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The Influence of Green Accounting, Corporate Social Responsibility and Company Size on Financial Performance (Empirical Study on Manufacturing Companies in the Basic and Chemical Sectors Listed on the Indonesia Stock Exchange in 2019–2023)

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ABSTRACT

This study assesses the influence of green accounting, corporate social responsibility (CSR), and company size on financial performance. The population consists of 71 manufacturing companies in the basic and chemical industry sector listed on the Indonesia Stock Exchange in 2019–2023. Using purposive sampling, nine companies were selected, yielding 45 firm-year observations. This quantitative study uses secondary data from annual reports, sustainability reports, and the PROPER ratings of the Ministry of Environment and Forestry, analyzed with multiple linear regression in SPSS version 26. Green accounting and CSR have significant negative effects on financial performance, whereas company size has a significant positive effect. Simultaneously, the three variables significantly affect financial performance and explain 63% of its variation.

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Introduction

The basic and chemical industry is one of the three main divisions of Indonesia's manufacturing sector. It produces goods that other sectors need and that are fundamental to everyday life. The sector consists of eight subsectors: metals; glass, porcelain, and ceramics; cement

and derivative products; chemicals; plastics and packaging; pulp and paper; animal feed; and wood and wood processing. Environmental pollution involving companies is still common, which shows that some business actors still have low awareness of the importance of environmental protection. Such incidents have occurred in Indonesia for a long time. For example, in 2020 the Ministry of Environment and Forestry (KLHK) won civil lawsuits against textile companies that polluted the Citarum River basin, namely PT Kamarga Kurnia Textile Industry and PT How Are You Indonesia, while related cases against PT Kawi Mekar and PT United Colour Indonesia were settled or still in progress (Sapulette & Limba, 2021).

The problem of environmental pollution caused by corporate activities is in the spotlight at both the national and global levels (Damayanty et al., 2022). Global concern about the state of the environment continues, largely because of the role of corporations. Companies in Indonesia are estimated to contribute 39.4% of the total environmental damage, including forest fires that have recurred for several years and affected not only Indonesia but also neighboring countries such as Malaysia, Singapore, and Brunei Darussalam (Wijayanti & Dondoan, 2022).

According to Budi and Zuhrohtun (2023), one of the many ways to measure a company's success is to review its financial performance, for example by examining the profit generated during the company's operations. Financial performance is important for investors: comparing current financial performance with that of the previous year provides a reference for investment decisions. Other stakeholders also need an assessment of financial performance when making decisions.

Research Gap and Novelty

Apriliyanti (2023) explained that accounting plays a role in environmental conservation through green accounting, which includes recording and reporting costs arising from environmental activities. The application of green accounting reflects a company's commitment to environmental conservation, can improve financial performance, and helps to raise the company's image in the eyes of customers. Besides green accounting, CSR is another effort to care for the environment and improve community welfare; businesses engage in CSR when they take responsibility for the impact of their operations on society and the environment (Damayanty et al., 2021). In addition to green accounting and CSR, company size can also explain financial performance, because larger companies usually have greater flexibility in accessing resources and are able to present important information to investors, which ultimately influences financial performance (Damayanty & Putri, 2021). Previous findings on these relationships are mixed: some studies report positive effects (Albastiah & Sisdianto, 2022; Wati et al., 2021), while others find no effect (Dita & Ervina, 2021; Fitrifatun & Meirini, 2024). This study therefore re-examines green accounting, CSR, and company size together in the basic and chemical industry sector, which is closely associated with environmental risk.

Literature Review and Hypotheses Development

Stakeholder theory holds that companies must manage the interests of all stakeholders, not only shareholders, to sustain long-term value (Freeman, 2010). Green accounting, measured through the PROPER environmental performance rating, signals environmental responsibility to stakeholders and can enhance corporate image and performance (Apriliyanti, 2023; Albastiah & Sisdianto, 2022).

H1: Green accounting has a positive effect on financial performance.

Legitimacy theory holds that companies seek to operate within the bounds and norms of society in order to obtain and maintain public acceptance (Suchman, 1995). CSR activities and their disclosure are means of gaining such legitimacy, which can support customer and investor trust and, in turn, financial performance (Damayanty et al., 2021; Wati et al., 2021).

H2: Corporate social responsibility has a positive effect on financial performance.

Larger companies have greater flexibility in accessing resources and capital markets and can present more information to investors, which supports better financial performance (Damayanty & Putri, 2021; Prijayanti & Haq, 2023).

H3: Company size has a positive effect on financial performance.

Green accounting, CSR, and company size may also jointly explain variations in financial performance (Khusnah & Kirana, 2023).

H4: Green accounting, corporate social responsibility, and company size simultaneously affect financial performance.

