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Green Finance, Environment Performance, and CSR on Financial Performance Industrial Sector in Indonesia: The Moderating Role of Good Corporate Governance

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ABSTRACT

This study aims to analyze the influence of Green Finance, Environmental Performance, and Corporate Social Responsibility (CSR) on financial performance, with Good Corporate Governance (GCG) as a moderating variable, in industrial sector companies listed on the Indonesia Stock Exchange during the 2019–2023 period. The research sample consists of 41 companies, employing panel data regression analysis processed using E-Views 13. The findings reveal that Green Finance, Environmental Performance, and CSR have a significant effect on Return on Assets (ROA), and that GCG is proven to moderate these relationships. Meanwhile, only Green Finance and GCG significantly affect Return on Equity (ROE), with GCG moderating solely the effect of Green Finance on ROE. These results underscore that the effective implementation of GCG can strengthen the impact of corporate sustainability practices on financial performance and support long-term business continuity.

1. INTRODUCTION

In today's business landscape, sustainable practices have become a central focus, with organizations increasingly recognizing the importance of integrating sustainability into their operations. Sustainable performance refers to a company's ability to achieve long-term success while minimizing negative impacts on the environment and society. This is accomplished through the adoption of sustainable business practices that prioritize value creation for stakeholders while simultaneously mitigating environmental, social, and governance (ESG) risks and opportunities. Organizations worldwide are under significant pressure to develop effective corporate governance processes due to the rising incidence of corporate failures. Effective corporate governance ensures that companies take into account the interests of all stakeholders in their decision-making (Aguilera et al., 2019). This is closely related to corporate social responsibility (CSR), which requires firms to operate sustainably and ethically. Green finance provides companies with the means to invest in sustainable projects that benefit both the environment and their long-term financial performance. Corporate governance has

emerged as a key area of global focus due to its relevance in defining the concept of privatization and its connection to several global failures (Chandrakant & Rajesh, 2023; Husted & Sousa-Filho, 2019). However, to understand the impact of environmental performance, CSR, and green finance initiatives on sustainable performance, it is essential to examine the moderating role of corporate governance.

In recent years, research on the influence of green finance and ESG performance—both in aggregate and separately, namely environmental performance, CSR, and GCG—on financial performance has grown substantially. Studies examining the impact of ESG on financial outcomes have produced mixed conclusions. Most findings demonstrate that ESG enhances financial performance (Chen et al., 2023; Deng & Cheng, 2019; Rodríguez-Fernández et al., 2019; Velte, 2017). Other studies, however, suggest that ESG is unrelated to financial performance (Kalia & Aggarwal, 2023) , while some indicate a negative effect (Duque-Grisales & Aguilera-Caracuel, 2021; P. Li et al., 2020). Environmental responsibility constitutes a core component of ESG, and its impact on financial performance is well-documented (Matakanye et al., 2021). Additional research highlights the benefits companies gain from investing in environmental protection, which tends to attract positive investor attention (Oprean-Stan et al., 2020; Patil et al., 2021). Market reactions also strengthen when publicly listed companies announce environmental strategies (Popescu et al., 2022).

CSR, as an important yet often underintegrated component of the ESG framework, raises questions about its impact on financial performance. According to several studies, companies that are effectively engaged in CSR activities can enhance their brand image and reduce financial burdens through cost savings. Firms involved in CSR initiatives also tend to perform better in capital markets, benefiting from access to loans with lower interest rates (Teng et al., 2021). However, other studies have highlighted that fulfilling social obligations may also lead to increased transaction costs, which can impose additional financial pressure on companies (Xie et al., 2019; Yin et al., 2023).

Effective Good Corporate Governance (GCG) is widely recognized as a key driver of financial performance. Research has shown that adherence to GCG principles significantly enhances financial outcomes (Zhang et al., 2024). GCG plays a vital role in achieving balance among shareholders, ultimately contributing to improved financial performance (Alsayegh et al., 2020). Transparency in information disclosure, as an aspect of corporate accountability, is closely linked to a company's reputation and brand value, which in turn positively influences market performance (Baratta et al., 2023). The importance of GCG is particularly evident in industries with substantial environmental and social responsibilities. In sectors characterized by significant environmental impact, GCG becomes even more critical, as these industries are often subject to strict scrutiny regarding their environmental and social accountability (Shaikh, 2022).

The relationship between green finance and firm performance has been found to be limited in the existing literature. Green credit constraints cause highly polluting companies to passively reduce capital input and fail to improve productivity (Ding, 2019). Studies on the effectiveness of green finance policy reforms indicate that such policies significantly reduce the productivity of polluting firms (Wang et al., 2021). Research on the impact of green finance on financial performance from the perspective of environmentally friendly firms remains scarce. Although the role of green finance in transition economies is undeniable, its practical implications for sustainable development still warrant further investigation.

This study presents several novelties. First, it employs GCG as a moderating variable, which has not been commonly addressed in prior research. Second, it provides valuable insights into the potential benefits of ESG integration for environmentally conscious firms. Third, the study analyzes how green finance policies interact with ESG performance and GCG to determine financial outcomes. Therefore, the objective of this research is to investigate the impact of green finance, environmental performance, and CSR on the financial performance of industrial sector companies, with corporate governance (GCG) serving as a moderating variable.

2. LITERATURE REVIEW AND HYPOTHESES DEVELOPMENT

2.1. Green Finance and Financial Performance

Green finance, as an effort to meet stakeholder interests, serves as evidence of the application of Stakeholder Theory. In its implementation, Legitimacy Theory is also employed to illustrate corporate compliance with the expectations of surrounding communities. Green finance is regarded as environmental finance, which provides financial services aimed at protecting the environment, controlling pollution, and conserving resources (Gray, 2002). According to Hu et al. (2021), green finance functions as a mechanism to promote investments that foster environmental sustainability, including green-oriented loans, securities, insurance, and carbon finance. Sumastuti et al. (2024), found that green finance plays a strong role in enhancing the financial performance of SMEs. Similarly, Li and Lin (2024) demonstrated that green finance influences financial performance, while Safitri (2024) also confirmed that green finance has a positive impact on financial performance, proxied by Net Interest Margin.

