, the impact of *green banking* on profitability likely involves *a time lag*, meaning its financial benefits may only become apparent in the long term. Furthermore, according to Al Qudsy et al.(2025), by implementing *green banking*, banks can demonstrate their environmental responsibility, enhance their reputation, and drive long-term financial growth. This implies that meeting *stakeholder* interests through the implementation *of green banking* tends to be indirect and may only affect profitability when viewed over the long term.

Theoretically, these findings extend Stakeholder Theory by suggesting that stakeholder-oriented environmental strategies do not necessarily produce immediate financial outcomes. Instead, the benefits of green banking may materialize gradually as banks strengthen stakeholder relationships and build organizational legitimacy. Accordingly, the effectiveness of green banking should be evaluated from a long-term strategic perspective rather than solely through short-term accounting performance.

From a managerial perspective, the findings indicate that bank managers should integrate green banking into long-term corporate strategies rather than treating it merely as a regulatory compliance initiative. Investments in environmentally friendly technologies, sustainable financing, and green innovation require time before generating financial returns. Therefore, banks should focus on strengthening operational capabilities and stakeholder engagement to maximize the long-term benefits of green banking implementation.

The results of this study are consistent with the research by Muchiri et al.(2025) , Fikriyah & Ningtyas(2026) , and Friyanto & Haritsar(2023) , which concluded that *green banking* has no significant impact on profitability. The

sample studied in those research projects included sharia-based banks owned by local governments and conventional banks listed on the Indonesia Stock Exchange (BEI). These consistent findings suggest that the financial benefits of *green banking* may require a longer implementation period before becoming observable. However, these findings are inconsistent with the research by Sanjaya & Larissa(2025) and Karyani & Obrien(2020) . Both studies found that *green banking* has a significant effect on profitability, although the direction of the effect differed. Sanjaya & Larissa(2025) found a positive effect, while Karyani & Obrien(2020) found a negative effect on profitability. These differences indicate that the financial consequences of green banking remain context-dependent and may vary according to the institutional environment, banking characteristics, measurement of green banking practices and the research period.

CONLUSION

Based on the test findings and the discussion outlined above, it was concluded that the implementation *of green banking* had no effect on bank profitability during the 2021–2024 study period. This may be because *green banking* has not yet been fully adopted into banks' core business strategies, which are focused on profitability. Although supported by regulators through regulations and roadmaps, the implementation of *green banking* still faces obstacles and requires time to be effectively integrated into banks' strategies or business models. Furthermore, the benefits of *green banking* tend to be indirect and more long-term in nature, such as through enhanced reputation and *stakeholder* trust. Therefore, although banks have implemented *green banking* as a means of fulfilling their responsibilities toward *stakeholders*, this has not yet succeeded in impacting profitability in the short term.

RECOMENDATION

Based on the findings of this study, several recommendations are proposed. For banking practitioners, green banking should be integrated more comprehensively into banks' core business strategies rather than being implemented primarily as a regulatory compliance initiative. Banks are encouraged to expand productive green financing portfolios, develop innovative environmentally friendly financial products, and establish performance indicators to evaluate the financial outcomes of green banking initiatives. In addition, improving operational efficiency and optimizing investments in green technologies may help ensure that the implementation costs of green banking do not outweigh its potential financial benefits.

For regulators, stronger policy support is needed to encourage the effective implementation of green banking. This support may include providing clearer fiscal incentives, developing standardized guidelines for green banking implementation and sustainability disclosure, simplifying green financing procedures, and strengthening monitoring mechanisms to encourage banks to integrate environmental sustainability into their long-term business strategies.

For future research, a longer observation period is recommended to better capture the long-term financial impact of green banking implementation. Future

studies may also expand the research scope by including banks from different sectors or countries, incorporating additional explanatory variables, or examining mediating and moderating variables that may explain the relationship between green banking and profitability. Furthermore, the use of primary data collected through interviews or questionnaires may provide deeper insights into the implementation of green banking beyond information disclosed in annual and sustainability reports.

