ISSN : 2962-9195 E-ISSN : 2963-8992

Journal of Educational Management Research
Vol. 05 No. 03 (2026) : 2389-2406
Available online at https://serambi.org/index.php/jemr

The Effect of Green Finance and Corporate Social Responsibility on Profitability with Capital Adequacy Ratio as A Moderating Variable

Evi Safitri*, Helma Malini, Ana Fitriana, Wendy, Anggraini Syahputri
Universitas Tanjungpura, Indonesia
Email : evsftr@gmail.com

DOI: https://doi.org/10.61987/jemr.v5i3.2039

Keywords:
Green Finance; Profitability; Capital Adequacy Ratio

**Corresponding Author*

ABSTRACT

This study aims to analyze the effect of green finance and corporate social responsibility (CSR) on profitability and to examine the moderating role of the capital adequacy ratio (CAR). This research employs a quantitative approach using panel data regression analysis. The data used are secondary data obtained from the annual financial reports of banking companies over a five-year observation period. The sample consists of 16 banking companies with a total of 80 observations. The analytical model applied in this study is the Common Effect Model (CEM). The results show that green finance has a positive and significant effect on profitability, indicating that sustainable financial practices can enhance financial performance. In contrast, CSR does not have a significant effect on profitability. Furthermore, the moderation analysis reveals that CAR strengthens the relationship between green finance and profitability but does not moderate the relationship between CSR and profitability. These findings imply that the implementation of green finance plays an important role in improving banking profitability, particularly when supported by adequate capital strength. This study contributes to the development of the sustainable finance literature and provides insights for financial institutions in formulating strategic financial policies.

Article History:
Received: December 2025; Revised: January 2025; Accepted: February 2026

Please cite this article in APA style as:
Safitri, E., Malini, H., Fitriana, A., Wendy, & Syahputri, A. (2026). Responsibility on Profitability with Capital Adequacy Ratio as A Moderating Variable. *Journal of Educational Management Research, 5*(3), 2389-2406.

INTRODUCTION

Climate change has become one of the most pressing global challenges affecting economic and environmental systems. The impacts of climate change extend to various sectors, including production activities, land use, water availability, and socio-economic stability. Rapid economic development often prioritizes growth and profitability, while environmental sustainability receives less attention. As a result, economic expansion frequently occurs at the expense

This journal is an open-access article under a CC BY-NC-SA 4.0 license. © 2026, the author(s)

of ecological balance. Previous studies emphasize that climate change creates long-term risks for both economic stability and environmental resilience (Wang & Yan, 2023). At the same time, global economies face increasing financial demands to mitigate environmental degradation and support sustainable development initiatives (Hasanah & Hariyono, 2022). These conditions highlight the importance of integrating sustainability principles into economic activities. Therefore, companies and financial institutions are increasingly encouraged to adopt sustainability practices that balance economic growth with environmental and social responsibilities.

Ideally, financial institutions should play a strategic role in promoting sustainable economic development through environmentally responsible financing. However, in practice, many financial systems still prioritize short-term profitability over long-term environmental sustainability. This gap between the ideal role of financial institutions and the existing practices highlights the need for regulatory intervention. In Indonesia, the government has attempted to bridge this gap by introducing policies that encourage sustainable finance implementation. One of the key regulations is the Financial Services Authority regulation on sustainable finance, which requires financial institutions to integrate sustainability principles into their operations and reporting mechanisms. In addition, the introduction of the Green Taxonomy helps financial institutions identify and support environmentally sustainable projects (Suhardjo et al., 2024). These regulatory initiatives aim to align financial activities with national climate goals. Consequently, the banking sector is expected to expand green financing activities and strengthen corporate social responsibility practices.

Green finance, corporate social responsibility (CSR), and capital adequacy represent key mechanisms through which banks can support sustainable development while maintaining financial performance. Green finance refers to financial systems that provide funding for environmentally friendly projects through loans, investments, or other financial instruments (Nasrun, 2025). This concept is widely recognized as a financial solution to address environmental challenges and support sustainability initiatives. In addition, CSR reflects a company's commitment to addressing the social and environmental impacts of its operations. CSR activities may initially increase operational costs, but they can enhance corporate reputation and public trust, which may ultimately improve financial outcomes. Meanwhile, the Capital Adequacy Ratio (CAR) represents the bank's ability to maintain sufficient capital to cover potential risks and support productive assets (Budiarta et al., 2022). Therefore, these variables are theoretically interconnected in influencing banking profitability.

Several empirical studies have examined the relationship between sustainability practices and financial performance in the banking sector. Research conducted by Kurniawan et al. (2025), and Mustika et al. (2023) found that the implementation of green finance does not necessarily increase corporate profitability because the initial costs associated with sustainable financing can be relatively high. Similarly, Afifah et al. (2023) reported that green finance may even have a negative effect on profitability in certain contexts. These findings suggest that sustainability initiatives can impose financial pressures during the early stages of implementation. In addition, investments in environmentally friendly projects often require longer payback periods compared to conventional financing. As a result, banks may experience short-term profitability challenges when implementing green finance strategies. Nevertheless, these studies also indicate that sustainability practices remain important for long-term institutional resilience.