H_1: Green Finance has a Positive Effect on Financial Performance

2.2. Environmental Performance and Financial Performance

Considering how a company's operations affect the environment can be assessed through its environmental performance. Strong environmental performance indicates that the company considers aspects beyond mere profit. This aligns with the principles of Stakeholder Theory and Legitimacy Theory. The findings of Sumariani et al. (2024) show that environmental performance influences financial performance. Similarly, Harliani (2024) reported that environmental performance has an impact on financial performance.

H_2: Environmental Performance has a Positive Effect on Financial Performance

2.3. *Corporate Social Responsibility* dan Kinerja Keuangan

Based on Stakeholder Theory, when companies meet societal expectations, society in turn supports the continuity of the business. Communicating the fulfillment of these expectations through CSR disclosure represents a tangible application of Signaling Theory and demonstrates corporate compliance with Legitimacy Theory. CSR refers to voluntary initiatives undertaken by companies to address and contribute to environmental, social, and governance issues (Espino & Mutuc, 2024). The findings of Agustin & Rosdiana (2022) indicate that CSR disclosure has a positive impact on financial performance. Misutari & Ariyanto (2021) also revealed that CSR affects financial performance, while Permatasari and Widianingsih (2020) similarly confirmed that CSR has a positive influence on financial performance.

H_3: Corporate Social Responsibility has a Positive Effect on Financial Performance

2.4. Peran Moderasi *Good Corporate Governance* Pada *Green Finance*

A company with strong governance practices will demonstrate full awareness in allocating funds toward sustainability-related initiatives. This is also linked to Stakeholder Theory and Legitimacy Theory, which influence management decisions to be more mindful in channeling such funds. GCG refers to the principles that guide and regulate firms in achieving a balance between corporate power and authority while ensuring accountability to stakeholders (Fathony et al., 2020). Research by Putri & Astuti (2024) found that GCG moderates the effect of Green Finance, proxied by the implementation of Green Accounting. Similarly, Misutari & Ariyanto (2021) showed that GCG strengthens the influence of Green Finance, represented through Green Accounting, on financial performance. This is consistent with Putri et al. (2022) who demonstrated that GCG enhances the relationship between Green Finance, measured by the application of Green Accounting, and financial

performance. The better a company's governance practices, the stronger its environmentally conscious financial decisions will be, thereby positively influencing financial performance.

H_4: GCG Moderates the Effect of Green Finance on Financial Performance

2.5. The Moderating Role of Good Corporate Governance on Environmental Performance

Good governance ensures that companies pay attention to their impact on the surrounding environment. This is grounded in a high level of awareness derived from the seven GCG principles previously outlined. Based on this perspective, GCG is considered to moderate the influence of environmental performance on financial performance. Lubis & Rahyuda (2022) found that GCG strengthens the effect of environmental performance on financial performance. Similarly, Zulfa et al. (2024) demonstrated that the practice of Good Corporate Governance enhances the impact of environmental performance on financial performance. This finding is consistent with Renaldo et al. (2022), who also showed that GCG reinforces the relationship between environmental performance and financial performance.

H_5: GCG Moderates the Effect of Environmental Performance on Financial Performance

2.6. The Moderating Role of Good Corporate Governance on Corporate Social Responsibility

Good Corporate Governance (GCG) fosters companies with a strong awareness of the impacts generated by their operations, even long before such awareness is mandated by government regulations. Consequently, GCG has a high likelihood of moderating the effect of CSR disclosure on financial performance. Misutari & Ariyanto (2021) demonstrated that GCG strengthens the influence of CSR on financial performance. This finding is consistent with Permatasari & Widianingsih (2020) , who proxied GCG with board of commissioners' size and found its significant influence on financial performance, as measured by ROA. Likewise, Sunarjo et al. (2024) confirmed that GCG moderates the effect of CSR on financial performance.

H_6: GCG Moderates the Effect of CSR Disclosure on Financial Performance

3. METHODOLOGY

3.1. Data and Sample

The data used in this study are quantitative in nature, obtained from secondary sources and structured as panel data since the research employs both time-series and cross-sectional data. The observation period covers 2019–2023. The population of this study consists of all 65 industrial sector companies listed on the Indonesia Stock Exchange (IDX), with a final sample of 41 companies. The secondary data, including financial reports and sustainability reports, were collected from the Indonesia Stock Exchange and the respective companies' official websites.

3.2. Variable Measurement

The definitions and measurements of the variables—Green Finance, Environmental Performance, Corporate Social Responsibility, Good Corporate Governance, Return on Assets, and Return on Equity—are presented in Table 1.

Tabel 1: Operationalization of Variables

Variable	Proxy	Formulas/Measurements	Scale
Financial Performance (ROA, ROE)	ROA, ROE	ROA: $\frac{\text{EBIT}}{\text{Total Asset}}$ ROE: $\frac{\text{EAT}}{\text{Total Ekuitas}}$	Ratio
Green Finance (GF)	Green Investment Ratio	GIR: $\frac{\text{Total Green Investment}}{\text{Total Investment}}$	Ratio

Variable	Proxy	Formulas/Measurements	Scale
Environmental Performance (KL)	PROPER	Gold = 5 Green = 4 Blue = 3 Red = 2 Black = 1	Score
Corporate Social Responsibility (CSR)	GRI	GRI: $\frac{\text{Items Disclosed}}{\text{Total Item GRI (83)}}$	Score
Good Corporate Governance (GCG	GCG Score	CGPI: $\frac{\text{Items Disclosed}}{\text{Total Item GCG (7)}}$	Score

