

CSR as a Moderation: Improving Financial Performance Through Green Investments and Good Corporate Governance

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ABSTRACT

This research is intended to determine the effect caused by green investment and good corporate governance on financial performance, moderated by CSR, in the manufacturing industry on the IDX in the period 2021-2023. The selection of the sample was conducted through a purposive sampling technique. The research method used was Moderated Regression Analysis and multiple linear regression on SPSS version 30. The result of the research confirmed that Green Investment and independent commissioners cannot maximize financial performance, while directors can maximize the improvement of financial performance. The existence of CSR disclosure can further optimize the role of Green Investment and directors in terms of maximizing financial performance. Otherwise, CSR disclosure weakens independent commissioners in achieving financial performance. These findings provide guidance to the manufacturing industry that the green transition requires a more comprehensive approach than simply allocating funds to environmental programs. Furthermore, regarding governance, manufacturing companies need to focus more on strengthening the capacity of their directors to manage sustainability and ensuring that independent commissioners have relevant industry expertise.

Keywords: *Financial Performance, Corporate Social Responsibility, Green Investment, Good Corporate Governance*

1. INTRODUCTION

The manufacturing sector in Indonesia acts as the backbone of the country's economy, and its GDP is considered to have an impact on increasing global competitiveness (Mamonto et al., 2024). However, manufacturing performance can experience fluctuations if there are dynamics that hit both domestically and globally. Manufacturers often have large investments in fixed assets such as factories, machinery, and equipment. Moreover, they have extensive inventories to maintain operational stability. Therefore, measurements such as Return on Assets (ROA) serve as a crucial indicator of how efficient manufacturing performance is that relies on assets to achieve profit.

The ROA performance of the basic industry and chemical manufacturing sub-sector in 2020 decreased by -0.47%, which was due to a decrease in purchasing power and strict mobility restrictions due to the pandemic. Then in 2021, there was an extreme spike of 49.47% which was caused by a recovery in demand (processed data, 2021–2023). One of the companies that experienced this was PT Mark Dynamics. According to its report, the increase was due to the growing public awareness of personal

protection, including the use of medical gloves (Mark Dynamics Indonesia, 2021). In 2022, the entire manufacturing sub-sector experienced a decline of 2.56%. Another cause is geopolitical pressure. One of them is PT Berlina, which suffered from supply chain disruptions (Berlina Tbk, 2022).

The manufacturing industry continues to operate as a pillar of the economy, despite fluctuating performance. However, its operations can also be detrimental to society. Its operations that use fossil fuels, namely gas, oil, and coal are the most frequent carbon emitters (Yi, 2023). The manufacturing sector in Indonesia has experienced a significant increase in emissions, second only to the energy sector over the past two decades. Specifically, in 2022, the manufacturing industry emitted 28.6%. This result is due to the use of fossil fuels and coal, which have reached 82% and 241% respectively compared to the previous period (Kementerian Lingkungan Hidup dan Kehutanan, 2024).

Manufacturing operations that are not accompanied by sustainable strategies will cause climate change. This puts manufacturers under pressure to comply with various regulations. The Paris Agreement formulated since 2015 aims to encourage many companies in the world to implement ESG aspects in addressing climate change. The Paris Agreement is designed to encourage climate change by keeping global temperature rise below 2°C above pre-industrial levels, and as close as possible to the 1.5°C threshold. (United Nations Framework Conventional on Climate Change, 2015). Strengthening of ESG aspects in this regulation may consist of Green Investment, corporate governance, and environmental social responsibility disclosure of climate and sustainability issues. Green Investment has been in great demand in many countries, and many companies have transitioned into green assets as a top investment priority (Mooney, 2025).

Indonesia has planned various frameworks for its commitment to Green Investment (IEA, 2021). However, the implementation is still experiencing obstacles such as the reliance on fossil fuels, declining availability of green infrastructure for investment, volatile green bond, market uncertainty in Indonesia, and inconsistent regulations (Climate Bonds Initiative, 2022). Whereas, the application of ESG aspects, especially Green Investment, is very likely and proven to improve financial performance. This was conveyed by (Tanasya & Handayani, 2020), (Indriastuti & Chariri, 2021), and (Khalid et al., 2023). Global investors are starting to invest more in green projects because besides being profitable, their perspectives are open to the importance of maintain environmental aspects (Siemroth & Hornuf, 2023). However, some companies still think that Green Investment cannot improve finances (Novia & Candy, 2023). The reason for the rejection is because the cost burden is relatively large.