Contrary to the findings mentioned earlier, several studies indicate that sustainability practices may positively influence financial performance. Prametya (2025) found that the implementation of green banking policies has a positive and significant effect on bank profitability. Likewise, Nova Angela et al. (2024) reported that green accounting practices contribute positively to profitability. In terms of CSR, studies by Musfirati et al. (2021) demonstrate that CSR activities can enhance corporate profitability by strengthening corporate reputation and stakeholder trust. However, other studies report different results. Bartholomew et al. (2024) found that CSR has no significant effect on profitability. Similarly, the relationship between CAR and profitability also shows inconsistent findings (Putri & Yana, 2024). These inconsistent results indicate a clear research gap that requires further investigation.

The banking sector plays a critical role in supporting sustainable development through financial intermediation and investment decisions. As the primary provider of financing for economic activities, banks have the capacity to influence environmental and social outcomes through their lending policies. In recent years, banks have increasingly expanded financing for environmentally friendly projects while simultaneously implementing CSR programs to strengthen their institutional reputation. Despite these developments, the financial implications of sustainability initiatives remain uncertain. The allocation of funds for green projects and social programs requires substantial resources and may influence financial stability and profitability. At the same time, banks must maintain adequate capital reserves to ensure operational resilience and risk management. These conditions create an important question regarding how sustainability initiatives interact with capital adequacy and financial performance in the banking industry.

Based on the issues discussed above, it is necessary to conduct empirical research that examines the relationship between sustainability practices and banking profitability. This study focuses on analyzing the influence of green finance and corporate social responsibility on bank profitability while considering the moderating role of capital adequacy. Understanding these relationships is important because sustainability initiatives require financial commitment, which may affect bank performance in both the short and long term. Furthermore, adequate capital resources may strengthen a bank's ability to implement sustainability programs effectively. Therefore, this study aims to analyze the effect of green finance and CSR on profitability with the Capital Adequacy Ratio as a moderating variable. To achieve this objective, this research employs a quantitative approach using statistical analysis to examine the relationships and causal effects among the variables.

Literature Review

Green Finance

Green finance refers to financial activities that allocate funds to environmentally sustainable projects and support long-term ecological goals. This concept aims to create a financial ecosystem that aligns economic development with environmental protection and sustainable growth (Wang & Yan, 2023). In the banking sector, green finance can improve operational performance while fulfilling social responsibilities by financing environmentally friendly projects (Zhang & Zhang, 2024). Banks play a strategic role in supporting green finance implementation through sustainable lending practices such as green credit. In this study, green finance is measured using the Green Coin Rating (GCR) based on the approach proposed by Ningsi et al. (2025). GCR is used to assess the level of commitment and implementation of sustainable financing in the banking sector. The measurement consists of six indicators reflecting environmental policies, financing practices, and innovation in sustainable finance. The GCR score is calculated as follows (Ningsi et al., 2025):

Corporate Social Responsibility

Corporate Social Responsibility (CSR) refers to a company's obligation to consider the social and environmental impacts of its operations beyond merely pursuing shareholder interests. CSR emphasizes the moral and social responsibility of companies toward all stakeholders affected by their activities (Syafis, 2022). Although CSR initiatives may reduce short-term profits due to additional operational costs, they can enhance corporate reputation, community loyalty, and long-term profitability. In this study, CSR is measured using the Global Reporting Initiative (GRI) Index, which evaluates CSR disclosure in

sustainability reports (Mihai & Aleca, 2023). The GRI framework includes universal, economic, environmental, and social indicators used to assess corporate responsibility practices.

Capital Adequacy Ratio

Capital Adequacy Ratio (CAR) is a key indicator used to measure the capital strength and financial stability of banks (Budiarta et al., 2022). Adequate capital enables banks to absorb potential losses arising from credit risk and the management of productive assets. A higher CAR indicates stronger financial resilience and a greater ability to manage operational risks. According to Budiarta et al. (2022), banks are expected to maintain a minimum CAR level of 8% to ensure that potential losses can be covered by available capital.

Profitability

Profitability reflects a company's ability to generate profits from its assets and operational activities. In the banking sector, profitability is commonly used to evaluate how efficiently banks manage their assets to generate earnings (Sutiman et al., 2024). Achieving optimal profitability requires banks to implement effective operational strategies while maintaining long-term sustainability and competitiveness in a dynamic economic environment (Suryani & Herawaty, 2024). This study measures profitability using Return on Assets (ROA), which indicates the bank's ability to generate net income from its total assets.

Hypothesis Development

The Effect of Green Finance on Profitability

Stakeholder Theory suggests that companies must create value for all stakeholders because organizational sustainability depends on their support (Mahajan et al., 2023). In the banking context, implementing green finance represents a strategic response to stakeholder expectations regarding environmental responsibility and sustainable development. Stakeholder participation and the integration of social responsibility functions within corporate governance structures can improve the effectiveness of sustainability initiatives. Empirical research by Ningsi et al. (2025) found that green finance positively affects profitability. Furthermore, green finance can enhance corporate reputation and strengthen public trust in sustainable financial practices (Kurniawan et al., 2025). Consequently, increased green finance activities may strengthen stakeholder confidence and contribute positively to bank profitability.