3.3. Model Specification

The influence of Green Finance, Environmental Performance, and Corporate Social Responsibility on Financial Performance, proxied by Return on Assets (ROA) and Return on Equity (ROE), with Good Corporate Governance as a moderating variable, is illustrated in the following model estimation:

$$ROA_{it} = \alpha + \beta 1GF_{it} + \beta 2KL_{it} + \beta 3CSR_{it} + \beta 4GCG_{it} + \beta 5(GIRxGCG)_{it} + \beta 6(KLxGCG)_{it} + \beta 7(CSRxGCG)_{it} + \epsilon_{it}$$

$$ROE_{it} = \alpha + \beta 1GF_{it} + \beta 2KL_{it} + \beta 3CSR_{it} + \beta 4GCG_{it} + \beta 5(GIRxGCG)_{it} + \beta 6(KLxGCG)_{it} + \beta 7(CSRxGCG)_{it} + \epsilon_{it}$$

Where α represents the constant, β denotes the regression coefficient, and ϵ is the error term. The subscript i refers to the cross-sectional unit (independent variable), while t indicates the time period. The estimation method used for hypothesis testing in this study employs an unbalanced panel data regression model, comprising the Pooled Ordinary Least Squares (Pooled OLS) and the Random Effect Model (REM). Panel data analysis is a commonly applied approach in finance to identify the determinants of independent variables. Panel data regression provides a comprehensive analytical framework for datasets with both cross-sectional and time-series dimensions, allowing the identification of individual-specific effects, trends, and dynamic relationships among variables. In this model, the dependent variables are the ROA and ROE of industrial sector companies. The Breusch–Pagan Lagrange Multiplier (LM) Test was conducted to determine the more appropriate model between the Pooled OLS and REM. The selected panel data regression model was then applied to estimate and analyse the determinants of the independent variables.

4. RESULTS

4.1. Descriptive Statistics

Table 1 presents the summary statistics based on the indicators of mean, median, minimum, standard deviation, skewness, and kurtosis for the variables ROA, ROE, Green Finance, Environmental Performance, CSR, and GCG. The average value of Return on Assets (ROA) is 0.033, with a range between –0.682 and 0.362. The relatively low ROA indicates that, in general, the profitability of industrial sector companies in the research sample remains suboptimal. This suggests that many firms have not yet been able to manage their assets efficiently to generate adequate profits. The minimum ROA value of –0.682 reflects industrial companies that suffered considerable losses during the observation period, while the maximum value of 0.362 indicates that some firms were still able to manage their assets efficiently and generate profits. For the Return on Equity (ROE) variable, the mean value is 0.062, with a range between –2.835 and 1.855. This average suggests that, overall, the return on equity (shareholders' capital) among industrial sector companies remains relatively low. In other words, the profits generated from each unit of shareholder equity are still not optimal, and in many cases, significant losses were also observed.

For the Green Finance (GF) variable, the mean value is 0.017, with a range between 0.000 and 0.791, indicating that the overall level of Green Finance implementation among industrial sector companies remains very low. This suggests that most companies have not yet actively integrated sustainable financing principles into their business strategies and operations. For the Environmental Performance (EP) variable, the mean value is 1.043, with a range between 0.000 and 5.000. This indicates that, in general, industrial sector companies in Indonesia have made notable efforts to manage the environmental impacts of their operations. However, there remains a significant gap in the adoption of environmental policies and programs across firms. The minimum value of 0.000 reflects companies that did not receive a PROPER rating during the research period, whereas the maximum value of 5.000 reflects companies that consistently achieved favorable PROPER ratings.

For the Corporate Social Responsibility (CSR) variable, the mean value is 0.307, with a range between 0.000 and 0.835. This indicates that the level of CSR disclosure and implementation among industrial sector companies in Indonesia remains at a moderate to low level. In other words, although some companies have demonstrated a commitment to social responsibility, overall implementation has not been evenly distributed and remains partial. For the Good Corporate Governance (GCG) variable, the mean value is 0.838, with a range between 0.000 and 1.000. This relatively high average indicates that most industrial sector companies in Indonesia have consistently adopted good corporate governance principles, particularly in the aspects of transparency, accountability, responsibility, independence, and fairness and equality.

Table 1: Descriptive Statistical Data of Research Variables

	ROA	ROE	GF	KL	CSR	GCG
Mean	0.033	0.062	0.017	1.043	0.307	0.838
Median	0.034	0.072	0.000	0.000	0.274	0.896
Maximum	0.362	1.855	0.791	5.000	0.835	1.000
Minimum	-0.682	-2.835	0.000	0.000	0.000	0.000
Std. Dev.	0.109	0.338	0.082	1.544	0.175	0.184
Skewness	-2.070	-2.988	7.478	0.910	0.527	-1.617
Kurtosis	14.580	38.558	63.746	2.068	2.815	5.990

4.2. Correlation Analysis Among Variables

Table 2 presents the correlations among the variables, showing that the strongest relationship occurs between Green Finance (GF) and GCG moderating GF, with a correlation of 99.52%, categorized as very strong and positive since it is close to 1. The weakest correlation is found between GF and Environmental Performance (EP), at only 0.06%, indicating a very weak relationship as it is close to 0, yet positive since the value is greater than 0.

Table 2: Correlation Analysis Among Variables

	ROA	ROE	GF	KL	CSR	GCG	GCG_GF	GCG_KL	GCG_CSR
ROA	1.000	0.057	-0.031	0.132	0.157	-0.014	-0.017	0.090	0.165
ROE	0.057	1.000	-0.046	0.040	0.015	0.006	-0.038	0.054	0.014
GF	-0.031	-0.046	1.000	0.000	0.026	-0.028	0.995	0.303	0.004
KL	0.132	0.040	0.000	1.000	0.261	0.188	0.024	0.313	0.289
CSR	0.157	0.015	0.025	0.261	1.000	0.262	0.030	0.086	0.952
GCG	-0.014	0.006	-0.028	0.188	0.262	1.000	-0.007	0.114	0.483
GCG_GF	-0.017	-0.038	0.995	0.024	0.030	-0.007	1.000	0.383	0.015
GCG_KL	0.090	0.054	0.303	0.313	0.086	0.114	0.383	1.000	0.114
GCG_CSR	0.165	0.014	0.004	0.289	0.952	0.483	0.015	0.114	1.000

4.3. Determinants of Financial Performance (ROA & ROE)

The selection of a panel data regression model can be carried out using three approaches: the Common Effect Model (CEM), the Fixed Effect Model (FEM), and the Random Effect Model (REM). The steps to determine the appropriate model begin with the Chow test, which is used to decide between CEM and FEM. Next, the Hausman test is applied to determine whether FEM or

REM is more suitable. Finally, the Lagrange Multiplier test is employed to decide between CEM and REM.