LIMITATION

This study has several limitations that should be considered when interpreting its findings. First, the observation period is limited to 2021–2024, which may not be sufficient to capture the long-term financial impact of green banking implementation. Therefore, the findings should be interpreted within the context of short-term implementation and may not fully reflect the long-term relationship between green banking and profitability.

Second, green banking was measured using content analysis based on annual reports and sustainability reports. Although this approach enables systematic assessment of corporate disclosures, it involves a degree of subjectivity in interpreting disclosure quality and may not fully reflect the actual implementation of green banking practices.

Third, the relatively homogeneous level of green banking disclosure among the sampled banks may have limited the variation in the Green Banking Disclosure Index (GBDI), thereby reducing the ability of the regression model to detect statistically significant relationships. Consequently, the findings may not be fully generalizable to banking industries with different levels of green banking implementation.

Finally, this study focuses only on the direct effect of green banking on profitability. Other factors that may mediate or moderate this relationship, such as corporate reputation, operational efficiency, customer trust, or environmental performance, were not included in the analysis. Therefore, the findings should be interpreted within the scope of the variables examined in this study.

REFERENCES

Al-kubaisi, M. K., & Khalaf, B. A. (2023). Does Green Banking Affect Banks' Profitability ? *Journal of Governance and Regulation*, *12*(4), 157–164. https://doi.org/10.22495/jgrv12i4art15

Al Qudsy, N., Haryadi, I., & Prasetyo, B. (2025). Green Banking Disclosure Index: Unlocking Profitability Potentital In Indonesia's Islamic Commercial Banking. *El Barka: Journal of Islamic Economics and Business*, *7*(1), 116–140.

Anggraini, S., & Muhammad Iqbal, F. (2022). Analisis Pengaruh Green Banking Terhadap Profitabilitas Bank Umum Syariah Indonesia. *Journal of Business Management and Islamic Banking*, *1*(1), 73–88. https://doi.org/10.14421/jbmib.2022.011-05

Asfahaliza, A., & Anggraeni, P. (2022). Pengaruh Penerapan Green Banking Terhadap Profitabilitas Perbankan Di Indonesia Periode 2016-2021. *Contemporary Studies In Economic, Finance, and Banking*, *1*(2), 298–311.

Asmara, M. Y. C., & Nugraeni. (2024). Pengaruh Green Banking Dan Efisiensi Biaya Operasional Terhadap Profitabilitas Perbankan Di Indonesia. *Jurnal Ekonomi Pembangunan*, *6*(3), 571–579.

Bank Indonesia. (2012). PBI no 14/15 tahun 2012. *Bank Indonesia*.

Cahyani, S. R., & Permatasari, I. (2025). Integrated Report Disclosure in ESG Index Companies on the Indonesia Stock Exchange : Its Impact on the Cost of Equity Capital. *Journal of Management, Accounting, General Finance and International Economic Issues*, 767–775.

Dong, X., & Akhtar, N. (2022). Nexus Between Financial Development, Renewable Energy Investment, and Sustainable Development: Role of Technical Innovations and Industrial Structure. *Frontiers in Psychology*, *13*(August), 1–20. https://doi.org/10.3389/fpsyg.2022.951162

Fikriyah, A., & Ningtyas, T. (2026). Assessing the effect of green disclosure on profitability and firm value in Indonesian Islamic banks. *Discover Sustainability*.