H1: Green finance has a positive effect on profitability.

The Effect of Corporate Social Responsibility on Profitability

Legitimacy theory explains that companies seek to align their operations with societal norms and expectations in order to gain public acceptance and maintain long-term sustainability. CSR disclosure serves as a strategic mechanism to build legitimacy and strengthen relationships with stakeholders. Contemporary research also highlights CSR as an important instrument for increasing public trust and aligning corporate practices with evolving social expectations (Ayu Septiana, 2025). Empirical studies show that extensive CSR disclosure increases investor confidence and enhances corporate attractiveness. Other studies also report that CSR has a positive influence on profitability and return on assets (Dewi & Wiyono, 2023). Firms with stronger financial performance are generally able to maximize the positive impact of CSR activities on firm value (Maghfirah Zainal et al., 2024). Therefore, CSR implementation is expected to improve corporate profitability.

H2: CSR has a positive effect on profitability.

The Moderating Role of Capital Adequacy Ratio in the Relationship between Green Finance and Profitability

According to the Buffer Theory of Capital, higher capital adequacy allows banks to expand lending activities while maintaining financial stability. Banks with strong capital buffers are better positioned to finance long-term projects, including environmentally sustainable investments that may involve higher risks. Consequently, banks with higher CAR are more capable of implementing green finance strategies effectively, which can enhance profitability. Empirical studies support this perspective. Meliza et al. (2024) found that CAR moderates the relationship between liquidity risk and profitability. Similarly, Sasongko and Yusnita (2023) show that CAR strengthens the influence of financial indicators on return on assets. These findings suggest that capital adequacy may strengthen the positive impact of green finance on bank profitability.

H3: Capital Adequacy Ratio strengthens the relationship between green finance and profitability.

The Moderating Role of Capital Adequacy Ratio in the Relationship between CSR and Profitability

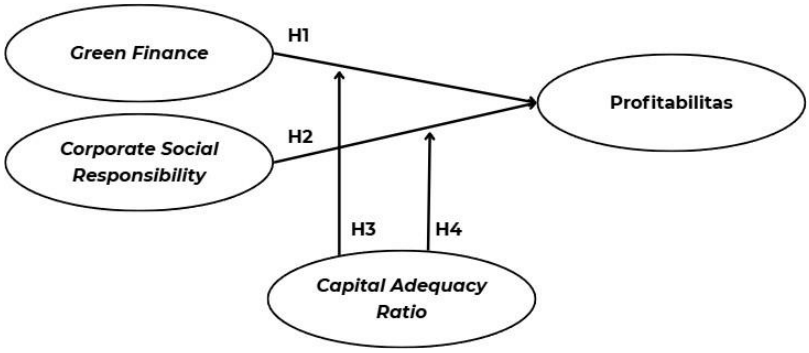
From the perspective of the Buffer Theory of Capital, adequate capital enables banks to allocate resources to non-financial activities such as CSR programs without compromising operational stability. Banks with higher CAR can implement CSR initiatives more consistently, thereby increasing reputational benefits and customer trust, which may ultimately improve profitability. Conversely, banks with limited capital may face constraints in funding CSR

activities. Previous studies indicate that CAR plays an important role in improving bank performance and return on assets (Laitupa & Christianty, 2023). Additionally, technological financial risks can influence bank capital quality and highlight the relationship between sustainability initiatives and capital strength (Basmar, 2023). Therefore, CAR is expected to strengthen the relationship between CSR implementation and profitability.

H4: Capital Adequacy Ratio strengthens the relationship between CSR and profitability.

Conceptual framework

Based on description in on, framework study arranged as following:



Picture 2. Framework Conceptual

RESEARCH METHODS

This study employs a quantitative research design with an associative approach to examine the relationships among variables. A quantitative approach is appropriate because the study uses numerical data analyzed statistically to test hypotheses and identify causal relationships among variables. The research focuses on banking companies listed on the Indonesia Stock Exchange (IDX), which represent institutions that comply with standardized financial reporting and transparency requirements. The Indonesian banking sector was selected as the research setting because banks play a strategic role in implementing sustainable finance and green financing initiatives. Moreover, the availability of publicly disclosed financial statements and sustainability reports allows for reliable and systematic measurement of the research variables. The analysis covers the 2020–2024 period, which was chosen to ensure consistent data availability and to capture recent developments related to sustainable finance practices in the banking industry.

The population of this study consists of all banking companies listed on

the Indonesia Stock Exchange. According to Sugiyono, a population refers to a generalization area consisting of objects or subjects with certain characteristics determined by the researcher to be studied and concluded. Sample selection was conducted using purposive sampling, a technique that selects samples based on specific criteria relevant to the research objectives. The criteria include banks that publish sustainability reports and provide complete data on green finance, CSR, Return on Assets (ROA), and Capital Adequacy Ratio (CAR). Based on these criteria, 16 banking companies were selected as the research sample, producing 80 observations during the five-year period. The sample selection process is presented in Table 1, while the list of sampled banks is shown in Table 2.