4.4. Paired Model Tests

After conducting the Chow test, the Hausman test, and the Lagrange Multiplier test, the results indicate that the appropriate model for ROA is the Fixed Effect Model, while the appropriate model for ROE is the Common Effect Model. The summary of these test results is presented in the following table:

Table 3: Results of Panel Data Regression Model Selection

Test	Hypotheses	Result	
		ROA	ROE
Chow Test	Common Effect Model vs Fixed Effect Model	Fixed Effect Model	Common Effect Model
Hausman Test	Random Effect Model vs Fixed Effect Model	Fixed Effect Model	Random Effect Model
Lagrange Multiplier Test	Common Effect Model vs Random Effect Model	Random Effect Model	Common Effect Model

4.5. Partial Estimation Analysis of the Panel Data Regression Model

Table 4 presents the results of the panel data regression for ROA using the Fixed Effect Model (FEM). The independent variables that significantly influence ROA are Green Finance, Environmental Performance, and CSR, with probability values less than 0.05. GCG was also found to moderate all independent variables, with probability values below 0.05. The coefficient of Green Finance (–2.201) indicates a significant negative effect on ROA, meaning that an increase in Green Finance leads to a decrease in ROA. The coefficient of Environmental Performance (0.004) shows a positive effect on ROA, implying that an improvement in environmental performance increases company profitability. The coefficient of CSR (–0.194) reflects a significant negative impact, suggesting that higher CSR engagement leads to a decline in ROA. Furthermore, GCG moderates Green Finance with a coefficient of 3.075, which means that under GCG moderation, Green Finance exerts a positive effect on ROA. GCG also moderates Environmental Performance with a coefficient of –0.211, while for CSR, GCG moderates with a positive coefficient of 0.262.

Table 4: Selected Panel Data Regression (ROA): Fixed Effect Model (FEM)

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.025	0.008	3.095	0.036
GF	-2.201	0.255	-8.633	0.001
KL	0.004	0.001	3.679	0.021
CSR	-0.194	0.043	-4.420	0.011
GCG	-0.010	0.017	-0.574	0.596
GCG_GF	3.075	0.357	8.600	0.001
GCG_KL	-0.211	0.028	-7.488	0.001
GCG_CSR	0.262	0.062	4.184	0.013

Table 5 presents the results of the panel data regression for ROE using the Common Effect Model (CEM). The independent variables that significantly influence ROE are Green Finance and GCG, with probability values less than 0.05. GCG was also found to moderate Green Finance, with a probability value below 0.05. The coefficient of Green Finance (–4.609) indicates a significant negative effect on ROE, meaning that an increase in Green Finance leads to a decrease in ROE. The coefficient of GCG (–0.109) also shows a negative effect on ROE, implying that as GCG improves, company profitability decreases. However, GCG moderates the relationship between Green Finance and ROE with a coefficient of 5.907, indicating that when moderated by GCG, Green Finance exerts a positive effect on ROE.

Table 5: Selected Panel Data Regression (ROE): Common Effect Model (CEM)

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.133	0.037	3.578	0.000
GF	-4.609	1.083	-4.255	0.000
KL	-0.000	0.003	-0.244	0.807
CSR	-0.114	0.113	-1.009	0.314
GCG	-0.109	0.042	-2.609	0.009
GCG_GF	5.907	1.473	4.008	0.000
GCG_KL	0.068	0.135	0.504	0.614
GCG_CSR	0.216	0.129	1.677	0.094

4.6. Joint Estimation Analysis of the Panel Data Regression Model

The results of the F-test for ROA, as shown in Table 6, indicate an F-statistic value of 17.730 with a probability value of 0.000, which is smaller than $\alpha = 0.05$. This means that H_0 is rejected. In other words, all independent variables—GF, EP, CSR, and GCG—collectively influence the Return on Assets (ROA) of industrial sector companies listed on the Indonesia Stock Exchange during the 2019–2023 period.

Table 6: Results of the F-Test for ROA

F-statistic	17.730
Prob(F-statistic)	0.000

Meanwhile, the results of the F-test for ROE, as presented in Table 7, show an F-statistic value of 3.780 with a probability value of 0.000, which is smaller than $\alpha = 0.05$, indicating that H_0 is rejected. This means that all independent variables—GF, EP, CSR, and GCG—collectively influence the Return on Equity (ROE) of industrial sector companies listed on the Indonesia Stock Exchange during the 2019–2023 period.

Table 7: Results of the F-Test for ROE

F-statistic	3.780
Prob(F-statistic)	0.000

For the goodness-of-fit test of ROA, as measured by the coefficient of determination (R^2), the coefficient value is 0.841 (Table 8). This means that variations in the fluctuations of ROA among industrial sector companies listed on the Indonesia Stock Exchange during 2019–2023 can be explained by the variables GF, EP, CSR, and GCG by 84.14%, while the remaining 15.86% can be explained by other variables not included in this research model. The adjusted coefficient of determination (Adjusted R^2) produces a coefficient value of 0.794, which indicates that after accounting for the degrees of freedom in the Fixed Effect Model applied, all variables—GF, EP, CSR, and GCG—collectively explain changes in ROA of industrial sector companies listed on the Indonesia Stock Exchange during 2019–2023 by 79.40%.