Friyanto, & Haritsar, Y. (2023). Influence of Green Banking and Financial Performance Implementation to Profitability Levels in Conventional Banking Financial Companies Listed On the Indonesian Stock Exchange Period 2020. *Journal of Business Management and Economic Development*, *2*(01), 311–322. https://doi.org/10.59653/jbmed.v2i01.499

Inegbedion, H. (2024). Green banking and profitability of banks in Nigeria: Opinions and attitudes. *Heliyon*, *10*(14), e34303. https://doi.org/10.1016/j.heliyon.2024.e34303

Jain, P., & Sharma, B. (2023). Impact of Green Banking Practices on Sustainable Environmental Performance and Profitability of Private Sector Banks. *International Journal of Social Ecology and Sustainable Development*, *14*(1), 1–19. https://doi.org/10.4018/IJSESD.330135

Karyani, E., & Obrien, V. V. (2020). Green Banking and Performance : The Role of Foreign and Public Ownership. *Jurnal Dinamika Akuntansi Dan Bisnis*, *7*(2), 221–234.

Kayana, N. Z., Inayati, N. I., Wibowo, H., & Dirgantari, N. (2025). Green Banking, Good Corporate Governance Dan Firm Size : Dampaknya Terhadap Profitabilitas Perbankan (2019-2023). *Jurnal Ilmiah Manajemen, Ekonomi, & Akuntansi (MEA)*, *9*(3), 342–364. https://doi.org/10.31955/mea.v9i3.6245

Khotijah, F. S., Fitri, N., Inayah, N. P., & Kusumaningsih, A. (2025). Pengaruh Profitabilitas , Good Corporate Governance , UKURAN Perusahaan Terhadap Kinerja Keuangan Pada Sektor Perusahaan Healthcare. *Jurnal Akuntansi Kompetif*, *8*(2).

Khusnah, H., & Kirana, O. P. (2023). Pengaruh Penerapan Green Accounting, Corporate Social Responsibility, dan Ukuran Perusahaan terhadap Kinerja Keuangan. *Jurnal Akuntansi AKUNESA*, *11*(3), 232–241. https://doi.org/10.26740/akunesa.v11n3.p232-241

Muchiri, M. K., Fekete-Farkas, M., & Erdei-Gally, S. K. (2025). How Do Green Banking Practices Impact Banks' Profitability? A Meta-Analysis. *Journal of Risk and Financial Management*, *18*(6), 1–15. https://doi.org/10.3390/jrfm18060320

Mustika, S. N., Kristianingsih, K., Tripuspitorini, F. A., & Djuwarsa, T. (2023). Analisis Pengaruh Penerapan Green Banking dan Efisiensi Biaya Operasional terhadap Profitabilitas Bank Umum Syariah di Indonesia. *Journal of Applied Islamic Economics and Finance*, *3*(2), 436–443. https://doi.org/10.35313/jaief.v3i2.3861

Napitupulu, R. B., Simanjuntak, T. P., Hutabarat, L., Domanik, H., Harianja, H., Sirati, R. T. M., & Ria, C. E. (2021). *Penelitian Bisnis Teknik dan Analisis Data dengan SPSS-STATA-EVIEWS* (1st ed.). Madenatera. https://www.scribd.com/document/726261507/Penelitian-Bisnis-Dengan-SPSS-STATA-Dan-Eviews-1

Narbel, F., & Muff, K. (2017). Should the Evolution of Stakeholder Theory Be Discontinued Given Its Limitations ? *Science Research Publishing*, 1357–1381. https://doi.org/10.4236/tel.2017.75092

Nur Iman, A., Sukmana, R., Shifa Ghifara, A., & Kusuma Wardhana, A. (2022). The Effect of Zakat Collection, Company Age, and Company's Total Assets on Financial Performance of Sharia Banking in Indonesia 2019-2020. *Economic Education and Entrepreneurship Journal*, *5*(2), 217–224. https://doi.org/10.23960/e3j/v5i2.217-224

O'Connell, M. (2023). Bank-specific, industry-specific and macroeconomic determinants of bank profitability: evidence from the UK. *Studies in Economics and Finance*, *40*(1), 155–174. https://doi.org/10.1108/SEF-10-2021-0413

OJK. (2020). Roadmap Keuangan Berkelanjutan Tahap II (2021 – 2025). *Sustainable Finance Roadmap Phase II (2021 - 2025)*, 105–114.