The challenge of Green Investment does require a good ESG understanding, especially with good governance practices and company's commitment to social and environmental responsibilities (CSR). The existence of CSR and governance practices is also mandatory for many companies, as stated in POJK 51/2017 regulations for CSR and POJK 21/2015 for the implementation of good governance. Moreover, many foreign investors now include ESG aspects in their investment evaluation (Hossain et al., 2024). With good governance and credible CSR, companies will improve their finances in the long run (Yendrawati & Kinanti, 2024). This is in line with stakeholder theory, where targeted ESG exposures tend to have good governance, green practices, and sustainability (Habib et al., 2025). The company will be able to reach new consumers and can certainly meet the expectations of stakeholders (Appah & Tebepah, 2025).

This study will examine CSR as moderating the relationship between green

investment and governance in improving financial performance. The novelty uses residual tests from Moderated Regression Analysis with observation years that include unstable economic conditions, 2021 to 2023. The CSR indicator uses GRI 2021, which is still quite rarely used in research. This research also takes the manufacturing sector because most research on Green Investment in Indonesia is still limited to sector units on the IDX and companies indexed by certain stocks. The study underscores the significance of integrating social and environmental considerations into corporate strategies, beyond just financial gains. In addition, it provides a broader view and critical thinking of other stakeholders on the company's activities.

2. THEORETICAL FRAMEWORK AND HYPOTHESIS FORMULATION

The Effect of Green Investment on Financial Performance

Green initiatives that are routinely implemented alongside core business operations can reflect the company's dedication to reducing emissions throughout its operational chain. Initiatives such as waste management, energy efficiency, and other green practices are proven to reduce emissions and increase profits (Primc et al., 2024). This concept echoes Stakeholder Theory, which holds that companies invest in green energy to meet stakeholder expectations, while Legitimacy Theory explains that this step is taken to maintain existence (Indriastuti & Chariri, 2021). Several studies have stated an increase in financial performance through Green Investment, as stated (Siedschlag & Yan, 2023), (Tanasya & Handayani, 2020), (Indriastuti & Chariri, 2021), (Khalid et al., 2023).

H₁: Green Investment has a significant positive effect on financial performance

The Effect of Director on Financial Performance

The director is an internal corporate with full authority to manage company operations. Their role is significant in asset management, which can increase profits. The more directors in a company, the more perspectives there are for developing sustainable strategies. The role of the director depends heavily on their background, experience, knowledge, and capabilities. Therefore, at least two directors are needed, and more will provide more perspectives to improve the company's efficiency. Stakeholder theory emphasizes that companies are obliged to fulfil all rights, and the director plays a crucial role in balancing these rights, including increasing profits (Nasution et al., 2024). Research supporting a powerful connection between directors and improved financial performance includes (Khatib & Nour, 2021), (Nasution et al., 2024), and (Haryani & Susilawati, 2023).

H₂: Director has a significant positive effect on financial performance

The Effect of Independent Commissioners on Financial Performance

Independent commissioners are objective external supervisors who oversee the company to ensure transparency and minimize the potential for errors in financial management, ultimately contributing to the steadiness of the firm's operational outcomes (Haryani & Susilawati, 2023). (Yendrawati & Kinanti, 2024) and (Fajriah & Jumady, 2022) also confirms this positive relationship. Stakeholder theory, in this case, can suggest that the role of strategic management and oversight (such as commissioners) is considered important to safeguard stakeholder rights through effective oversight to ensure sustainability.

H₃: Independent commissioners has a significant positive effect on financial performance

The Effect of CSR as Moderation on Green Investment on Financial Performance

CSR can help as an announcement that the company has kept its promises in terms of emissions reduction commitments, such as green investment and other initiatives that will gradually generate greater profits (Appah & Tebepah, 2025). This is in accordance with stakeholder theory. Legitimacy theory also shows the company's ability to comply with applicable environmental norms and ethics. Studies that support CSR can strengthen the relationship between these two aspects are (Rauf et al., 2024), (Oware & Mallikarjunappa, 2022), and (Appah & Tebepah, 2025).