Method

Research Design

This study uses a quantitative design, which tests hypotheses through the statistical analysis of numerical data (Sugiyono, 2019). The study relies on secondary data from annual reports and sustainability reports available on the Indonesia Stock Exchange website (https://www.idx.co.id), the official websites of each company, and the results of the Ministry of Environment and Forestry's PROPER rating assessment for 2019–2023. The population consists of 71 basic and chemical manufacturing companies listed on the Indonesia Stock Exchange during 2019–2023. The firm-year observations are pooled and estimated by ordinary least squares. Before the regression analysis, classical assumption tests (normality, multicollinearity, heteroscedasticity, and autocorrelation) were conducted to ensure that the data are suitable for regression. The research model is:

$$FP_{it} = \alpha + \beta_1 GA_{it} + \beta_2 CSR_{it} + \beta_3 SIZE_{it} + \varepsilon_{it}$$

where FP is financial performance, GA is green accounting, CSR is corporate social responsibility, and $SIZE$ is company size for company i in year t.

Variable Measurement

Table 1 explains how the dependent and independent variables are measured.

Results

Sample Selection

The sample was determined by purposive sampling, that is, by selecting companies that meet criteria relevant to the research problem (Table 2). Nine companies met all criteria, yielding 45 firm-year observations over five years.

Descriptive Statistics

Table 3 shows that green accounting, measured by the PROPER rating, ranges from 2 (Red) to 5 (Gold), with a mean of 3.27 and a standard deviation of 0.62; on average, the sample

Table 1. Variable Measurement

Variable	Definition	Indicator	Scale
Financial performance (Y)	The financial results that describe a company's condition and serve as a reference for decision-making (Ratnaningsih & Alawiyah, 2017)	Return on assets (ROA) = Net profit / Total assets × 100%	Ratio
Green accounting (X1)	The collection, analysis, and reporting of environmental data, including environmental costs, by the company (Rosaline & Wuryani, 2020)	PROPER rating of the Ministry of Environment and Forestry (KLHK PROPER Secretariat, n.d.): Gold = 5, Green = 4, Blue = 3, Red = 2, Black = 1	Ordinal
Corporate social responsibility (X2)	A company's commitment to make a long-term contribution to society (Junardi, 2019)	Number of GRI disclosure items reported by company j: $CSR_j = \sum_i X_{ij}$, where $X_{ij} = 1$ if item i is disclosed and 0 otherwise	Ratio
Company size (X3)	The scale of a company, reflected in its total assets (Hakim & Aris, 2023)	SIZE = Ln(Total assets)	Ratio

Table 2. Sample Selection

No.	Criterion	Number
1	Basic and chemical manufacturing companies consistently listed on the Indonesia Stock Exchange during 2019–2023	71
2	Companies that did not publish financial statements for 2019–2023	(2)
3	Companies that did not record profits during 2019–2023	(7)
4	Companies that did not publish annual reports or sustainability reports with a Global Reporting Initiative (GRI) index	(11)
5	Companies that did not participate in the Company Performance Rating Program in Environmental Management (PROPER)	(42)
	Number of sample companies	9
	Number of years	5
	Total observations	45

Table 3. Descriptive Statistics ($n = 45$)

Variable	Minimum	Maximum	Mean	Std. deviation
Green accounting (X1)	2.00	5.00	3.27	0.62
Corporate social responsibility (X2)	16.00	46.00	29.84	8.07
Company size (X3)	27.38	32.68	30.35	1.53
Financial performance (Y)	0.00	12.00	4.69	2.82

companies are rated between Blue and Green. CSR disclosure ranges from 16 to 46 GRI items, with a mean of 29.84 items and a standard deviation of 8.07, indicating that the extent of CSR disclosure varies across observations. Company size, measured as the natural logarithm of total assets, ranges from 27.38 to 32.68, with a mean of 30.35 and a standard deviation of 1.53. Financial performance has a mean of 4.69 and a standard deviation of 2.82.

Classical Assumption Tests

Table 4 summarizes the classical assumption tests.

Table 4. Classical Assumption Test Results

Test	Method	Result	Conclusion
Normality	K–S (Lilliefors)	$D = 0.116$, Sig. $= 0.153$	Normal
Multicollinearity	Tolerance / VIF	GA: 0.924 / 1.083 CSR: 1.000 / 1.000 SIZE: 0.924 / 1.083	No multicollinearity
Heteroscedasticity	Glejser	GA: Sig. $= 0.199$ CSR: Sig. $= 0.227$ SIZE: Sig. $= 0.145$	No heteroscedasticity
Autocorrelation	Runs test	$Z = 1.210$, Sig. $= 0.226$	No autocorrelation

Normality. The Kolmogorov–Smirnov test yields a significance value of 0.153, which is above 0.05; therefore, the residuals are normally distributed.

Multicollinearity. The tolerance values are 0.924 for green accounting, 1.000 for CSR, and 0.924 for company size, and the corresponding VIF values are 1.083, 1.000, and 1.083. All tolerance values are above 0.10 and all VIF values are below 10; therefore, there is no multicollinearity.

Heteroscedasticity. In the Glejser test, the significance values are 0.199 for green accounting, 0.227 for CSR, and 0.145 for company size, all above 0.05; therefore, there is no heteroscedasticity.

Autocorrelation. The runs test yields an asymptotic significance (2-tailed) of 0.226, which is above 0.05; therefore, there is no autocorrelation.

