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# The Effect Of Green Financing, Corporate Social Responsibility and Cost Efficiency On The Profitability Of Manufacturing Companies In Indonesia: The Role Of Good Corporate Governance As A Moderation Variable

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## ABSTRACT
This study aims to examine the Green Financing, Corporate Social Responsibility (CSR), and Cost Efficiency impact on Profitability, with Good Corporate Governance (GCG) as the moderator. This uses a Linear Regression and Moderated Regression Analysis. The population is the manufacturing companies listed on the IDX for the 2020-2024. Partial testing shows that CSR and cost efficiency affect profitability, while green financing does not have a significant influence. Simultaneous testing indicates that all variables significantly influence profitability. However, the test of variable moderation shows that GCG does not moderate the impact of green financing on profitability, but moderates the impact of CSR and cost efficiency on profitability significantly. This implies that strengthening CSR and achieving operational efficiency are key to driving increased company profitability, as reinforced by GCG.

**Keywords:** Green Financing, Corporate Social Responsibility, Cost Efficiency

## INTRODUCTION
Profitability is a primary measure of a business's success. Profitability is the measure of profit is earned by a company in relation to its sales, assets, and capital over some period. Valuation of profitability can be accomplished using a range of methods, typically through comparing earnings to the corporation's total assets or equity. Those companies that successfully manage both financial and non-financial assets are generally better off in terms of delivering long-term value. A high bandwidth profit rate is usually read as a signal of strong performance and the company's success, while a relatively low profit rate can show that the company's performance is still not optimal or already bad.

Pressures from climate change, dwindling natural resources, and global regulatory expectations are driving companies toward more sustainable business practices. The manufacturing industry is one of the biggest contributors to greenhouse gas emissions, which means it must find a way to convert production into cleaner and less carbon-emitting methods. Green financing is an important solution in the correlation of investments for environmental

and eco-friendly products, energy efficiency, and clean generation technology development. Green financing, in broad terms, is defined as providing funds for projects or activities that offer environmental benefits, including the reduction of Greenhouse gas emissions, energy efficiency improvements, and sustainable resource management. With this high amount required, the financial sector is expected to provide a major share of funding and be seen as one of the main drivers for economic growth (OECD, 2017).

With societal pressure mounting for sustainability and responsibility, the concept of Corporate Social Responsibility (CSR) has emerged as a fundamental aspect of both modern corporations and institutions. In other words, CSR in Indonesia's manufacturing sector has seen an increase in being directed as a business strategy, developing the positive image of the company itself, creating harmonious relationships with stakeholders, and increasing profits. Doing sustainable CSR can improve customer loyalty as well as the value added of the company, according to (Hudiyono & Safitri, 2022). CSR in this study joins green financing and cost efficiency as one of the drivers of profitability for manufacturing companies. However, CSR implementation to improve financial performance can be enhanced by the grace of Good Corporate Governance (GCG), which is carried out through transparency, effectiveness, and sustainability for CSR implementation that can give a real contribution to increasing revenue in companies.

The profit rate of a company is significantly influenced by cost efficiency. In a time where competition in the field of business is tightening, firms are pressured to make optimal use of resources so as to manufacture products at competitive prices without compromising on quality. Cost efficiency becomes a strategic issue in the Indonesian manufacturing sector because production activities are affected by enabling cost components such as raw materials, energy, labor, and engine management. There is a direct correlation between cost efficiency and profitability. The more effective the management of costs, the higher the achievable profit margin. Cost efficiency could lower the BOPO ratio, also known as the lending profitability ratio, which subsequently led to the increase in return on assets (ROA) that serves as an indicator of the profitability of a company, according to (Moerdianto, 2024).

Furthermore, it is thought that GCG serves as a moderator that amplifies the effect of these three factors. Good governance helps the company to structure its objectives and how it measures performance, as well as how profits will be protected and the flow of money secured from being abused by management. In general, the company's OLA reflects the relationships among management, the board of directors, shareholders, and other stakeholders in formulating and achieving organizational goals. In the manufacturing sector, this ensures that the implementation of CSR and green financing remains in line with the goal of increasing profitability (OECD, 1999). However, various studies have yielded inconsistent results: in some, green financing, CSR, and cost efficiency have been shown to have a positive effect on profits, while others have found no significant effect. Similarly, effective corporate governance is considered capable of reducing agency conflicts and improving financial performance, despite conflicting findings. these differences in results suggest the need for further research. This study examines empirical phenomena and differences with previous research to fill empirical gaps and gain a better understanding of the profitability model.