H4: CSR can moderate the relationship between green investment and financial performance

The Effect of CSR as Moderation on Director on Financial Performance

CSR can serve as a platform for communicating strategies and achievements across financial, social, and environmental dimensions. This will increase stakeholder trust, which can even increase profits because the company can balance its social and environmental stability alongside its economic stability (Hamad & Cek, 2023). Stakeholder theory supports this notion, as it enables businesses to uphold their legitimacy and avoid controversies in the future (Hossain et al., 2024). The positive relationship between governance, including the role of directors in using CSR to improve financial performance, has been confirmed by (Hamad & Cek, 2023), (Ben Zahra & Irkhami, 2021), (Fatma & Chouaibi, 2023), and (Jiang et al., 2021).

H5: CSR can moderate the relationship between director and financial performance

The Effect of CSR as Moderation on Independent Commissioner on Financial Performance

Independent commissioners play a role in overseeing management's professional conduct, which drives increased profits. CSR strengthens this relationship by creating responsive governance for stakeholders. According to stakeholder theory, the combination of effective oversight and CSR practices leads to better financial performance because the company is perceived as meeting the interests of multiple stakeholders. This result has been confirmed by (Basir, 2019) and (Hamad & Cek, 2023).

H6: CSR can moderate the relationship between independent commissioner and financial performance

Framework

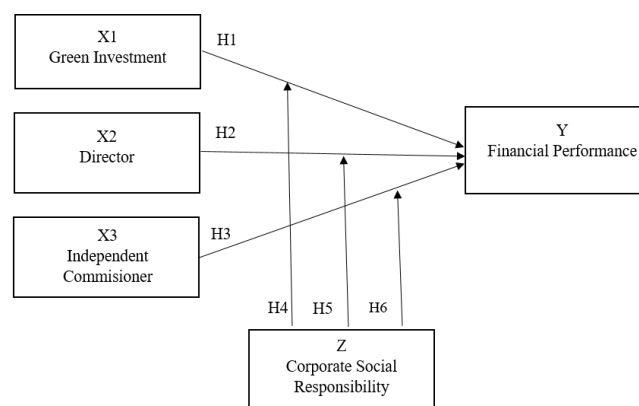


Figure 1: Model of Research

Source: processed by Author (2025)

3. RESEARCH METHOD

Type of Research

This research uses the Indonesian manufacturing industry, which is publicly listed company in the Indonesian Stock Exchange, as the population. This analysis focuses on a three-year observation window starting in 2021 to 2023. The sample selection criteria are companies that regularly release nominal environmental costs and have never experienced a loss during the three years of observation (Suhartini et al., 2024). In addition, companies must routinely publish annual reports, sustainability reports and financial reports sourced primarily from the IDX. The total sample set from 240 manufacturing industry populations is 56 companies.

Variables

Five variables are involved in this research:

1. Green Investment as an independent variable is the allocation of capital or costs that support environmentally friendly programs. The measurement is based on research from (Khalid et al., 2023):

$$\text{Green Investment} = \frac{\text{Environmental Cost}}{\text{Total Assets}}$$

2. Independent Commissioner, as an independent variable, refers to an independent body that oversees companies to ensure they remain transparent, accountable, and in accordance with regulations. The measurement is based on (Ferriswara et al., 2022):

$$\text{Independent Commissioner} = \frac{\text{Total independent commissioners}}{\text{Total board of commissioners}}$$

3. Director, as an independent variable, refers to internal corporate governance tools that are responsible for carrying out company operational management, including implementing business strategies. The measurement is based on (Nasution et al., 2024):

$$\text{Board of Directions} = \sum \text{Total Board of Directions}$$

4. Corporate Social Responsibility, as a moderating variable, is measured on a dummy. CSR is the disclosure of actions in companies related to governance, social, and even environmental aspects. It is measured with a dummy scale based on GRI 2021. The following is the CSR formula based on (Yendrawati & Kinanti, 2024):

$$\text{CSR} = \frac{\text{Total items disclosed}}{\text{Total items that should be disclosed}}$$