Table 8: Results of the Coefficient of Determination Test for ROA

R-squared	0.841
Adjusted R-squared	0.794

Meanwhile, the goodness-of-fit test for ROE, as measured by the coefficient of determination (R^2), shows a coefficient value of 0.118 (Table 9). This indicates that variations in the fluctuations of ROE

among industrial sector companies listed on the Indonesia Stock Exchange during 2019–2023 can be explained by the variables GF, EP, CSR, and GCG by 11.84%, while the remaining 88.16% can be explained by other variables not included in this research model. The adjusted coefficient of determination (Adjusted R^2) produces a value of 0.087, which means that after accounting for the degrees of freedom in the Common Effect Model applied, all variables—GF, EP, CSR, and GCG—can collectively explain changes in ROE of industrial sector companies listed on the Indonesia Stock Exchange during 2019–2023 by 8.70%.

Table 9: Results of the Coefficient of Determination Test for ROE

R-squared	0.118
Adjusted R-squared	0.087

4.7. Panel Data Regression Model Estimation for Each Company

The estimation of the panel data regression equations for each industrial sector company listed on the Indonesia Stock Exchange during the 2019–2023 period is presented in Table 10. The equation is as follows:

ROA = 0.025 - 2.201*GF + 0.004*KL - 0.194*CSR - 0.010*GCG + 3.075*GCG_GF - 0.211*GCG_KL + 0.262*GCG_CSR + [CX=F]

From these results, the following conclusions can be drawn:

a. The industrial company with the highest sensitivity of ROA changes due to influencing factors during the 2019–2023 period is PT. Mark Dynamics Indonesia Tbk **[-0.025 + 0.203]**.
b. The industrial company with the lowest sensitivity of ROA changes due to influencing factors during the 2019–2023 period is PT. Intan Baru Prana Tbk. **[-0.025 – 0. 309].**

Table 10: Crossed Section Fixed Effect

Code	Effect	Code	Effect
AMFG	-0.024	JECC	0.010
AMIN	-0.038	JTPE	0.096
APII	0.023	KBLI	0.018
ARKA	-0.029	KBLM	0.029
ARNA	0.146	KIAS	-0.138
ASGR	0.011	KOBX	-0.019
ASII	0.034	KOIN	-0.055
BHIT	-0.010	KONI	0.033
BLUE	0.110	LION	-0.036
BNBR	-0.031	MARK	0.203
CAKK	-0.047	MFMI	0.097
CCSI	0.009	MLIA	0.041
CTTH	-0.069	SCCO	0.025
HEXA	0.094	SKRN	0.002
IBFN	-0.309	SOSS	0.083
ICON	-0.001	SPTO	0.033
IKAI	-0.071	TIRA	-0.018
IKBI	-0.030	TOTO	0.001
IMPC	0.032	UNTR	0.047
INDX	-0.074	VOKS	-0.052
INTA	-0.126		

5. DISCUSSION

The findings of this study reveal that Green Finance (GF) has a negative and significant effect on Return on Assets (ROA). This indicates that green investments made by industrial companies during

the observation period contributed to a decline in financial performance, particularly in terms of profitability as measured by ROA. Such a decline poses a challenge for industrial firms in Indonesia as they attempt to integrate green investment principles into their business strategies. It is also possible that GF, as a relatively new form of investment, will generate positive impacts only in the long run. This result is consistent with studies by Y. Li & Lin (2024), Sumastuti et al. (2024), and Yadav (2024), which reported that Green Finance influences financial performance, though those studies identified a significant positive effect. They argued that companies integrating Green Finance and sustainability practices into their strategies secure long-term financial stability and performance. On the other hand, Amiarti et al. (2024) found no significant impact of Green Finance on ROA. A similar negative and significant relationship was observed between GF and ROE in this study. The negative effect of GF on both ROA and ROE may be driven by external factors, such as the regulatory environment, technological readiness, or the specific characteristics of the industries studied. These results contrast with other studies (Amiarti et al., 2024; Yadav, 2024) which found no significant relationship between Green Finance and ROE.

The results further show that Environmental Performance (EP) exerts a positive and significant influence on ROA. This demonstrates that efforts to improve environmental performance effectively enhance firms' financial performance as measured by ROA. Several studies (Amanda et al., 2025; Aulia et al., 2025) have similarly reported a significant positive effect of environmental performance on ROA. Strong environmental performance reflects social responsibility and effective governance, thereby supporting long-term financial gains and strategic advantages. However, EP does not significantly affect ROE. This divergence can be explained by the fact that the positive impacts of environmental initiatives may not be immediately reflected in equity returns, particularly when the effects are short term.

Corporate Social Responsibility (CSR) was found to have a negative and significant effect on ROA. This highlights the need for more strategic, integrated, and measurable CSR programs to ensure that both social and economic benefits are achieved optimally. In the long run, well-designed CSR programs may enhance ROA. This result differs from other studies (Amiarti et al., 2024; Arfindo Hermawan et al., 2024; Idakwo & Adeyemi, 2025; Nouaili & Khemiri, 2025), which identified a significant positive relationship between CSR and profitability. CSR was also found not to significantly affect ROE, which suggests that CSR must be transformed into more strategic and value-creating initiatives in order to generate measurable financial outcomes aligned with corporate sustainability goals.

The study also shows that GCG has a significant moderating effect in either strengthening or weakening the relationship between GF and ROA. In other words, GCG enhances the effectiveness of Green Finance implementation, resulting in a positive impact on profitability. This finding is particularly noteworthy, as GF directly has a negative and significant effect on ROA, but when moderated by GCG, its effect becomes significantly positive. This demonstrates that when companies consistently apply GCG principles—accompanied by stronger oversight, transparency, and accountability—the implementation of Green Finance becomes more efficient and effective. GCG was also found to moderate GF in relation to ROE. Interestingly, while GF directly exerts a negative effect on ROE, its impact becomes positive under GCG moderation. Effective GCG ensures higher-quality project management, reduces risk, and maximizes the benefits of green investments for shareholders, thereby minimizing or even reversing the direct negative impact of GF on ROE.

Furthermore, the interaction between Environmental Performance and GCG was found to have a significant effect on ROA. This indicates that the application of sound governance principles enhances the effectiveness of environmental management in supporting profitability. In other words, companies with strong environmental performance that are also governed effectively are more likely to maximize the economic benefits of their sustainability initiatives. However, GCG was not found to moderate the relationship between EP and ROE.