## LITERATURE

### Stakeholder, Legitimacy and Agency Theory

The stakeholder theory holds that a company is not limited to operating in its own interests but must also provide benefits to its stakeholders. In other words, a company's existence is highly dependent on stakeholder support (Ghozali & Chariri, 2014). Emphasized that legitimacy is crucial to organizations because it depends on societal norms and values.(Ghozali & Chariri, 2014) Responses to these standards highlight the importance of analyzing organizational behavior while considering the environmental context. Legitimacy

theory describes how organizations adjust their activities and values to the norms imposed by society to obtain social acceptance. When this alignment is achieved, the company will gain legitimacy, strengthening the sustainability of its business operations.

Agency theory explains the relationship between the company's owner (principal) and its manager (agent) by highlighting the potential conflict of interest between the two. Differences in goals in company management often arise, especially in efforts to maximize the interests and satisfaction of each party related to the economic results achieved (Amanza, 2012).

**Green Financing and Profitability**

Green financing plays a role in increasing the company's profitability by providing access to interest-based financing that can reduce costs in the long term. (Xu et al., 2020) explain that green financing helps companies balance financial performance with responsibility to encourage sustainable profit growth, a finding supported by (Wang et al., 2022), In addition, green financing not only affects profitability but also strengthens the relationship between CSR practices and the company's financial performance. (H. Nguyen, 2023), In addition, empirical research reveals that green bonds help increase the ROA and ROE of green energy companies in China. (Xu et al., 2020) Green Financing has contributed to the growth of net profit margins in the manufacturing sector (Liu et al., 2021). Referring to the description, the hypothesis he proposed is:

H1: significantly, green financing affects profitability.

**CSR and Profitability**

CSR is understood as a sustainability-based strategic approach that integrates the interests of society and the corporate economy within a shared value-creation framework (Fernando & Lawrence, 2014). CSR is no longer seen as just a philanthropic activity but has become an important instrument in risk management, especially when companies face crises such as the COVID-19 pandemic. In its development, modern CSR emphasizes the integration of ESG (Environmental, Social, Governance) aspects into core business strategies, rather than being limited to complementary activities (Sharma & Choubey, 2021). Various empirical findings indicate a positive relationship between CSR and Profitability, as well as financial stability (Shakil, 2021). Referring to the description, the hypothesis proposed is:

H2: significantly, CSR affects profitability.

**Cost Efficiency and Profitability**

Cost efficiency reflects the company's ability to optimize resource use to a minimum to achieve maximum output without reducing product or service costs (Asih et al., 2025). Cost efficiency is an important operational management indicator that directly influences profitability, especially ROA and ROE (Nurjanah et al., 2025). The study also showed that cost efficiency has a positive, significant relationship with ROA in Pakistan's manufacturing sector. In addition, the application of digital technologies that reduce operational costs has been proven to strengthen the company's profitability, especially in the logistics industry in the Asian region (Saqib & Qin, 2024). Several other factors, such as cost efficiency, are considered important in the IPO context because companies that can reduce operating costs tend to record relatively stable profits after going public. Various empirical findings indicate that cost efficiency has increased bank profitability in Vietnam, especially during periods of fierce competition (H. P. T. Nguyen et al., 2023). Referring to the description, the hypothesis proposed is:

H3: significantly, cost efficiency affects profitability.

**GCG Moderation on Green Financing and Profitability**

Companies with strong GCG implementation, such as an independent board of directors, audit committees, and shareholder rights protection, tend to be more effective at optimizing green financing as a source of profit (Vionika & Handayani, 2025). By implementing high-

quality corporate governance, green-based financial performance can be optimized by increasing information disclosure and channeling funds to activities that support environmental sustainability (Mardhiah & Risman, 2026). In Indonesia, the implementation of GCG has been shown to reduce the impact of green finance on ROA and ROE, especially in the industrial and energy sectors (Asyifa & Endri, 2025). A number of empirical findings also indicate that banks and manufacturing companies with strong governance systems tend to grow profitability through instruments such as green credit and environmentally sound bonds (Hoque et al., 2024). Referring to the description, the hypothesis proposed is:
H4: significantly, GCG moderates the green financing impact on profitability.