5. Financial Performance, as the dependent variable. The proxy involved is Return On Asset (ROA). ROA is a formula for assessing the return on the company's asset performance. The use of ROA collects companies that always experience profits (Suhartini et al., 2024). The following is the formula for ROA:

$$\text{ROA} = \frac{\text{Profit After Tax}}{\text{Total Assets}}$$

Methods

Hypothesis testing uses two main methods. The first method uses a multiple linear regression approach for H_1 and H_2 . The second method involves the Moderated Regression Analysis test for H_3 and H_4 . Multiple linear regression allows researchers to evaluate the contribution of multiple independent variables toward explaining changes in the dependent variable. In Moderated Analysis Regression use an interaction test.

Testing for moderation will also determine whether CSR functions as a homologizer, pure moderation, or quasi-moderation. Testing can be done with the help of the SPSS version 30 application.

4. RESULTS AND DISCUSSION

Results

The preliminary test undertaken was descriptive statistics and the classical assumption test. The descriptive statistical test aims to change raw data into a more readable form that provides an overview of the distribution and trends of the data. This test is the first step to understanding and summarizing large data before further analytical tests are carried out. Meanwhile, the classical assumption test serves as a prerequisite for conducting a valid regression test (Ghozali, 2021).

a. Descriptive Statistics Test

Table 1: Descriptive Statistics Test

	N	Minimum	Maximum	Mean	Std. Deviation
GI	168	.000001	.8411561	.00843727	.066208962
GCG_Dir	168	2	11	4.62	1.774
GCG_Kom	168	.250000	.800000	.422604875	.103959727
FNP	168	.000271	39.620370	.32408511	3.052771469
CSR	168	.491525	.855932	.62051046	.060042106

Source: data processed (2025)

Green investment has a minimum value of 0.00001, a maximum value of 2.670232, a mean of 0.04217260, and a standard deviation of 0.272717381. This shows that a small proportion of companies incur much larger environmental costs than others, which is likely to be a contributing factor to the negative impact on profitability, especially in the short term.

Director has a minimum value of 2, a maximum value of 11, a mean of 4.62, and a standard deviation of 1.774. Most companies have relatively small to moderate director structures, with no extreme variation in the number of directors between companies.

Independent commissioner has a minimum value of 0.250000, a maximum value of 0.800000, a mean of 0.422604875, and a standard deviation of 0.103959727. The differences in the composition of independent commissioners between companies are relatively small, but most show around 40%. These companies have complied with the regulations for the composition of independent commissioners of 30%.

Financial performance has a minimum value of 0.000271, a maximum value of 39.620370, a mean of 0.32408511, and a standard deviation of 3.052771469. ROA varies widely and has an uneven distribution. This is due to the volatile economic conditions during the research period.

Then, CSR has a minimum value of 0.491525; a maximum value of 0.855932; a mean of 0.62051046; and a standard deviation of 0.060042106. This indicates that most companies are quite good at implementing CSR. Each variable has 168 observations.

b. Normality Test

Table 2: Normality Test

		Unstandardized Residual
N		168
Normal Parameters	Mean	.0000000
	Std. Deviation	3.03286485
Most Extreme Differences	Absolute	.432
	Positive	.432
	Negative	-.349
Test Statistic		.432
Asymp. Sig. (2-tailed)		.000

Source: data processed (2025)

The results from the Kolmogorov-Smirnov Asymp Sig (2-tailed) test are $0.000 < 0.05$. This requires data transformation because this dataset exhibits a non-normal distribution. The normality test with transformation data is presented as follows:

Table 3: Normality Test with Transformation Data

		Unstandardized Residual
N		168
Normal Parameters	Mean	.0000000
	Std. Deviation	.53501249
Most Extreme Differences	Absolute	.055
	Positive	.044
	Negative	-.055
Test Statistic		.055
Asymp. Sig. (2-tailed)		.200

Source: data processed (2025)

After going through approximately 16 data transformation trials, the value of Asymp Sig (2-tailed) is significant, with a value of $0.200 > 0.05$. Thus, the data have a normal distribution.