Table 1. Sample Selection Criteria

No	Sample Selection Criteria	Total
1	Banking companies listed on the IDX during 2020–2024	45
2	Banks that publish sustainability reports	29
3	Banks providing data on green finance, CSR, ROA, and CAR	16
4	Banks meeting all purposive sampling criteria	16
	Total Observations	**(16 × 5 = 80)**

Source: Data processed from various sources, 2026

Table 2. Bank Codes and Company Names

Bank Code	Company Name
AGRO	Bank Raya Indonesia Tbk.
ARTO	Bank Jago Tbk.
BABP	Bank MNC Internasional Tbk.
BBCA	Bank Central Asia Tbk.
BBMD	Bank Mestika Dharma Tbk.
BBNI	Bank Negara Indonesia (Persero) Tbk.
BBRI	Bank Rakyat Indonesia (Persero) Tbk.
BBTN	Bank Tabungan Negara (Persero) Tbk.
BDMN	Bank Danamon Indonesia Tbk.
BGTG	Bank Ganesha Tbk.
BMRI	Bank Mandiri (Persero) Tbk.
BNGA	Bank CIMB Niaga Tbk.
BNII	Bank Maybank Indonesia Tbk.
BTPN	Bank SMBC Indonesia Tbk.
MEGA	Bank Mega Tbk.
NISP	Bank OCBC NISP Tbk.

Source: Data processed from various sources, 2026

The study uses secondary data obtained from annual financial reports and sustainability reports of banks during the 2020–2024 period. These documents were collected from the official websites of each bank and the official website of the Indonesia Stock Exchange (www.idx.co.id). Data analysis was conducted using panel data regression with Moderated Regression Analysis (MRA)

processed using EViews software. Panel data combines cross-sectional and time-series data, allowing researchers to capture richer information, control unobserved heterogeneity, and obtain more efficient and consistent estimations (Basuki, 2021). The regression models used in this study are as follows:

$$ROA_{it} = \alpha + \beta_1 GF_{it} + \beta_2 CSR_{it} + \varepsilon_{it}$$

$$ROA_{it} = \alpha + \beta_1 GF_{it} + \beta_2 CSR_{it} + \beta_3 CAR_{it} + \beta_4 (GF \times CAR)_{it} + \beta_5 (CSR \times CAR)_{it} + \varepsilon_{it}$$

The analysis procedure begins with descriptive statistics to provide an overview of the research data. Model selection tests are then performed using the Chow test (Common Effect vs. Fixed Effect), the Hausman test (Fixed Effect vs. Random Effect), and the Lagrange Multiplier test (Random Effect vs. Common Effect). After determining the most appropriate model, classical assumption tests including heteroskedasticity and multicollinearity tests are conducted. Finally, t-tests, the coefficient of determination (R^2), and Moderated Regression Analysis (MRA) are applied to examine the significance of the independent variables and to determine whether the moderating variable strengthens or weakens the relationship between the independent and dependent variables.

RESULTS AND DISCUSSION

Results

Descriptive Statistics

Descriptive statistical analysis was conducted to understand the distribution of the data and to provide a general overview of the research variables through sample observations. The descriptive statistics presented in Table 3 describe the behavior of the data, including the minimum value, maximum value, mean, median, and standard deviation.

Table 3. Descriptive Statistics Results

	ROA	GF	CSR	CAR
Mean	0.010993	73.52375	62.27250	0.335717
Median	0.013252	83.30000	62.20000	0.255528
Maximum	0.037847	83.30000	89.20000	1.699183
Minimum	-0.180577	33.30000	37.80000	0.157492
Std. Dev.	0.026359	15.38199	13.80606	0.237008
Observations	80	80	80	80

Source: Processed data using EViews 13

The descriptive statistics indicate that the Return on Assets (ROA) variable has a mean of 0.010993, with a maximum of 0.037847, a minimum of -0.180577, and a standard deviation of 0.026359, reflecting variations in bank profitability. Green Finance (GF) shows an average value of 73.52375, ranging from 33.30000

to 83.30000, with a standard deviation of 15.38199, indicating differences in the implementation of green finance among banks. The Corporate Social Responsibility (CSR) variable has a mean of 62.27250, with a maximum of 89.20000 and a minimum of 37.80000, and a standard deviation of 13.80606, reflecting variations in CSR disclosure levels. Meanwhile, the Capital Adequacy Ratio (CAR) records an average of 0.335717, with values ranging from 0.157492 to 1.699183 and a standard deviation of 0.237008. The analysis is based on 80 observations from banking companies during the research period.

Panel Data Model Selection

To determine the most appropriate panel data regression model, diagnostic tests were conducted, namely the Chow Test and the Hausman Test.

Table 4. Model Selection

	Chow Test	**Hausman Test**
Prob.	0.0088	0.1294
Model Selection	Fixed Effect Model	Random Effect Model

Source: Processed data using EViews 13

The model selection results show that the Chow Test produces a probability value of 0.0088 (< 0.05), indicating that the Fixed Effect Model is more appropriate than the Common Effect Model. Furthermore, the Hausman Test yields a probability value of 0.1294 (> 0.05), suggesting that the Random Effect Model is more suitable than the Fixed Effect Model because individual differences are random and not correlated with the independent variables. Therefore, the panel data regression model used in this study is the Random Effect Model (REM).