**GCG Moderation on CSR and Profitability**

CSR is a form of corporate commitment to sustainable development through ethical and insightful business practices, with an emphasis on community welfare (Carroll, 2021). This study is to see the GCG in moderating the CSR impact on profitability. The effective governance has been proven to affect the success rate of CSR in improving financial performance. This condition ultimately strengthens the legitimacy of CSR implementation. When a company implements strong governance principles such as transparency, accountability, and fairness, CSR programs are no longer just symbolic; they are carried out effectively and have a real impact. Referring to the description, the hypothesis proposed is:
H5: significantly, GCG moderates the CSR impact on profitability.

**GCG Moderation on Cost Efficiency and Profitability**

Cost efficiency, as described by (Mulyadi, 2023), is the ability of the firm to economically utilize its resources in producing specified outputs without reducing efficiency. This concept also summarizes the extent to which companies are capable of optimizing the use of input in production processes so that costs can be controlled and resource utilization becomes more effective (Mowen et al., 2022). GCG implementation leads to an efficiency focus on improving company performance and increasing long-term profit. Implementing good governance also enhances transparency and accountability, which further bolsters the credibility of efficient cost management when backed by open and reliable financial statements. From that description, the suggested hypothesis is:
H6: significantly, GCG moderates the cost efficiency impact on profitability.

**METHOD**

This study covers all manufacturing companies listed on the IDX from 2020 to 2024, totaling 43 entities. The sample was selected from the purposive sample based on the following criteria: (1) it was registered consistently during the study period, (2) the publication of the annual financial report was relatively comprehensive, (3) the data were available for all the research variables, and (4) there was no merger or acquisition in the five-year observation period. So 215 observations were selected.

This study uses secondary data as its main source, obtained from the annual financial statements of manufacturing companies. Data is collected from documentation downloaded from the IDX's official website or the official websites of related companies. It is also a documentation study, using information from publicly available audited financial statements on green financing, CSR, cost efficiency, profitability, and GCG.

A panel data regression was used and processed using EViews. The datasets consisted of 2020 - 2024 time-series data and cross-sectional data. Descriptive statistics were used before testing this hypothesis. Estimation of modeI in the panel data regression was carried out using three approaches, that are Common Effect ModeI (CEM), Fixed Effect ModeI (FEM), and Random Effect ModeI (REM). A five percent significance level is used to determine the best models from the NormItest, MultikoIinerity test, heterogeneity test, autokoreIasi, Chow and

Hausman tests, and then the Lagrange multiplier (LM) test. Hypothesis testing was performed using the coefficient of determination, simultaneous (F-test), and partial tests (t-test). The analysis was done using the F test to see how independent variables affect the dependent variable (Napitupulu et al., 2021), as well as the t test to assess each of those variables. This research employs a Moderation Regression Analysis (MRA) approach to examine the GCG as a moderation in the relationships between Green Financing, CSR, cost efficiency, and profits. Note that the moderation decision is at the 5% level on the interaction coefficient.

## RESULT

### Descriptive Statistics

The following are the descriptive calculations in this study.

**Table 1**
**Descriptive Analysis**

| Variable | N | Minimum | Maximum | Red | Std. Deviation |
|---|---|---|---|---|---|
| LONG | 215 | -36.89000 | 22.64000 | -0.348182 | 6.026779 |
| GF | 215 | 0.840000 | 1.000000 | 0.869767 | 0.062408 |
| CSR | 215 | 0.870000 | 0.980000 | 0.950930 | 0.030172 |
| EF | 215 | 0.550000 | 1.800000 | 0.936930 | 0.148201 |
| GCG | 215 | 0.220000 | 0.570000 | 0.365056 | 0.060438 |

Source: Eviews 12 (Data processed, 2026)

Referring to Table 1, it shows that the profitability (Y) has been observed a total of 215 times. The lowest (minimum) value recorded was at -36.89000, while the highest (maximum) touched 22.64000. The median is 0.076000, with a mean 0.348182 and its standard deviation 6.026779.

Green Financing (GF), which is an independent variable (X1), was also observed 215 times. The lowest value (minimum) is 0.840000, while the highest (maximum) is 1.000000. The median is 0.840000, along with a mean of 0.869767 and its standard deviation. deviation 0.062408.