c. Autocorrelation Test

Table 4: Autocorrelation Test

Model	R	R Square	Durbin Watson
1	0,487	0,237	2.011

Source: data processed (2025)

Durbin-Watson (DW) will be compared with the table value at sig. 5%. The total sample (N) and the total independent variables are 168 and 4 ($K=4$), respectively, so the value of $du=1.7966$. The DW value in the table is 2.011, which is greater than (du) 1.7966 and less than $4-1.7966=2.2034$ ($4-du$), so the conclusion is $1.7966 < 2.011 < 2.2034$. Thus, this study's model-free signs of autocorrelation.

d. Multicollinearity Test

Table 5: Multicollinearity Test

Collinearity Statistics		
	Tolerance	VIF
(Constant)		
GI	.976	1.024
GCG_Dir	.976	1.025
GCG_Kom	.973	1.028
CSR	.989	1.011

Source: data processed (2025)

Based on the results of the multicollinearity test, all independent variables had tolerance values greater than 0.1, indicating that there was no strong linear relationship between the independent variables. Furthermore, the Variance Inflation Factor (VIF) value for each variable was also below 10, which is the general limit for detecting multicollinearity. By meeting both criteria, this study's regression model did not experience multicollinearity problems.

e. Heteroskedasticity Test

Table 6: Heteroskedasticity Test

	Sig
(Constant)	
GI	0.387
GCG_Dir	0.371
GCG_Kom	0.293
CSR	0.189

Source: data processed (2025)

Each Sig. value for each variable in Table 6 is more than 0.05. Green Investment is 0.371, GCG - Board of Directors is 0.293, GCG - Independent Commissioner is 0.189, and CSR is 0.098. So, no heteroscedasticity causes inconsistent regression results between independent variables.

f. Hypothesis Testing for H₁ and H₂

Table 7: Multiple Linear Regression Test Results

	Unstandardized Coefficients			
	B	Std. Error	t	Sig.
(Constant)	-.528	.468	-1.129	.261
GI	-.316	.149	-2.118	.036
GCG_Dir	.159	.023	6.907	.000
GCG_Kom	.373	.392	.951	.343
CSR	-.127	.674	-.189	.850

Source: data processed (2025)

In the t-test, if the calculated t-value > t-table and the significant value < 0.05, then there is a significant partial influence of the independent variable on the dependent variable. The t-table is obtained through the formula $t\text{-table} = (t_{\alpha/2; n-k-1})$. The t-table results are 1.97472. The green investment has a significant negative effect

on financial performance because the value is $(-2.118 > -1.97462)$ and $0.036 < 0.05$. GCG-Directors has a significant positive effect on financial performance because the value is $(6.907 > 1.97462)$ and $0.000 < 0.05$. GCG-independent commissioner has no significant effect because $(0.951 < 1.97462)$ and $0.343 > 0.05$. CSR has no significant effect because $(-0.189 < -1.97462)$ and $0.850 > 0.05$.

g. Hypothesis Testing for H₃ and H₄

Table 8: Multiple Linear Regression Test Results with Residual Test Results

Unstandardized Coefficients				
	B	Std. Error	t	Sig.
(Constant)	.387	.290	1.334	.184
GI	-.563	.108	-5.223	.000
GCG_Dir	.162	.013	12.068	.000
GCG_Kom	-.428	.230	-1.863	.064
CSR	-1.151	.419	-2.748	.007
CSR*GI	13.645	4.176	3.268	.001
CSR*GCG_dir	3.557	.239	14.863	.000

Source: data processed (2025)

The t-test on MRA with residual test will be affected if the t-value $>$ t-table and the significance < 0.05 . CSR can moderate by strengthening the influence of Green Investment ($3.268 > 1.97462$ and $0.001 < 0.05$) and director ($14.863 > 1.97462$ and $0.000 < 0.05$) on financial performance. However, CSR can moderate the influence by weakening the relationship between GCG - Independent Commissioners on financial performance. This is because the resulting value is $(-9.546 > -1.97462)$ and the significance value is $0.000 < 0.05$. The role of CSR in each relationship has test results $(-0.189 < -1.97462)$ and is significant $0.850 > 0.05$, so that it plays a pure moderation role.