Finally, CSR moderated by GCG has a positive and significant effect on ROA. This result suggests

that improvements in corporate governance practices effectively enhance the role of CSR in contributing to profitability. An important insight here is that CSR directly exerts a negative effect on ROA, but when moderated by GCG, the effect becomes positive. CSR initiatives implemented under a strong governance framework lead to more efficient resource allocation and better-targeted programs, thereby amplifying their economic benefits and ultimately improving ROA. By contrast, GCG did not moderate the relationship between CSR and ROE. This finding highlights the importance of strengthening policies, capacity, and cross-functional collaboration in the implementation of both GCG and CSR to achieve optimal economic and sustainability outcomes.

6. CONCLUSION

This study aims to analyze the factors influencing financial performance (ROA and ROE) of industrial sector companies listed on the Indonesia Stock Exchange during the 2019–2023 period. The factors examined include Green Finance (GF), Environmental Performance (EP), and Corporate Social Responsibility (CSR). In addition, the study evaluates the moderating role of Good Corporate Governance (GCG) to determine whether it weakens or strengthens the influence of these factors on financial performance.

Green Finance, proxied by the Green Investment Ratio (GIR), was found to have a significant effect on the financial performance of industrial sector companies during the period, whether measured by Return on Assets (ROA) or Return on Equity (ROE). Environmental Performance (EP) significantly influenced ROA but had no significant effect on ROE. While improvements in environmental performance enhanced firms' ability to generate profits through assets, such improvements did not translate into a significant impact on equity returns within the research timeframe. CSR also significantly influenced ROA but not ROE, indicating that CSR initiatives enhanced profitability through assets but had not yet yielded measurable impacts on returns to equity holders.

GCG showed no effect on ROA but had a significant influence on ROE, reflecting its close association with shareholder interests and financial transparency efficiency. Moreover, GCG was able to moderate the effect of Green Finance on both ROA and ROE, with the interaction between GF and GCG proving significant. GCG also moderated the relationship between Environmental Performance and ROA, with a negative and significant interaction. This suggests that while strong governance enhances the effectiveness of environmental performance initiatives, it may simultaneously reduce profitability as measured by ROA. However, GCG did not moderate the effect of EP on ROE. Similarly, GCG moderated the influence of CSR on ROA, turning its effect into a positive contribution to profitability, but did not moderate the relationship between CSR and ROE.

From a managerial perspective, the findings of this study provide practical recommendations for corporate management, stakeholders, regulators, and policymakers. Industrial sector companies in Indonesia are encouraged to strengthen the integration of Good Corporate Governance (GCG) principles into their sustainability programs, particularly those related to Green Finance, Environmental Performance, and CSR. The evidence that GCG reinforces the impact of GF, EP, and CSR on ROA underscores the importance of synergy between sound governance and sustainability initiatives in order to achieve tangible profitability outcomes.

The study further highlights the need for a stronger and more consistent commitment to sustainability implementation. Companies should enhance the role of human resources, training, and internal controls to ensure that sustainability practices go beyond mere formality or administrative compliance, generating concrete economic benefits. The improved application of GCG principles—including transparency and accountability in reporting environmental and CSR programs—can strengthen investor and stakeholder trust, ultimately contributing positively to firm value.

Finally, given the direct impact of sustainability practices on profitability, companies should expand collaboration with government bodies, local communities, financial institutions, and other stakeholders to secure regulatory support, incentives, and broaden access to sustainable resources. Corporate management should adopt a long-term perspective in assessing the benefits of sustainability, as the economic effects of Green Finance, Environmental Performance, and CSR often materialize over extended periods through improved reputation, consumer loyalty, and operational efficiency.

REFERENCE

Aguilera, R. V., Marano, V., & Haxhi, I. (2019). International corporate governance: A review and opportunities for future research. *Journal of International Business Studies*, *50*(4), 457–498. https://doi.org/10.1057/s41267-019-00232-w

Alsayegh, M. F., Abdul Rahman, R., & Homayoun, S. (2020). Corporate Economic, Environmental, and Social Sustainability Performance Transformation through ESG Disclosure. *Sustainability*, *12*(9), 3910. https://doi.org/10.3390/su12093910

Amanda, F. D., Wiyono, S., & Aryati, T. (2025). The Effect of Environmental Performance, Environmental Costs and Environmentally Friendly Products on Financial Performance. *International Journal of Environmental, Sustainability, and Social Science*, *6*(1), 01–12. https://doi.org/10.38142/ijesss.v6i1.1276

Amiarti, D., Fahruna, Y., Wendy, Giriati, & Mustaruddin. (2024). Boosting Profitability Through Green Finance, CSR, and Capital Structure: The Moderating of The Board of Directors. *Ilomata International Journal of Management*, *6*(2), 587–599. https://doi.org/10.61194/ijjm.v6i2.1537

Arfindo Hermawan, Syahna Shinta Yunari, & Hwihanus Hwihanus. (2024). The Influence Of CSR and Profitability On Financial Performance and Company Value. *International Journal of Economics, Management and Accounting*, *1*(2), 324–331. https://doi.org/10.61132/ijema.v1i2.98

Aulia, A., Siahaan, M., & Siregar, J. K. (2025). Green Accounting and Environmental Performance on Financial Performance: Strategic Insights from the Mining Industry in Indonesia. *Asian Journal of Environmental Research*, *2*(1), 16–28. https://doi.org/10.69930/ajer.v2i1.272

Baratta, A., Cimino, A., Longo, F., Solina, V., & Verteramo, S. (2023). The Impact of ESG Practices in Industry with a Focus on Carbon Emissions: Insights and Future Perspectives. *Sustainability*, *15*(8), 6685. https://doi.org/10.3390/su15086685

Chandrakant, R., & Rajesh, R. (2023). Social sustainability, corporate governance, and sustainability performances: An empirical study of the effects. *Journal of Ambient Intelligence and Humanized Computing*, *14*(7), 9131–9143. https://doi.org/10.1007/s12652-022-04417-4