CSR, which is an independent variable (X2), was observed across 215 observations. The lowest (minimum) is 0.870000, while the highest (maximum) is 0.980000. The median was 0.960000, along with the mean 0.950930 and its standard deviation 0.030172.

Cost Efficiency (EF), which is an independent variable (X3), was also observed 215 times. The lowest (minimum) is 0.550000, while the highest (maximum) is 1.8000000. The median is 0.920000, with a mean\ 0.936930 and its standard deviation 0.148201.

GCG, a moderating variable (Z), was observed across a total of 215 observations. The smallest (minimum) is 0.220000, while the largest niIai (maximum) is 0.570000. The median was 0.330000, with an average of 0.365056 and its standard deviation. deviation 0.060438.

### Model Selection Analysis

This study used a panel data regression. To find the best model, the Chow, the Hausman, and the LM tests were used.

**a. Chow Test**

The Chow test is used to see whether the more appropriate model is CEM or FEM. The result is shown below.

**Table 2**
**Chow Test**

| Effects Test | Statistics | D.F | Prob |
|---|---|---|---|
| Cross-section F | 6.369957 | (42.169) | 0.0000 |
| Cross-section Chi-square | 204.030091 | 42 | 0.0000 |

Source: Eviews 12 (Data processed, 2026)

Referring to Table 2, the p-value of the Chi-square cross-section at 0.0000 does not touch the significance of α = 0.05. Because the probability value did not touch the set level of significance (0.0000 < 0.05), indicating that Ha was accepted. This concludes that the more appropriate model for this study is FEM rather than CEM.

**b. Hausman Test**

Furthermore, the Hausman test is carried out to see which of the FEM or REM is the most appropriate to use. The result is in the following Table.

**Table 3**
**Hausman Test**

| Test Summary | Chi-Sq. Statistic | Chi-Sq. D.F. | Prob. |
|---|---|---|---|
| Cross-section random | 3.177729 | 2 | 0.2042 |

Source: Eviews 12 (Data processed, 2026)

Referring to Table 3 above, the p was 0.2042. Because the probability exceeds the 0.05 significance (0.2042 > 0.05), H0 is accepted. It concludes that REM is appropriately used in this study compared to FEM.

**c. Lagrange Multiplier Test**

To strengthen the validity of the model selection, this study then runs the Lagrange Multiplier (LM) test.

**Table 4**
**LM Test**

Lagrange Multiplier Tests for Random Effects
Null hypotheses: No effects
Alternative hypotheses: Two-sided (Breusch-Pagan) and one-sided (all others) alternatives

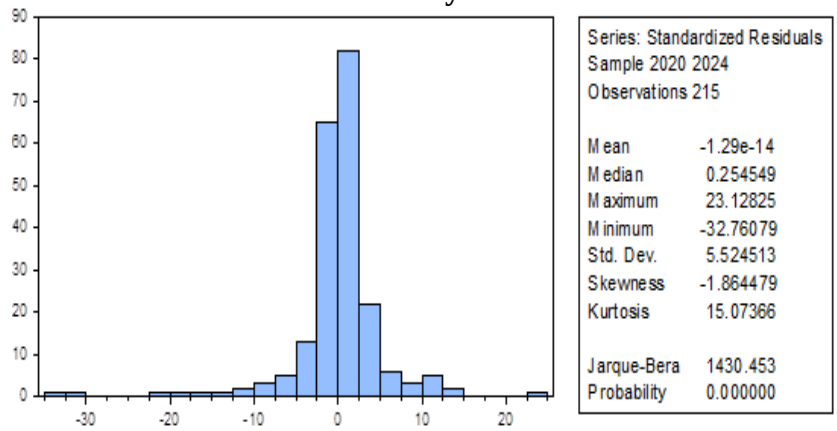
| | Test Hypothesis | | |
|---|---|---|---|
| | Cross-section | Time | Both |
| Breusch-Pagan | 95.29934<br>(0.0000) | 0.011200<br>(0.9157) | 95.31054<br>(0.0000) |
| Honda | 9.762138<br>(0.0000) | -0.105830<br>(0.5421) | 6.828041<br>(0.0000) |
| King-Wu | 9.762138<br>(0.0000) | -0.105830<br>(0.5421) | 2.777574<br>(0.0027) |
| Standardized Honda | 10.53959<br>(0.0000) | 0.210794<br>(0.4165) | 2.814338<br>(0.0024) |
| Standardized King-Wu | 10.53959<br>(0.0000) | 0.210794<br>(0.4165) | 0.150814<br>(0.4401) |
| Gourieroux, et al. | -- | -- | 95.29934<br>(0.0000) |