Table 9: Coefficient of Determination Test (R-Square) MRA

Model	R	R-Square
1	.867 ^a	.752

Source: data processed (2025)

Table 10: Goodness of Fit Test (F Test) MRA

Model	F	Sig.
Regression	68.912	.000 ^b

Source: data processed (2025)

The R-Square column indicates that the combination of the independent variables with moderator CSR contributes 752 or 75.2% to the variation in dependent variable, which is financial performance/outcomes. The remaining 24.8% is the influence caused by other variables outside the main research variables. Meanwhile, for the F test table 10, it is calculated, given the 5% level of significance, the degrees of freedom are $(n-k)=164$ and $(k-1)=3$, derived from $n=168$ and $k=4$. The F table is 2.66. So, the calculated $F > F$ table ($68.912 > 2.66$) with a sig ($0.000 < 0.05$), thus, simultaneously all independent and moderating variables has a notable impact on financial outcomes.

Discussion

a. The Effect of Green Investment on Financial Performance

Findings from the test reveal a significant negative linkage between green investment and a firm's financial performance. This phenomenon might be grasped in the context of Indonesia's economic conditions, which are experiencing challenges such as the pandemic and geopolitical pressures. These conditions cause companies to face double pressure, such as maintaining operations and profitability amidst challenging market conditions. This finding is in line with (Novia & Candy, 2023) and contradicts from (Tanasya & Handayani, 2020), (Indriastuti & Chariri, 2021), (Khalid et al, 2023), and (Siedschlag & Yan, 2023). The relationship with stakeholder theory is the existence of tension between stakeholders. Financial stakeholders tend to prioritize short-term returns, while environmental and social stakeholders emphasize long-term impacts that are difficult to quantify in the short-term. In legitimacy theory, although companies have made efforts to maintain legitimacy through green investment to comply with policy, these efforts have not yet translated into significant improvements in financial performance.

b. The Effect of Director on Financial Performance

The directors can improve financial performance significantly, which is in line with (Nasution et al., 2024), (Haryani & Susilawati, 2023), and (Khatib & Nour, 2021). In the volatile economic conditions, the role of directors has a central function in making fundamental decisions. The directors are able to navigate the company by adjusting operational strategies, optimizing resources, managing risks, and making effective investment decisions. According to the stakeholder theory perspective, GCG instruments already meet the interests of many stakeholders. However, the directors can fulfil these interests even more effectively. The directors' effectiveness in improving financial performance reflects their ability to manage the interests of various stakeholders optimally.

c. The Effect of Independent Commissioners on Financial Performance

Independent commissioners do not demonstrate a statistically significant contribution to better financial performance. The results are consistent with (Ferriswara et al., 2022) and contradict with (Yendrawati & Kinanti, 2024) and (Haryani & Susilawati, 2023). Independent commissioners who are not influential can be explained in the context of technical understanding and in-depth industry experience. Independent commissioners who do not have a manufacturing industry background will experience limitations in providing supervision of the company's operational complexity (Hidayat et al., 2025). In addition, independent commissioners cannot contribute directly to the sustainability strategies plan. Based on stakeholder theory, although the function of independent commissioners is to serve as a stakeholder protection mechanism that provides objective oversight, this does not necessarily mean that they can increase short-term profit efficiency.

d. The Effect of CSR as Moderation on Green Investment on Financial Performance

CSR can strengthen green investment and financial performance. In the manufacturing sector that faces high scepticism over the environmental impact of its operations, CSR can be a bridge of information that convinces stakeholders concerning the extent of the company's dedication to implementing Green Investment. Credible CSR also helps the manufacturing sector to overcome the

liability of greenness, a situation where green investments are perceived as a cost burden without clear financial benefits (Skard et al., 2021). When manufacturing companies allocate funds for environmental initiatives, CSR helps translate these efforts into values that all stakeholders can appreciate. This result is in line with (Oware & Mallikarjunappa, 2022) and (Appah & Tebepah, 2025). The stakeholder theory in this relationship is that CSR facilitates the simultaneous fulfilment of the expectations of various stakeholder groups. In addition, this also aligns with legitimacy theory, which asserts that CSR and green investment can maintain legitimacy (Indriastuti & Chariri, 2021).