Classical Assumption Test

Table 5. Classical Assumption Test

	Multicollinearity			**Heteroskedasticity**
Variable	GF	CSR	CAR	Prob. Obs *R Square
GF	1.000000	0.333320	-0.179893	
CSR	0.333320	1.000000	-0.132604	0.1061
CAR	-0.179893	-0.132604	1.000000	

Source: Processed data using EViews 13

Multicollinearity Test

The results of the multicollinearity test indicate that the correlation values among the independent variables—Green Finance (GF), Corporate Social Responsibility (CSR), and Capital Adequacy Ratio (CAR)—are below 0.90. The correlation between GF and CSR is 0.333320, between GF and CAR is -0.179893,

and between CSR and CAR is -0.132604. These values indicate that there is no high correlation among the independent variables, meaning that the regression model does not suffer from multicollinearity problems.

Heteroskedasticity Test

The heteroskedasticity test result shows a Prob. Obs*R-Square value of 0.1061, which is greater than the significance level of 0.05. This indicates that the regression model does not experience heteroskedasticity, meaning the residual variance is constant and the regression model is suitable for further analysis.

Hypothesis Testing

Table 6. Hypothesis Test

Model	Variable	Coefficient	Std. Error	t-Statistic	Prob.
1	Constant	-0.005728	0.021244	-0.269641	0.7882
	GF	0.000505	0.000240	2.098789	0.0391
	CSR	-0.000327	0.000300	-1.090847	0.2787
	R-squared	0.056264	Mean dependent var	0.006904	
	Adjusted R-squared	0.031752	S.D. dependent var	0.023244	
	S.E. of regression	0.022872	Sum squared resid	0.040281	
	F-statistic	2.295318	Durbin-Watson stat	2.302682	
	Prob(F-statistic)	0.107582			
2	Constant	0.102811	0.038743	2.653705	0.0097
	GF	-0.000608	0.000470	-1.292172	0.2003
	CSR	-0.000911	0.000485	-1.877266	0.0644
	CAR	-0.358902	0.105656	-3.396897	0.0011
	GFCAR	0.003731	0.001325	2.815169	0.0062
	CSRCAR	0.001974	0.001205	1.638022	0.1057
	R-squared	0.171001	Mean dependent var	0.006229	
	Adjusted R-squared	0.114987	S.D. dependent var	0.022838	
	S.E. of regression	0.021485	Sum squared resid	0.034157	
	F-statistic	3.052854	Durbin-Watson stat	2.349090	
	Prob(F-statistic)	0.014670			

Source: Processed data using EViews 13

Panel Data Regression Analysis

Panel data regression analysis was conducted to determine the effect of GF and CSR on ROA and to examine the moderating role of CAR. Based on the previous model selection results, the regression analysis in this study uses the Random Effect Model (REM).

Based on the estimation results, the regression equation for Model 1 is as follows:

$$\mathbf{ROA = -0.00572 + 0.00050*GF - 0.00032*CSR + [CX=R]}$$

The constant value of -0.005728 indicates that if GF and CSR are equal to

zero, ROA is estimated to be -0.005728. The GF coefficient of 0.000505 indicates that each one-unit increase in GF will increase ROA by 0.000505, assuming other variables remain constant. Meanwhile, the CSR coefficient of -0.000327 indicates that each one-unit increase in CSR tends to decrease ROA by 0.000327, assuming other variables remain constant.

Based on the estimation results, the regression equation for Model 2 is as follows:

ROA=0.10281 - 0.00060*GF - 0.00091*CSR - 0.35890*CAR + 0.00373*GFCAR + 0.001977*CSRCAR

The constant value of 0.102811 indicates that when all independent variables are zero, ROA is estimated at 0.102811. The GF coefficient of -0.000608 suggests that an increase in GF tends to decrease ROA by 0.000608, while the CSR coefficient of -0.000911 indicates that higher CSR also tends to reduce ROA by 0.000911.

The CAR coefficient of -0.358902 shows that an increase in capital adequacy tends to decrease ROA by 0.358902. Meanwhile, the interaction coefficient GF×CAR of 0.003731 indicates that CAR strengthens the effect of GF on ROA. The CSR×CAR interaction coefficient of 0.001974 also shows a positive, though relatively small, relationship with ROA. Overall, GF, CSR, CAR, and their interaction variables contribute to explaining variations in ROA in the sampled banking companies.

2. t-Test

In Model 1, GF has a probability value of 0.0391 < 0.05, indicating that GF has a positive and significant effect on ROA. This suggests that the implementation of green finance can increase the profitability of banking companies. Meanwhile, CSR has a probability value of 0.2787 > 0.05, indicating that CSR does not have a significant effect on ROA.

In Model 2, CAR has a probability value of 0.0011 < 0.05, indicating that CAR has a negative and significant effect on ROA. The interaction variable GFCAR has a probability value of 0.0062 < 0.05, indicating that CAR is able to moderate and strengthen the effect of GF on ROA. Meanwhile, the interaction variable CSRCAR has a probability value of 0.1057 > 0.05, indicating that CAR cannot moderate the effect of CSR on ROA.