Referring to Table 4, the LM test indicates that the Breusch-Pagan statistic (95.29934) at the 0.0000 (<0.05) level of significance indicates an individual effect (cross-section effect) in the model. Based on the Chow, Hausman, and LM tests, the most appropriate mode is REM. The Chow test showed FEM to be better than CEM, but the Hausman test (p = 0.2042) confirmed that REM was more appropriate. Therefore, the entire panel data regression analysis uses REM.

**Classical Assumption**

**a. Normality**

**Figure 1**
**Normality Test**




A test of normality in Figure 1 showed a $p < 0.05$, indicating that the data are not normally distributed. However, this study yielded 215 observations, so, based on the Central Limit Theorem (CLT), the distribution will be approximately normal even though the population distribution is abnormal. Thus, the assumption of normality can be set aside, and the regression model remains valid and stable in the proposed hypothesis test (Ghozali, 2018).

**b. Multicollinearity**

**Table 5**
**Multicollinearity Test**

| | X1 | X2 | X3 | Z1 |
|---|---|---|---|---|
| X1 | 1.000000 | 0.302876 | -0.229756 | 0.088164 |
| X2 | 0.302876 | 1.000000 | -0.248651 | 0.113237 |
| X3 | -0.229756 | -0.248651 | 1.000000 | 0.001762 |
| Z1 | 0.088164 | 0.113237 | 0.001762 | 1.000000 |

Referring to Table 5, the collinearity test reveals that none of the free variables exceeded 0.80, with values of 0.302, -0.229, 0.088, -0.248, 0.113, and 0.001, respectively. This proves there is no multicollinearity between variables, which allows multiple regression to be used reliably in further analysis (Ghozali, 2016:83).

**c. Heteroskedasticity**

**Table 6**
**HeteroskedasticityTest**

| Variable | Coefficient | Std. Error | T-Statistics | Prob. |
|---|---|---|---|---|
| C | 1.818578 | 3.032260 | 0.599743 | 0.5493 |
| X1 | -0.591548 | 1.460032 | -0.405161 | 0.6858 |
| X2 | -1.669300 | 3.042502 | -0.548660 | 0.5838 |
| X3 | 0.988493 | 0.600672 | 1.645643 | 0.1013 |
| Z1 | -0.416789 | 1.410481 | -0.295494 | 0.7679 |

Referring to Table 6, the heteroskedasticity test result indicate that the p for all variables in both equations exceed the 5% significance level. Namely, 0.685, 0.583, 0.101, and 0.767 indicate that the data passed the heteroscedasticity test, so it reveals that there is no heteroscedasticity problem in the model.

**d. Autocorrelation**

**Table 7**
**Durbin Watson Test**

| ModeI | Durbin Watson |
|---|---|
| 1 | 1.742801 |

Referring to Table 7, the Durbin-Watson of 1.742801, lies between 1 and 3 and does not touch 3. This shows that the residual values do not exhibit excessive autocorrelation. Because it meets the criteria above, namely the number D-W -2 to +2, it means that there is no autocorrelation.

**Linear Regression**

**Table 8**
**Regression test result (The Influence of Green Financing, CSR, Cost Efficiency on Profitability)**

| Variable | Coefficient | Std. Error | t-Statistic | Prob. |
|---|---|---|---|---|
| C | 26.67184 | 22.95203 | 1.162069 | 0.2465 |
| Green Financing | -2.012343 | 11.43000 | -0.176058 | 0.8604 |
| CSR | 14.32464 | 23.73021 | 0.603646 | 0.0467 |
| Cost Efficiency | 13.04900 | 3.623630 | 3.601085 | 0.0004 |
| GCG | 1.583271 | 7.306513 | 0.216693 | 0.8287 |
| R-squared = 0.558744 | | | | |
| Adjusted R-squared = 0.540816 | | | | |
| f-statistic = 3.276562 | | | | |
| Prob. (F-statistic) = 0.001244 | | | | |

Source: Eviews 12 (Data processed, 2026)