OJK. (2025). Statistik Instrumen Keuangan Berkelanjutan Indonesia. *Otoritas Jasa Keuangan*, 1-2JAj. https://www.ojk.go.id/...

Oktavionita, C. B., Azizah, S. N., Fakhruddin, I., & Wibowo, H. (2022). Ukuran Perusahaan, Kecukupan Modal, Risiko, Dan Stabilitas Keuangan Bank Syariah Di Indonesia. *Jurnal Akademi Akuntansi*, *5*(1), 1–15. https://doi.org/10.22219/jaa.v5i1.19003

Otoritas Jasa Keuangan. (2017). Financial Services Authority Regulation. *Otoritas Jasa Keuangan*, 1–15.

Putri, P. I., K, N. R., Rahmayani, D., & Suryawan, M. E. (2022). The Effect of Green Banking and Financial Performance on Banking Profitability. *General Management*, *23*(191), 38–44. https://doi.org/10.47750/QAS/23.191.05

Sabnur, A. A., Mus, R., & Alam, S. (2024). Faktor-Faktor yang Mempengaruhi Profitabilitas Bank (Pada Bank yangTerdaftar Di BEI Periode 2018-2022). *SEIKO : Journal of Management & Business*, *7*(2), 754–765. www.idx.co.id

Sanjaya, I. P. S., & Larissa, Y. N. (2025). Relationship Between Green Banking Disclosures and Accounting-based Performance: Financial and Operational Performance. *Review of Integrative Business and Economics Research*, *14*(3), 352–368.

Siahaan, N. R., Hutabarat, F., & Siregar, L. S. (2025). Pengaruh Green Banking dan Biaya Operasional Terhadap Profitabilitas Pada Bank di BEI Tahun 2019-2023. *JEMSI : Jurnal Ekonomi, Manajemen, Dan Akuntansi*, *11*(6), 5187–5197.

Siskawati, D. N., & Suryono, B. (2022). Pengaruh Profitabilitas, Struktur Aktiva, dan Growth Opportunity Terhadap Struktur Modal. *Jurnal Ilmu Dan Riset Akuntansi*, *11*(1), 11(1).

Subroto, V., & Endaryati, E. (2024). *Kumpulan Teori Akuntansi* (I. Yunianto (ed.)). Yayasan Prima Agus Teknik.

Taufiq, A. R., Srijani, N., Aisyah, S., & Widura, W. (2025). Profitability, Earnings Management, and Corporate Social Responsibility in Environmental Accounting Moderates Good Corporate Governance. *AKRUAL : Jurnal Akuntansi*, *17*(1), 111–125. https://doi.org/10.26740/jaj.v17n1.p.111-125

Tristanti, I. A., & Aisyaturrahmi. (2023). Studi Pengaruh Kinerja Keuangan Terhadap Tax Avoidance. *Accounting and Management Journal*, *7*, 65–83.

Unver-erbas, C., & Yilmaz-ozekenci, S. (2025). The Determinants of Bank Profitability: A study of the Turkish Banking Sector. *Croatian Economic Association*.

Wijayani, D. I. L. (2023). Faktor-Faktor yang Mempengaruhi Profitabilitas Bank: Studi pada Perbankan Swasta di Indonesia. *Owner Riset & Jurnal Akuntansi*, *7*(1), 563–575. https://doi.org/10.33395/owner.v7i1.1223

Yundari, K. S., Purnamasari, F., & Syarif, A. H. (2025). The Effect of Green Banking Implementation and Operating Cost Efficiency On Financial Performance At Islamic Comercial Banks In Indonesia For The 2019-2023 Period. *PROFIT : Jurnal Kajian Ekonomi Dan Perbankan Syariah*, *9*(1), 129–144.