Coefficient of Determination Test (Adjusted R-Square)

The coefficient of determination test was conducted to measure the ability of the independent variables to explain ROA.

In Model 1, the Adjusted R-Squared value is 0.031752, indicating that 3.17% of the variation in ROA is explained by GF and CSR, while 96.83% is influenced by other factors outside the model. In Model 2, the Adjusted R-

Squared value increases to 0.114987, meaning that 11.49% of the variation in ROA is explained by GF, CSR, CAR, and the interaction variables, while 88.51% is explained by other variables not included in the model. These results indicate that the inclusion of the moderating variable CAR improves the model's ability to explain variations in ROA.

Moderated Regression Analysis (MRA)

Moderated Regression Analysis (MRA) was used to determine whether CAR moderates the relationship between the independent variables and the dependent variable. The results show that the GF×CAR interaction variable has a probability value of 0.0062 < 0.05, indicating that CAR is able to moderate and strengthen the effect of GF on ROA. This finding indicates that higher capital adequacy levels can strengthen the effect of green finance implementation on improving bank profitability.

Conversely, the CSR×CAR interaction variable has a probability value of 0.1057 > 0.05, indicating that CAR cannot moderate the relationship between CSR and ROA. Therefore, the level of capital adequacy does not strengthen or weaken the influence of CSR on the profitability of banking companies.

Discussion

The Effect of Green Finance on Profitability

The partial test results (t-test) indicate that green finance has a positive and significant effect on profitability. This is reflected in the positive regression coefficient and the probability value of 0.0391, which is lower than the significance level of 0.05. Therefore, the first hypothesis (H1) is accepted. This finding suggests that higher implementation of green finance in the banking sector tends to increase bank profitability as measured by Return on Assets (ROA).

From the perspective of Stakeholder Theory, companies are expected to fulfill the interests of stakeholders because organizational sustainability depends on their support (Mahajan et al., 2023). Banks that consistently implement sustainable financing practices tend to gain greater trust from stakeholders, which strengthens corporate reputation, improves competitiveness, and contributes to long-term profitability growth. These findings are consistent with the results of Ningsi et al. (2025), who reported a positive relationship between green finance and banking profitability. Similar conclusions were also found by Hasanah et al. (2022), which show that the optimal implementation of green finance improves financial performance and corporate earnings.

The Effect of Corporate Social Responsibility on Profitability

The results of the partial test indicate that Corporate Social Responsibility (CSR) does not have a significant effect on profitability. The probability value of CSR is 0.2787, which is greater than the significance level of 0.05. Therefore, the second hypothesis (H2) is rejected. This finding suggests that CSR implementation in banking companies during the study period has not directly contributed to an increase in profitability.

According to Legitimacy Theory, companies disclose and implement CSR activities to gain social acceptance and align their operations with prevailing societal norms and expectations (Shabana & Ravlin, 2016). However, the results of this study indicate that the legitimacy mechanism has not yet translated into improved financial performance. CSR activities may increase operational costs, especially when companies emphasize social and environmental initiatives without integrating them into profit-oriented business strategies. In the banking sector, environmental CSR initiatives, such as renewable energy use and energy efficiency programs, often require substantial initial investment that can reduce short-term profitability (Bartholomew et al., 2024). These results are consistent with previous studies by Wulandari (2020), which also found that CSR has no significant effect on corporate profitability.

The Moderating Role of Capital Adequacy Ratio in the Relationship between Green Finance and Profitability

The results of the Moderated Regression Analysis (MRA) show that the interaction between green finance and the Capital Adequacy Ratio (CAR) has a positive and significant effect on profitability. The probability value of the interaction variable is 0.0062, which is lower than the significance level of 0.05. Thus, CAR is proven to moderate and strengthen the relationship between green finance and ROA, and the third hypothesis (H3) is accepted.

This finding supports the Buffer Theory of Capital, which states that banks with higher capital adequacy have greater capacity to absorb risks and allocate financing effectively, including financing environmentally sustainable projects that may involve long-term risks but provide sustainable returns. Banks with higher CAR levels have stronger financial flexibility and risk resilience, enabling them to expand green financing activities more effectively. Consequently, the positive impact of green finance on profitability becomes stronger when banks have adequate capital reserves. These findings are supported by Shabana and Ravlin (2016), as well as Meliza et al. (2024), which show that capital adequacy can strengthen the relationship between sustainability practices and banking profitability.

The Moderating Role of Capital Adequacy Ratio in the Relationship between

CSR and Profitability

The results of the interaction test between CSR and CAR indicate that CAR does not moderate the relationship between CSR and profitability. The probability value of the CSR–CAR interaction variable is 0.1057, which is greater than the significance level of 0.05. Therefore, the fourth hypothesis (H4) is rejected.