Chen, S., Song, Y., & Gao, P. (2023). Environmental, social, and governance (ESG) performance and financial outcomes: Analyzing the impact of ESG on financial performance. *Journal of Environmental Management*, *345*, 118829. https://doi.org/10.1016/j.jenvman.2023.118829

Deng, X., & Cheng, X. (2019). Can ESG Indices Improve the Enterprises' Stock Market Performance?—An Empirical Study from China. *Sustainability*, *11*(17), 4765. https://doi.org/10.3390/su11174765

Dhinny Maulani Agustin & Yuni Rosdiana. (2022). Pengungkapan Corporate Social Responsibility (CSR) dan Kinerja Lingkungan terhadap Kinerja Keuangan. *Jurnal Riset Akuntansi*, 83–90. https://doi.org/10.29313/jra.v2i2.1149

Ding, J. (2019). Green credit policy, credit resources allocation and strategic response of enterprises. *Economic Review*, *4*, 62–75. https://doi.org/10.19361/j. er.2019.04.05

Duque-Grisales, E., & Aguilera-Caracuel, J. (2021). Environmental, Social and Governance (ESG) Scores and Financial Performance of Multilatinas: Moderating Effects of Geographic International Diversification and Financial Slack. *Journal of Business Ethics*, *168*(2), 315–334. https://doi.org/10.1007/s10551-019-04177-w

Espino, L. C., & Mutuc, E. B. (2024). *CSR and Financial Performance of Listed Firms in the Philippines*. Business, Economics and Management. https://doi.org/10.20944/preprints202410.0947.v1

Fanisa Anggita Putri & Dewi Saptantinah Puji Astuti. (2024). Pengaruh Corporate Social Responsibility Terhadap Kinerja Keuangan Dengan Good Corporate Governance Sebagai Variabel Moderasi. *Transformasi: Journal of Economics and Business Management*, *3*(3), 01–15. https://doi.org/10.56444/transformasi.v3i3.1899

Fathony, M., Khaq, A., & Endri, E. (2020). The Effect of Corporate Social Responsibility and Financial Performance on Stock Returns. *International Journal of Innovation*, *13*(1).

Gray, R. (2002). OF MESSINESS, SYSTEMS AND SUSTAINABILITY: TOWARDS A MORE SOCIAL AND ENVIRONMENTAL FINANCE AND ACCOUNTING. *The British Accounting Review*, *34*(4), 357–386. https://doi.org/10.1006/bare.2002.0217

Harliani, D. (2024). *Pengaruh Green Finance dan Kinerja Lingkungan Terhadap Nilai Perusahaan Melalui Kinerja Keuangan Pada Sektor Consumer Non-Cylicals yang Terdaftar di Bursa Efek Indonesia Periode 2020-2022*. Universitas Jambi.

Hu, J., Li, J., Li, X., Liu, Y., Wang, W., & Zheng, L. (2021). Will Green Finance Contribute to a Green Recovery? Evidence From Green Financial Pilot Zone in China. *Frontiers in Public Health*, *9*, 794195. https://doi.org/10.3389/fpubh.2021.794195

Husted, B. W., & Sousa-Filho, J. M. D. (2019). Board structure and environmental, social, and governance disclosure in Latin America. *Journal of Business Research*, *102*, 220–227. https://doi.org/10.1016/j.jbusres.2018.01.017

Idakwo, A. J., & Adeyemi, T. S. (2025). *Relationship Between Corporate Social Responsibility (CSR) Initiatives and Financial Performance: A Meta-Analysis*. *9*(3).

Kalia, D., & Aggarwal, D. (2023). Examining impact of ESG score on financial performance of healthcare companies. *Journal of Global Responsibility*, *14*(1), 155–176. https://doi.org/10.1108/JGR-05-2022-0045

Li, P., Zhou, R., & Xiong, Y. (2020). Can ESG Performance Affect Bond Default Rate? Evidence from China. *Sustainability*, *12*(7), 2954. https://doi.org/10.3390/su12072954

Li, Y., & Lin, A. (2024). Assessing the impact of green finance on financial performance in Chinese eco-friendly enterprise. *Heliyon*, *10*(7), e29075. https://doi.org/10.1016/j.heliyon.2024.e29075

Lubis, I. E., & Rahyuda, H. (2022). THE EFFECT OF ENVIRONMENTAL PERFORMANCE ON COMPANY FINANCIAL PERFORMANCE WITH COMPANY SIZE AND GOOD CORPORATE GOVERNANCE AS MODERATING VARIABLES. *International Journal*, *6*(2).

Matakanye, R. M., Van Der Poll, H. M., & Muchara, B. (2021). Do Companies in Different Industries Respond Differently to Stakeholders' Pressures When Prioritising Environmental, Social and Governance Sustainability Performance? *Sustainability*, *13*(21), 12022. https://doi.org/10.3390/su132112022

Misutari, N. M. S., & Ariyanto, D. (2021). Good Corporate Governance Memoderasi Pengaruh Corporate Sosial Responsibility dan Penerapan Green Accounting terhadap Kinerja Keuangan. *E-Jurnal Akuntansi*, *31*(12), 2975. https://doi.org/10.24843/EJA.2021.v31.i12.p03

Nouaili, M., & Khemiri, M. A. (2025). Green Growth, Corporate Social Responsibility, and Bank Profitability: Synergies for Sustainable Finance in the Middle East and North Africa Region. *International Journal of Economics and Financial Issues*, *15*(4), 393–404. https://doi.org/10.32479/ijefi.19149

Oprean-Stan, C., Oncioiu, I., Iuga, I. C., & Stan, S. (2020). Impact of Sustainability Reporting and Inadequate Management of ESG Factors on Corporate Performance and Sustainable Growth. *Sustainability*, *12*(20), 8536. https://doi.org/10.3390/su12208536