Referring to Table 8 of the regression data panel, the equation obtained is as follows:

$$\mathbf{Y = 26.671 – 2.012*X1 + 14.324*X2 +13.049*X3 + 1.5632*Z}$$

Based on the Table 8 results, the Green Financing coefficient was determined to be -2.012343. It means that when the growth of green financing increases by 1 unit, it triggers a decrease in profit margin (ROA) at 2,012 units, holding the values of the other variables constant. The hypothesis of green financing does not affect the profitability of manufacturing companies during the research period. The coefficient of CSR is 14.32464. This shows that an increase of 1 unit in CSR growth results in an increase of 14.32464 units in Profitability (ROA), while all other factors remain constant. This shows that CSR positively influences the profitability of manufacturing companies during the study period. The coefficient of cost efficiency is 13.04900. An increase of one unit in cost efficiency will result in an increase of 13.04900 units in Profitability Index (ROA), if all other variables remain constant. This shows that the probability value does not reach 0.05, indicating that significantly, cost efficiency affects profitability of manufacturing companies in Indonesia. The findings show that in this REM, only the green financing does not affects profitability significantly, while CSR and cost efficiency do.

**Hypothesis testing**

**a. Adjusted R-Squared**

The determination coefficient is a measure of the ability of the model to explain the variation of the dependent variable. The result of the FEM is shown below.

**Table 9**
**Coefficient of Determination**

| | | | |
|---|---|---|---|
| R-squared | 0.558744 | Mean dependent var | -0.139374 |
| Adjusted R-squared | 0.540816 | S.D. dependent var | 4.040491 |
| S.E. of regression | 3.957175 | Sum squared resid | 3288.438 |
| F-statistic | 3.276562 | Durbin-Watson stat | 1.742801 |
| Prob(F-statistic) | 0.001244 | | |

Source: Eviews 12 (Data processed, 2026)

Referring to Table 9, the determination coefficient test reveals that the Adjusted R-Square is 0.540. This study shows that variations in profitability are explained by a combination of variables that are green financing (X1), CSR (X2), and cost efficiency (X3), accounting for 54%. The remaining 46% of the figure is explained by other variables not included in this study.

**b. F Test**

**Table 10**
**F Test**

| | | | |
|---|---|---|---|
| R-squared | 0.558744 | Mean dependent var | -0.139374 |
| Adjusted R-squared | 0.540816 | S.D. dependent var | 4.040491 |
| S.E. of regression | 3.957175 | Sum squared resid | 3288.438 |
| F-statistic | 3.276562 | Durbin-Watson stat | 1.742801 |
| Prob (F-statistic) | 0.001244 | | |

Source: Eviews 12 (Data processed, 2026)

Referring to Table 10, the F-statistic was obtained at 0.001244. Because this significance does not reach the 0.05 level (0.000 < 0.05), it shows that Ha is accepted. This shows that, simultaneously, Green Financing (X1), CSR (X2), and Cost Efficiency (X3) have a significant influence on Profitability (Y). This F test showed that the variables remained integral and complemented each other in providing explanations of financial performance. This indicates that profitability cannot be observed on one side alone, but is the result of the complex interaction among green investment policies, social commitment, and operational cost control.

**c. T-test**

A partial test (t-test) is conducted to assess the influence of each independent on the dependent variable. The decision criteria are based on this significance: when the probability is < 0.05, the independent is considered to have a significant effect on the dependent. The result of the T-test is displayed below.

**Table 11**
**T-test**

| Variable | Coefficient | Std. Error | T-statistic | Prob. |
|---|---|---|---|---|
| C | 26.67184 | 22.95203 | 1.162069 | 0.2465 |
| Green Financing | -2.012343 | 11.43000 | -0.176058 | 0.8604 |
| CSR | 14.32464 | 23.73021 | 0.603646 | 0.0467 |
| Cost Efficiency | -13.04900 | 3.623630 | -3.601085 | 0.0004 |
| GCG | 1.583271 | 7.306513 | 0.216693 | 0.8287 |

Source: Eviews 12 (Data processed, 2026)

First, the p of 0.860 (> 0.05) indicates that Ha1 is rejected. This concludes that partially, green financing does not significantly affect profitability. Second, the p 0.046 < 0.05 shows that Ha2 is accepted. This means that CSR significantly influences profitability. Third, the p-value 0.000 < 0.05 shows that Ha3 is accepted. This forms empirical evidence that cost efficiency has a significant influence on Profitability.