Multiple Linear Regression Analysis

Table 5. Multiple Linear Regression Results (Dependent Variable: Financial Performance)

Variable	B	Std. error	Beta	t	Sig.
Constant	-9.536	2.246		-4.245	0.000
Green accounting (X1)	-0.5	0.2	-0.242	-2.535	0.015
Corporate social responsibility (X2)	-0.058	0.013	-0.399	-4.351	0.000
Company size (X3)	0.6	0.1	0.729	7.633	0.000
R / R^2 / Adjusted R^2	0.809 / 0.655 / 0.630				
Std. error of the estimate	0.736				
F (Sig.)	25.945 (0.000); df = 3, 41				

Based on Table 5, the estimated regression equation is:

$$\widehat{FP} = -9.536 - 0.5\,GA - 0.058\,CSR + 0.6\,SIZE$$

The constant of -9.536 indicates the predicted financial performance when green accounting, CSR, and company size are zero; because this condition does not occur in practice, the constant is not interpreted substantively. Green accounting and CSR have negative coefficients, whereas company size has a positive coefficient. A one-level increase in the PROPER rating is associated with a decrease of about 0.5 percentage points in ROA, one additional CSR disclosure item with a decrease of 0.058 percentage points, and a one-unit increase in Ln(total assets) with an increase of about 0.6 percentage points, holding the other variables constant.

Hypothesis Testing

Partial test (t *test*). Hypotheses are evaluated using the significance values in Table 5 at the 5% level.

- **H1.** Green accounting has a significant negative effect on financial performance ($B = -0.5$, $t = -2.535$, Sig. $= 0.015$). Because the effect is significant but opposite to the hypothesized positive direction, H1 is rejected.
- **H2.** CSR has a significant negative effect on financial performance ($B = -0.058$, $t = -4.351$, Sig. < 0.001). Because the effect is opposite to the hypothesized direction, H2 is rejected.
- **H3.** Company size has a significant positive effect on financial performance ($B = 0.6$, $t = 7.633$, Sig. < 0.001); therefore, H3 is accepted.

Simultaneous test (F *test*). The F statistic is 25.945 with a significance value below 0.001 (Table 5); therefore, green accounting, CSR, and company size simultaneously have a significant effect on financial performance, and H4 is accepted.

Coefficient of determination. The adjusted R^2 is 0.630, meaning that green accounting, CSR, and company size explain 63.0% of the variation in financial performance, while the remaining 37.0% is explained by variables outside the model.

Discussion

The results show that green accounting has a significant negative effect on financial performance; therefore, H1 is rejected. This finding differs from Fitrifatun and Meirini (2024) and Prijayanti and Haq (2023), who found that green accounting does not affect financial performance, and contradicts Albastiah and Sisdianto (2022), who found a significant positive effect. Green accounting proxied by the PROPER rating of the Ministry of Environment and Forestry is not directly a factor that improves financial performance. Companies incur significant start-up costs when investing in environmentally friendly technologies, changing production methods, and training staff to reduce harmful environmental effects, which can reduce short-term profits, although such investments may pay off in the long run.

The results also show that CSR has a significant negative effect on financial performance; therefore, H2 is rejected. Net profit can decline when the cost of implementing CSR initiatives increases, so that CSR suppresses short-term profitability. This finding differs from Bagiada et al. (2025), Sumariani et al. (2024), and Suaidah and Kartini Putri (2020), who found that social and environmental responsibility has no effect on financial performance, and contradicts Wati et al. (2021), who found a significant positive effect. From the perspective of legitimacy theory, companies may pursue public recognition through CSR even at the expense of short-term profits (Suchman, 1995).

Company size has a significant positive effect on financial performance; therefore, H3 is accepted. Larger companies are better able to attract investors, which increases their access to

capital markets. The positive response of investors improves the company's prospects and can increase its net profit. This finding is consistent with Prijayanti and Haq (2023), Lusiana and Mujiyati (2025), and Yuniza et al. (2025), who found a significant positive effect of company size on financial performance, but differs from Dita and Ervina (2021), who found that company size does not affect financial performance.

Simultaneously, green accounting, CSR, and company size have a significant effect on financial performance; therefore, H4 is accepted. This finding is consistent with Khusnah and Kirana (2023), who found that green accounting, CSR, and company size jointly affect financial performance. Although only company size has a positive partial effect, the three variables together explain a substantial share of the variation in financial performance.

Conclusion and Recommendation

This study finds that company size has a significant positive effect on financial performance, indicating that larger companies tend to perform better financially, whereas green accounting and CSR have significant negative effects on financial performance in the short term. Simultaneously, the three independent variables significantly affect financial performance.

Future research is encouraged to include additional variables, to extend the sample beyond the basic and chemical industry sector (for example, to property and real estate, technology, finance, and other industries), and to use a longer study period to obtain more comprehensive results on the factors that affect financial performance across sectors. Because the data combine nine companies over five years, future studies should also apply panel data estimators (fixed or random effects) or cluster-robust standard errors, which account for repeated observations of the same companies; the pooled estimation used here is a limitation of this study.

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