Patil, R. A., Ghisellini, P., & Ramakrishna, S. (2021). Towards Sustainable Business Strategies for a Circular Economy: Environmental, Social and Governance (ESG) Performance and Evaluation. In L. Liu & S. Ramakrishna (Eds.), *An Introduction to Circular Economy* (pp. 527–554). Springer Singapore. https://doi.org/10.1007/978-981-15-8510-4_26

Permatasari, F., & Widianingsih, L. P. (2020). PENGUNGKAPAN CORPORATE SOCIAL RESPONSIBILITY TERHADAP KINERJA KEUANGAN DENGAN GOOD CORPORATE GOVERNANCE SEBAGAI VARIABEL MODERASI. *Media Akuntansi Dan Perpajakan Indonesia*, *1*(2), 87–114. https://doi.org/10.37715/mapi.v1i2.1404

Popescu, C., Hysa, E., Kruja, A., & Mansi, E. (2022). Social Innovation, Circularity and Energy Transition for Environmental, Social and Governance (ESG) Practices—A Comprehensive Review. *Energies*, *15*(23), 9028. https://doi.org/10.3390/en15239028

Putri, A. Y., Wibowo, A. S., & Rosel. (2022). Pengaruh Penerapan Green Accounting Terhadap Kinerja Keuangan Dengan Good Corporate Governance Sebagai Pemoderasi (Studi Empiris Pada Perusahaan Sektor Manufaktur yang Terdaftar di Bursa Efek Indonesia Periode 2016-2020). *Jurnal Manajemen Sains Dan Organisasi*, *3 (3)*.

Renaldo, N., Veronica, K., & David, R. (2022). *GOOD CORPORATE GOVERNANCE MODERATES THE EFFECT OF ENVIRONMENTAL PERFORMANCE AND SOCIAL PERFORMANCE ON FINANCIAL PERFORMANCE*. *1*.

Rodríguez-Fernández, M., Sánchez-Teba, E. M., López-Toro, A. A., & Borrego-Domínguez, S. (2019). Influence of ESGC Indicators on Financial Performance of Listed Travel and Leisure Companies. *Sustainability*, *11*(19), 5529. https://doi.org/10.3390/su11195529

Safitri, N. (2024). *Pengaruh Green Financing Terhadap Capital Adequacy Ratio, Non-Performing Loan, dan Net Interest Margin Perusahaan Pada Sektor Perbankan Di Negara Indonesia, Thailand, Malaysia, dan Singapura (Periode 2019-2023)*. UIN.

Shaikh, I. (2022). ENVIRONMENTAL, SOCIAL, AND GOVERNANCE (ESG) PRACTICE AND FIRM PERFORMANCE: AN INTERNATIONAL EVIDENCE. *Journal of Business Economics and Management*, *23*(1), 218–237. https://doi.org/10.3846/jbem.2022.16202

Sumariani, N. M., Putra, I. M. E. L., & Pratiwi, N. P. T. W. (2024). *Pengaruh Akuntansi Hijau, Pengungkapan Corporate Social Responsibility (CSR) dan Kinerja Lingkungan Terhadap Kinerja Keuangan. Hita Akuntansi Dan Keuangan Universitas Hindu Indonesia*. 63–72.

Sumastuti, E., Harahap, S., & Sianipar, G. (2024). Exploring The Impact Of Green Finance, Financial Literacy, And Social Capital On The Performance And Financial Sustainability Of Indonesian MSMEs. *Journal of Economic, Bussines and Accounting (COSTING)*, *7*(4), 10869–10886. https://doi.org/10.31539/costing.v7i4.9719

Sunarjo, M. Y., Sutrisno, C. R., & Kurnia, A. (2024). CSR and green accounting on financial performance: Good corporate governance as moderating variable. *Kompartemen : Jurnal Ilmiah Akuntansi*, *22*(2), 243. https://doi.org/10.30595/kompartemen.v22i2.23774

Teng, X., Wang, Y., Wang, A., Chang, B.-G., & Wu, K.-S. (2021). Environmental, Social, Governance Risk and Corporate Sustainable Growth Nexus: Quantile Regression Approach. *International Journal of Environmental Research and Public Health*, *18*(20), 10865. https://doi.org/10.3390/ijerph182010865

Velte, P. (2017). Does ESG performance have an impact on financial performance? Evidence from Germany. *Journal of Global Responsibility*, *8*(2), 169–178. https://doi.org/10.1108/JGR-11-2016-0029

Wang, X., Liu, J., & Zhao, Y. (2021). Effectiveness measurement of green finance reform and innovation pilot zone. *Journal of Quantitative Technical Economics*, *38(10)*, 107–127. https://doi.org/10.13653/j.cnki.jqte.2021.10.006

Xie, J., Nozawa, W., Yagi, M., Fujii, H., & Managi, S. (2019). Do environmental, social, and governance activities improve corporate financial performance? *Business Strategy and the Environment*, *28*(2), 286–300. https://doi.org/10.1002/bse.2224

Yadav, S. K. (2024). *Does Green Finance Influence Financial Performance? Evidence From BSE100 Companies*. https://doi.org/10.5281/ZENODO.13996183

Yin, F., Xiao, Y., Cao, R., & Zhang, J. (2023). Impacts of ESG Disclosure on Corporate Carbon Performance: Empirical Evidence from Listed Companies in Heavy Pollution Industries. *Sustainability*, *15*(21), 15296. https://doi.org/10.3390/su152115296

Zhang, Y., Wang, X., Guo, W., Guo, X., Wang, Q., & Tan, X. (2024). Does ESG Performance Affect the Enterprise Value of China's Heavily Polluting Listed Companies? *Sustainability*, *16*(7), 2826. https://doi.org/10.3390/su16072826

Zulfa, A., Dwijaya, A., & Sari, M. G. (2024). Literatur Review: Implementasi Kinerja Lingkungan Dengan Praktik Good Corporate Governance (Gcg) Terhadap Kinerja Keuangan Dan Nilai Perusahaan. *Journal of Management and Innovation Entrepreneurship (JMIE)*, *1*(2), 159–167. https://doi.org/10.59407/jmie.v1i2.322