e. The Effect of CSR as Moderation on Director on Financial Performance

CSR becomes a moderator that strengthens directors and financial performance. This result is in line with (Ben Fatma & Chouaibi, 2023), (Jiang et al., 2021), (Zahra & Irkhani, 2021) and (Hamad & Cek, 2023). The directors are the main role in the company's operations. CSR provides a platform for the directors to communicate the company's achievements, not limited to financial aspects, but also embracing social and environmental responsibilities. This can attract investors who focus on business sustainability, which in turn maximizes the company's profits. The Stakeholder Theory perspective in the context of positive CSR moderation reflects how transparency and accountability strengthen the directors' effectiveness in navigating the interests of multiple stakeholder parties. When directors make strategic decisions that balance financial interests with social and environmental responsibilities, CSR disclosure ensures that these efforts are communicated effectively to all stakeholders.

f. The Effect of CSR as Moderation on Independent Commissioners on Financial Performance

CSR weakens the relationship between independent commissioners and financial performance. The phenomenon shows the complexity in the governance dynamics of manufacturing. Independent commissioners who are generally committed to various companies cannot pay sufficient attention to the complexity of sustainability issues in CSR. These results are inconsistent with (Basir, 2019) and less consistent with (Hamad & Cek, 2023) because CSR has not been able to support one of the governance tools in optimizing financial performance. In the context of Stakeholder Theory, the company has sufficiently met stakeholder expectations through its direct CSR commitments, so that the presence of independent commissioners is no longer the primary determinant of profit achievement. All of the company's efforts, achievements, and goals are reflected in its CSR.

5. CONCLUSIONS, IMPLICATIONS, SUGGESTIONS AND LIMITATION OF THE RESEARCH

Conclusion

Allocation of costs for Green Investment has not been able to encourage an increase in manufacturing financial performance. GCG shows a variety of effects on financial performance. Directors have been shown to improve financial performance because they are directly responsible for strategy formulation, risk management, and optimization of company resources. In contrast, independent commissioners cannot improve financial performance. This is because independent commissioners cannot contribute directly to business sustainability, whereas increasing profits can be achieved through strategic actions.

Green Investment can be proven to drive high financial performance when companies disclose CSR comprehensively. This is equally applicable to the role of directors and their effect on financial outcomes. Companies that show their commitment to social and environmental issues in CSR make stakeholders more confident and ultimately improve financial performance. On the other hand, companies that disclose CSR holistically are not ben proven to improve financial performance because high transparency can expose the limitations of independent commissioners in providing effective supervision of the complexity of manufacturing operations.

Implications, Suggestions and Limitation

For the manufacturing industry, this study provides guidance that the green transition needs a comprehensive approach. The success of green investments in providing returns is highly dependent on the company's ability to communicate the value of these investments through credible CSR. Companies need to understand that in the short term, green investments do not immediately increase profits, but with the proper communication, these investments can improve reputation and even access to cheaper sources of funds. Manufacturing companies should also focus on strengthening the capacity of directors and ensuring independent commissioners have relevant industry expertise.

For Investors are expected to broaden their assessment of companies' readiness for green transition. Institutional investors need to develop an analytical framework that can explain the long-term value of green investments. The finding that directors make a more significant contribution to financial performance than independent commissioners also suggests that investors ought to focus more on the track record and capabilities of executives rather than simply the composition of the board of commissioners.

This study has limitations. The results of this study cannot be generalized to other sectors. The dynamics of the relationship between green investment, governance, and financial performance are different in the services, extractive, and technology sectors. It can also not be directly applied to other countries due to different capital markets, regulations, and commitments. Indonesia as a developing country, has unique characteristics in corporate ownership structure, business culture, and green infrastructure development. These factors may affect the effectiveness of green investment and governance in different ways than in developed countries.

Future research should add a more extended observation period to see the effect of green investment. Other effective measurements can be added, or if continuing the measurements in this research, it can classify similar total assets so that the results represent assets of different sizes. Similarly, GCG measurement does not capture other important aspects such as governance principles and internal control mechanisms.

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