**d. Moderation Analysis with MRA**

MRA is applied to test whether GCG moderates the independent and dependent variables. The test proceeds by inserting the interaction variable into the regression model to empirically analyze the moderation effect. The moderation regression result is shown below.

**Table 12**
**MRA**

| Variable | Coefficient | Std Error | t-Statistic | Prob. |
|---|---|---|---|---|
| C | 83.45199 | 108.5567 | 0.768741 | 0.4429 |
| Green Financing | -17.69351 | 44.93577 | -0.393751 | 0.6942 |
| CSR | 17.48503 | 115.4426 | 0.151461 | 0.0088 |
| Cost Efficiency | 55.96102 | 19.53816 | 2.864190 | 0.0046 |
| GCG | -129.4435 | 296.0428 | -0.437246 | 0.6624 |
| Green F (GCG) | 44.51056 | 118.2565 | 0.376390 | 0.7070 |
| CSR (GCG) | 14.42942 | 322.4411 | 0.044751 | 0.0096 |
| Cost Efficiency (GCG) | 113.3362 | 51.10084 | 2.217894 | 0.0276 |

Source: Eviews 12 (Data processed, 2026)

Referring to Table 12 of the MRA test results, the interaction between Green Financing and the GCG had a p 0.707, which exceeded the standard significance level of 0.05. These findings indicate that the GCG is unable to moderate the green financing impact on profitability (Ha4 is rejected). Furthermore, the interaction between CSR and the GCG (Z) shows a p 0.009, which is lower than 0.05. This shows that the GCG can moderate and strengthen the influence of CSR on Profitability (Ha5 is accepted). Next, the interaction between Cost Efficiency and GCG was significant at 0.027, not exceeding the 0.05 threshold. These findings provide proof that the GCG can moderate and strengthen the cost efficiency impact on Profitability (Ha5 is accepted).

Based on the criteria of Sharma et al. (1981), GCG in this study is classified as quasi-moderation in the CSR and cost efficiency effect on profitability. This is evidenced by the significance of the parameter coefficient of variable GCG as an independent variable, as well as the significance of the interaction coefficient X2xZ and X3xZ. Meanwhile, in the relationship between green financing (X1) and profitability, GCG serves only as a predictor, as the interaction effect is not statistically significant, while the direct effect remains significant.

## DISCUSSION

### Green Financing on Profitability

The test results show that green financing has a p 0.8604 and a coefficient -2.012343. This shows that the p exceeds the significance threshold of $\alpha = 0.05$, indicating that green financing did not affect the profits of manufacturing companies during the study period. Although the coefficient is negative (-2.012343), its insignificance suggests that the company's environmental strategy does not significantly affect profits. The majority of Green Financing is a long-term strategic investment or regulatory compliance, not a short-term profit generator.

This is in line with the conclusion of (Hasanah & Hariyono, 2022), which found that the market has not fully recognized companies that implement green financing, suggesting that it

has failed to increase the companies' ROA in the short term. According to (Friyanto & Haritsar, 2024), the adoption of green banking or green financing does not significantly affect profitability due to the small proportion of financing and high implementation costs.

**CSR on Profitability**

CSR has a p 0.0467 and a coefficient 14.32464. This shows that the p did not approach 0.05, indicating that CSR positively affected the profits of manufacturing companies during the study period. This shows that an increase in the company's disclosure of its social responsibility will correlate with an increase in the company's profits. This finding supports the Legitimacy Theory, which states that organizations strive to operate in accordance with established social standards. By implementing CSR initiatives, the company builds a strong reputation and earns the public's and stakeholders' trust.

**Cost Efficiency on Profitability**

Cost Efficiency formed a p of 0.0004 and a coefficient of 13.04900. This shows that the p does not approach 0.05, indicating a significant and beneficial impact of cost efficiency on the profitability of manufacturing companies in Indonesia. The results of the hypothesis test showed that Cost Efficiency was a critical determinant of profitability among the 215 manufacturing companies selected for this study.

A positive reading of 13.04900 indicates that the company's ability to control and minimize operating costs is correlated with an increase in profit margins. The conclusion of this study supports the findings of (Jatmiko, 2025), who stated that cost efficiency is a key factor affecting companies' profitability. The ratio of operating costs to lower operating income is correlated with increased profitability.