Although the Buffer Theory of Capital suggests that adequate capital allows banks to fund non-financial activities such as CSR programs without affecting operational stability, the findings of this study indicate that even banks with high CAR levels have not experienced a direct increase in profitability from CSR activities. This suggests that CSR initiatives in the banking sector tend to produce long-term reputational and social benefits rather than immediate financial returns. Consequently, the expected economic and reputational benefits of CSR are not fully reflected in short-term profitability. These results are consistent with studies by Suryani and Herawaty (2024), which also found that CAR does not strengthen the relationship between CSR and ROA. Therefore, capital adequacy alone is not sufficient to enhance the effectiveness of CSR in improving banking profitability.

CONCLUSION

This study aims to analyze the effect of green finance and Corporate Social Responsibility (CSR) on profitability, with the Capital Adequacy Ratio (CAR) acting as a moderating variable in banking companies listed on the Indonesia Stock Exchange. The findings reveal that green finance has a positive and significant effect on profitability, indicating that the implementation of sustainable financing can contribute to improved financial performance in the banking sector. In contrast, CSR does not show a significant effect on profitability, suggesting that social and environmental initiatives in the banking sector may generate long-term reputational benefits rather than immediate financial returns. Furthermore, the moderating analysis shows that CAR strengthens the relationship between green finance and profitability, implying that adequate capital enhances the effectiveness of green financing in improving bank performance. The main lesson from this study is that sustainable financial practices, particularly green finance, can create economic value when supported by strong capital structures, highlighting the importance of integrating sustainability strategies with sound financial management.

The strength of this study lies in its contribution to the literature on sustainable finance by simultaneously examining the roles of green finance, CSR, and capital adequacy in influencing banking profitability. By introducing CAR as a moderating variable, this research provides a broader perspective on how financial resilience can enhance the effectiveness of sustainability initiatives in the banking sector. Nevertheless, this study has several limitations. The

explanatory power of the model remains limited, indicating that profitability is also influenced by other factors not included in the analysis. Additionally, the study focuses only on banking companies listed on the Indonesia Stock Exchange and uses a relatively limited observation period, which may restrict the generalizability of the findings. Future research is recommended to expand the research scope to other industries, extend the observation period, and incorporate additional variables such as credit risk, operational efficiency, firm size, corporate governance, and macroeconomic factors to provide a more comprehensive understanding of the determinants of profitability in the context of sustainable finance.

REFERENCES

Afifah, Listiana, E., Wendy, Mustarudin, & Giriati. (2023). The impact of green finance on profitability with credit risk as an intervening variable. In IJAFIBS (Vol. 11, Number 3). www.ijafibs.pelnus.ac.id

Ayu Septiana, V. (2025). Disclosure of Corporate Social Responsibility (CSR): Legitimacy Theory Perspective. In International Journal of Education (Vol. 5, Number 1). http://lpppipublishing.com/index.php/ijessm

Bartholomew, E. F., Suaryana, I. G. N. A., & Joy. (2024). Pengaruh Csr Terhadap Profitabilitas Pada Perusahaan Perbankan di Bursa Efek Indonesia Periode 2018 - 2022. https://doi.org/https://doi.org/10.5281/zenodo.10466212

Basmar, E. (2023). Risiko Finansial Teknologi Terhadap Green Finance di Indonesia. POINT: Jurnal Ekonomi Dan Manajemen, 5(1), 1–17. https://doi.org/10.46918/point.v5i1.1786

Budiarta, I. W., Cipta, W., & Suci, N. M. (2022). Pengaruh Capital Adequacy Ratio dan Loan to Deposit Ratio terhadap Return on Asset pada Sub Sektor Perbankan yang Terdaftar di Bursa Efek Indonesia. Jurnal Akuntansi Profesi, 13(1), 43–51.

Dewi, A. C., & Wiyono, S. (2023). Analisis Pengaruh Green Accounting, Kinerja Lingkungan, Biaya Lingkungan Dan Pengungkapan CSR Terhadap Tingkat Profitabilitas Perusahaan (Pada Perusahaan Manufaktur Sektor Industri Barang Konsumsi di Bursa Efek Indonesia. Jurnal Ekonomi Trisakti, 3(1), 1197–1208.

Hasanah, N., & Hariyono, S. (2022). Analisis Implementasi Green Financing Dan Kinerja Keuangan Terhadap Profitabilitas Perbankan Umum Di Indonesia. Jurnal Ekobis: Ekonomi Bisnis & Manajemen, 12(1), 149–157. https://doi.org/10.37932/j.e.v12i1.444

Kurniawan, I., Malini, H., & Syahputri, A. (2025). Peran Credit Risk Dalam Hubungan Antara Green Finance dan Profitabilitas Bank di Indonesia. ECo-Fin, 7(2), 1154–1168. https://doi.org/10.32877/ef.v7i2.2585

Laitupa, M. F., & Christianty, R. (2023). The Impact of Capital Adequacy,

Liquidity and Operational Ratio on Banking Financial Performance in Indonesia During the Covid-19. Jurnal Ekonomi, 12(01), 1–11.
Maghfirah Zainal, A., Putri Ardhana, C., Fitri Amaliah, N., Israq Rahman, M., Ade Saputra Ilyas, M., & Arsal,
Mahajan, R., Lim, W. M., Sareen, M., Kumar, S., & Panwar, R. (2023). Stakeholder theory. Journal of Business Research, 166. https://doi.org/10.1016/j.jbusres.2023.114104
Meliza, Hasan, N. A., & Saputri, H. (2024). The influence of banking liquidity risk on profitability: The moderating role of capital adequacy ratio. Banks and Bank Systems, 19(2), 140–151. https://doi.org/10.21511/bbs.19(2).2024.11
Mihai, F., & Aleca, O. E. (2023). Sustainability Reporting Based on GRI Standards within Organizations in Romania. 12, 690. https://doi.org/10.3390/electronics
Musfirati, A., Ginting, L., & Hakim, M. L. N. (2021). Pengaruh Pengungkapan Corporate Social Responsibility Terhadap Profitabilitas Perusahaan (Studi Empiris pada Perusahaan Sektor Industri Rokok yang Terdaftar di Bursa Efek Indonesia Tahun 2016-2019) Anikmah. Journal of Information System, Applied, Management, Accounting and Research., 5(2), 523–531. https://doi.org/10.52362/jisamar.v5i2
Mustika, S. N., Tripuspitorini, F. A., & Djuwarsa, T. (2023). Analisis Pengaruh Penerapan Green Banking dan Efisiensi Biaya Operasional terhadap Profitabilitas Bank Umum Syariah di Indonesia Analysis the effect of green banking implementation and operational cost efficiency on the profitability of sharia commercial. Journal of Applied Islamic Economics and Finance, 3(2), 436–443.
Nasrun, N. (2025). Analisis Implementasi Green Finance dan Kinerja Keuangan Terhadap Profitabilitas Bank Umum di Indonesia. Ssrn, 2017–2020.
Ningsi, A., Bailusy, M. N., & Rusandry. (2025). The Effect of Green Finance on Firm Value with Profitability as a Mediating Variable in Infrastructure Sector Companies (Vol. 6, Number 1). https://ijble.com/index.php/journal/index
Prametya, A. Y. (2025). Analisis Implementasi Green Banking Terhadap Profitabilitas Pada Bank (Studi Pada Pt. Bank Central Asia Tbk) Agitha Yola Prametya Program Studi Sarjana Terapan Akuntansi Manajerial.
Putri, R., & Yana, S. K. D. (2024). Pengaruh Capital Adequacy Ratio (Car), Financing to Deposit Ratio (Fdr), Dan Non-Performing Financing (Npf) Terhadap Profitabilitas Dengan Inflasi Sebagai Variabel Intervening Pada Bank Syariah Indonesia (Bsi) Masa Pandemi Covid-19. KOMITMEN: Jurnal Ilmiah Manajemen, 5(2), 92–108. https://doi.org/10.15575/jim.v5i2.41218
Sasongko, H., & Yusnita, N. (2023). The Influence of Productive Asset Quality,

Loan to Deposit Ratio, Non-Performing Loan, and Operating Expenses to Operating Income on Profit with Capital Adequacy Ratio as Moderating Variable in Indonesian Banking. 12(1).

Shabana, K. M., & Ravlin, E. C. (2016). Corporate Social Responsibility Reporting as Substantive and Symbolic Behavior: A Multilevel Theoretical Analysis. Business and Society Review, 121(2), 297–327. https://doi.org/10.1111/basr.12089

Suhardjo, I., Akroyd, C., & Suparman, M. (2024). Beyond Sustainability Reporting: A Theoretical Framework for Ethical Sustainability Governance. Corporate Governance and Sustainability Review, 8(3), 8–20. https://doi.org/10.22495/cgsrv8i3p1

Suryani, J., & Herawaty, V. (2024). Pengaruh Strategi Kerberlanjutan Dalam Profitabilitas Perusahaan Perbankan: Capital Adequacy Ratio Sebagai Variabel Moderasi. 9(10). https://doi.org/10.36418/syntax-literate.v9i10

Sutiman, S., Suteja, J., Anwar, M., & Rachmawaty, R. (2024). Determinants of Bank Profitability and Implications for Company Value with Moderating Dividend Policy. Owner, 8(3), 2856–2867. https://doi.org/10.33395/owner.v8i3.2181

Syafis, K. S. (2022). The Analisis Penerapan Informasi Pengungkapan Csr Beserta Faktor- Faktor Yang Mempengaruhinya Berdasarkan Teori Agency, Legitimasi, Stakeholder

Wang, L., & Yan, J. (2023). Effect of digital transformation on innovation performance in China: corporate social responsibility as a moderator. Frontiers in Environmental Science, 11(July), 1–17. https://doi.org/10.3389/fenvs.2023.1215866

Wulandari, S. (2020). Pengaruh Corporate Social Responsibility (CSR) Disclosure terhadap Profitabilitas Perusahaan.Jurnal Ekonomi Akuntansi dan Manajemen, 19(1), 1. https://doi.org/10.19184/jeam.v19i1.15436

Zhang, F., & Zhang, S. (2024). The Impact of Green Finance on the Profitability of Commercial Banks. Frontiers in Business, Economics and Management, 15(3), 136–138. https://doi.org/10.54097/9geb4k46