**GCG Moderates the Green Financing on Profitability**

The correlation between green financing and GCG yielded a p 0.707, which is above the significance threshold of 0.05. This research suggests that GCG is unable to reduce the impact of Green Financing on profits. The findings show that the ratio of GCG on a company's board of directors does not significantly affect the effectiveness of Green Financing in increasing corporate profitability.

This phenomenon is caused by the dominance of executive decisions (Board of Directors) and mandates from the government (as supervisor of Sustainable Finance) in Green Financing policies, so that the supervision of GCG is limited to being normative and lacks involvement in strategic aspects that can directly encourage profitability. The findings of this study are in line with (Supatminingsih & Wicaksono, 2020), which show that the GCG mechanism, especially the Independent Commissioner, often functions only as a symbol of compliance with regulations and consequently fails to encourage the company's financial performance through social or environmental initiatives.

**GCG Moderates the CSR on Profitability**

The relationship between CSR and GCG had a p 0.009, which does not exceed 0.05. These results show that GCG can effectively manage and increase the impact of CSR on Profits. The effectiveness of GCG in regulating CSR shows that supervision by the Independent Commissioner effectively ensures that the CSRI initiative carried out by the company is not limited to operational costs, but becomes a strategic investment.

This result supports the conclusion of (Jensen & Meckling, 1976) (agent theory) that supervision by independent entities can prioritize managers' interests over shareholders' interests, especially in CSR initiatives that generate profits. (Rustiarini, 2010) found that the existence of a GCG mechanism can encourage a gap between CSR disclosure and corporate

profitability. (Solikhah & Winarsih, 2016) stated that a strong governance framework fosters the effectiveness of corporate social initiatives, which results in real economic performance.

**GCG Moderates the Cost Efficiency on Profitability**

The ratio between cost efficiency and GCG is 0.027, which does not exceed 0.05. This research shows that GCG can minimize and mitigate the impact of Cost Efficiency on Profits. Cost efficiency inherently increases profits by reducing expenses. These findings show that the presence of GCG significantly enhances the effect of efficiency on profits. This happens because the GCG contributes to ensuring that the various efficiency measures implemented are not limited to reducing unsustainable short-term costs, but also to improving the efficiency he targets strategically. In accordance with the Agency Theory, independent board members are responsible for emphasizing the manager's tendency to carry out extravagant actions for personal gain, ensuring that every rupiah saved directly contributes to the company's net profit. The conclusions of this study align with those of (Fama & Jensen, 1983), who stated that independent boards serve as a highly effective monitoring system to ensure operational efficiency within the company. (Bayunitri et al., 2024) found that GCG can encourage financial performance by supervising operational management to ensure effective management.

## CONCLUSION

The result revealed that green financing does not have an impact on profits significantly. This shows that the level of green financing is not the main factor affecting a company's short-term profits. CSR affects profitability significantly. The company's commitment to social issues has been proven to foster market confidence, thereby influencing financial success. Cost efficiency affects profitability significantly. Operational cost management is one of the main factors that determine the company's profitability. In the moderation test, GCG, as a moderating factor, does not influence the green financing impact on profitability. This indicates that GCG in this sector has not yet played a role in strengthening the green financing connection on profitability. Conversely, GCG significantly moderates CSR and cost efficiency in driving profitability. This demonstrates that GCG can be a driving force behind the effectiveness of CSR and cost efficiency in increasing profitability. These findings strengthen theoretical foundations in academic and research development and serve as a basis for developing practical policies for the manufacturing industry in Indonesia.

From the study’s findings, several recommendations can be made. While Green Financing is not currently a significant driver of profits, companies should continue to adopt it as a strategic, long-term investment to enhance their reputation and comply with regulatory requirements. Furthermore, leaders play a key role in maximizing the benefits of CSR, as effective oversight leads to better implementation and higher corporate profits. Their supervision is also crucial for improving cost efficiency, optimizing operational expenses, and boosting profitability. Next, companies should focus on increasing efficiency, particularly in non-productive operational expenses, as this directly impacts profit growth. Companies must also implement strong GCG, which can encourage CSR strengthening and cost efficiency. Given the limited moderating effect of GCG in this research, future studies are encouraged to explore alternative GCG indicators (such as ACGS scores or perception-based measures) or investigate other potential moderating factors, like environmental management systems. Additionally, extending the research period or including more industrial sectors could yield more comprehensive insights into the impact of green finance.

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